Public version

Resetting the 2010-15 Default Price-Quality Paths for 16 Electricity Distributors

Date: 30 November 2012

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Contents

Executive Summary

X1   This paper explains our decision to reset the default price-quality paths applying to 16 suppliers of electricity distribution services.[1]

X2   The main impact of this decision will be on the maximum price that each supplier can charge between 1 April 2013 and 31 March 2015.

Resetting the current default price-quality paths

X3   The current default price-quality paths were set, on 30 November 2009, for 17 suppliers of electricity distribution services.[2] Each of these paths specifies the maximum price, and quality standards, that a supplier must comply with during the current regulatory period, ie, 1 April 2010 to 31 March 2015.

X4   As required under Part 4 of the Commerce Act 1986 (the Act), we had to set these paths prior to establishing the key rules, requirements and processes of regulation, which are collectively known as 'input methodologies'. At the time, we recognised that each supplier's path may be reset when input methodologies were available.

X5   Now, as part of the transition to the new regime, we have reset the default price-quality paths applying to 16 suppliers. This decision follows the final re-determination of input methodologies, which occurred on 30 November 2012.

X6   We would only reset a supplier's path if we were confident that the purpose of Part 4 would be promoted. In the first instance, we must be satisfied that a materially different path would have been set for the supplier, had input methodologies applied at the time.[3]

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[1]   We have not reset the default price-quality path applying to Orion New Zealand, owing to the situation caused by the Canterbury Earthquakes. Orion New Zealand is expected to propose a customised price-quality path in February 2013, which will allow us to fully consider its particular circumstances.

[2]   Refer: Commerce Commission, *Initial Reset of Default Price-Quality Path for Electricity Distribution Businesses Decisions Paper,* 30 November 2009.

[3]   Refer: s 54K(3) of the Act.

X7   In summary, our analysis indicates that a materially different path would have been set for each supplier, had input methodologies applied on 30 November 2009. In particular, two key adjustments would have been made:

X7.1   as we noted when the paths were set, the price allowed in the first year of the regulatory period would have been adjusted, based on the current and projected profitability of each supplier;[4] and

X7.2   the annual rate of change in price allowed during the regulatory period would also have been adjusted, to exclude the impact of the recent change in Goods and Services Tax (GST).[5]

X8   Applying input methodologies also results in a number of other structural and specific changes to the path, such as the treatment of avoided transmission charges, which reflect the unique and transitional nature of this mid-period reset.

X9   As a consequence, and to promote the purpose of Part 4, we have reset each supplier's path in accordance with the relevant statutory processes.

New price limits are set out in the determination

X10   The determination that we have published for this reset sets out the new price limits for each supplier. The two main features are:

X10.1   the maximum revenue that each supplier can expect to recover through prices in 2013/14; and

X10.2   the rate of change in price allowed on 1 April 2014, prior to any claw-back amounts being applied, and the applicable amount of claw-back.

X11   All of the proposed changes will take effect from 1 April 2013.[6]

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4   The supplier's starting price is important because it anchors the price changes that are allowed until the end of the regulatory period.

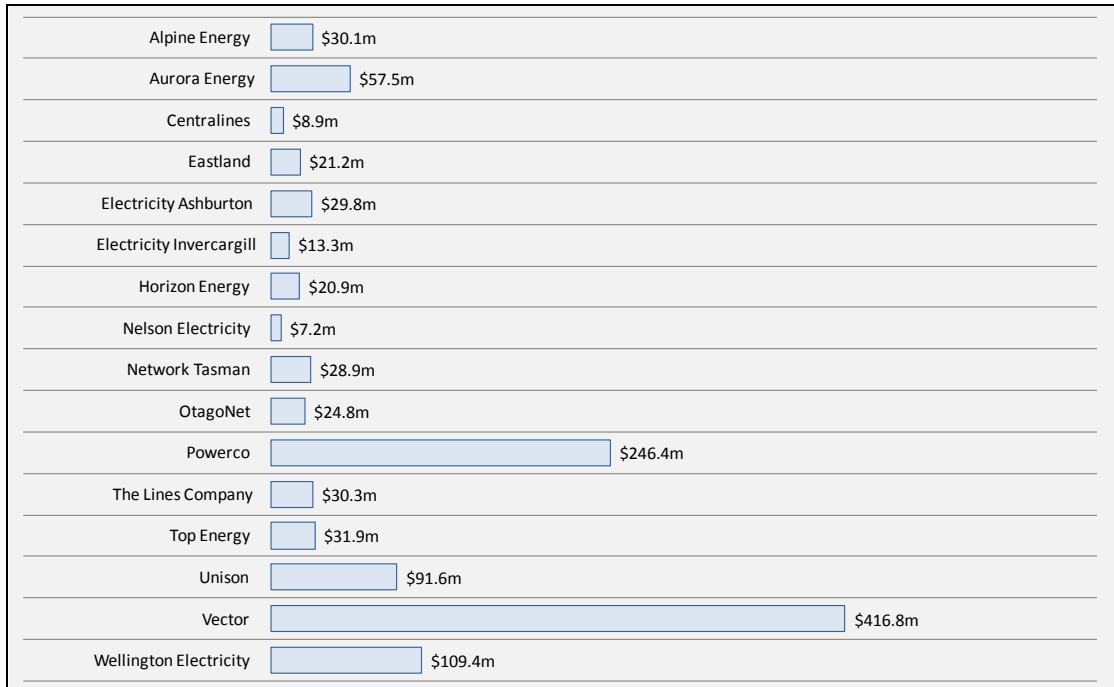5   The rate of change is expressed with reference to changes the Consumer Price Index (CPI) in the form 'CPI-X', where X is a percentage differential known as the X factor. Excluding the impact of the October 2010 change in GST from the CPI would reduce prices by approximately 2%.

6   All businesses will still be required to report compliance against the determination that applied for the 2012/13 year.

Maximum revenue expected in 2013/14

X12   Figure X1 below shows the amount of revenue that we expect each distributor will earn in 2013/14 as a result of this decision.[7]

Figure X1: Maximum revenue expected in 2013/14

Distributor	Revenue
Alpine Energy	$30.1m
Aurora Energy	$57.5m
Centralines	$8.9m
Eastland	$21.2m
Electricity Ashburton	$29.8m
Electricity Invercargill	$13.3m
Horizon Energy	$20.9m
Nelson Electricity	$7.2m
Network Tasman	$28.9m
OtagoNet	$24.8m
Powerco	$246.4m
The Lines Company	$30.3m
Top Energy	$31.9m
Unison	$91.6m
Vector	$416.8m
Wellington Electricity	$109.4m

Price change allowed on 1 April 2014

X13   The change in price allowed between 1 April 2013 and 1 April 2014 will depend on:

X13.1   the rate of change in price allowed between 1 April 2013 and 1 April 2014, prior to the application of any claw-back amounts; and

X13.2   the amount of claw-back to be applied in 2014/15.

X14   In practice, both of these factors will work in combination to determine the price change allowed on 1 April 2014. However, both factors are set out separately in the determination.

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[7]   Importantly, actual revenue in 2013/14 may differ from the amounts shown. For example, suppliers may be able to grow their quantities faster than we have assumed, or may choose to price below their price cap. Orion is not shown on the chart below because we do not propose to reset Orion's default price-quality path at this time.

X15 Table X1 below shows the average rate of change in the price each supplier is allowed between 1 April 2013 and 1 April 2014, prior to the recovery of any claw-back amounts. For most suppliers, the rate of change for that year is CPI-0%.[8] For other suppliers, however, the rate of change is higher.

Table X1: Allowable rate of change for each supplier[9]

Supplier	Average rate of change in allowed price (1 April 2013 to 1 April 2014)
Alpine Energy	CPI+10%*
Aurora Energy	CPI-0%
Centralines	CPI+10%*
Eastland	CPI-0%
Electricity Ashburton	CPI-0%
Electricity Invercargill	CPI-0%
Horizon Energy	CPI-0%
Nelson Electricity	CPI-0%
Network Tasman	CPI-0%
OtagoNet	CPI-0%
Powerco	CPI-0%
The Lines Company	CPI+10%*
Top Energy	CPI+10%*
Unison	CPI+8%*
Vector	CPI-0%
Wellington Electricity	CPI-0%

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[8] This constraint is based on the long-run average productivity improvement rate achieved by suppliers in New Zealand, as required under s 53P(6) of the Act.

[9] Note that the changes shown refer to the average change in the price that suppliers are allowed to charge, prior to any claw-back amounts being applied. Suppliers may increase their prices at a faster rate if they choose to price below the price cap in the preceding year.

X16   To minimise price shocks to consumers, claw-back will not be applied in 2014/15 for the suppliers denoted with an asterisk in the Table X1. Since these suppliers will already be allowed to increase prices by more than CPI+5%, the application of claw-back will be deferred until the next regulatory period.

X17   For the other suppliers, the practical impact of applying claw-back in 2014/15 is that the price change on 1 April 2014 will be broadly similar to the price change that occurs on 1 April 2013.[10] Our estimates of these price changes are set out overleaf.

Significant adjustment to prices across distributors—Less pronounced impact overall

X18   Our decision will result in significant adjustments to prices for individual distributors on 1 April 2013, but the overall impact across the sector will be less pronounced. The weighted industry average price change for distribution services on 1 April 2013 will be approximately CPI–1.1%.

Impact on distribution line charge component of consumer bills

X19   Figure X2 overleaf provides an indication of the average adjustment to the distribution line charge component of consumer bills for each supplier.[11] These values reflect our assessment of the change in each supplier's allowed revenue in 2013/14 before and after the adjustment. It is therefore not the year-on-year change in allowed prices, as this would also include a CPI adjustment.
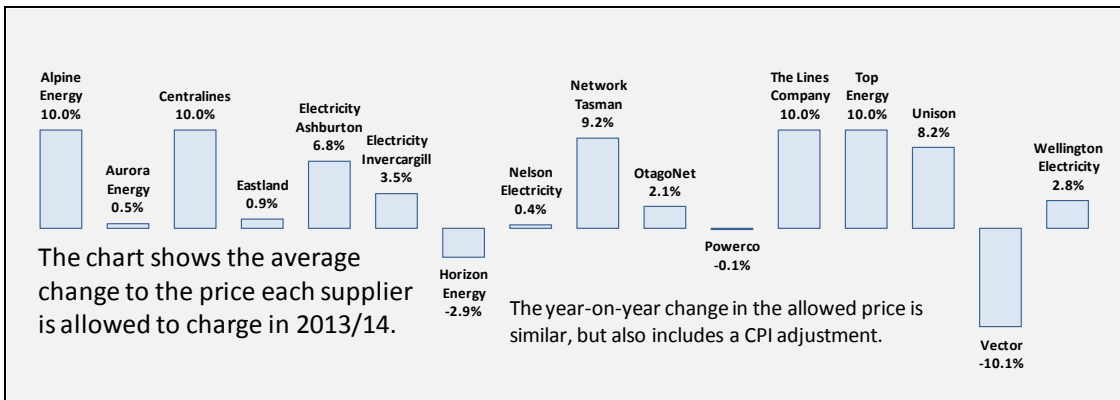
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[10]   As explained in Chapter 6, we will apply claw-back to allow all suppliers the opportunity to earn a normal return from 1 April 2012. The suppliers that are able to claw-back revenues in 2014/15 will therefore be allowed to recover the present value of the shortfall in revenues occurring in 2012/13. This will compensate those suppliers for the impact of the delay to the process to reset the default price-quality path.

[11]   Guidance on how to interpret these figures is provided in paragraphs 4.20 to 4.22 of this paper. Notably, the figures do not reflect the likely impact on retail prices (which include transmission charges and the cost of generated energy). Nor do the figures reflect the likely impact on individual consumers, or groups of consumers, because suppliers are able to vary their pricing structure. We also note that our estimates are based on suppliers pricing up to the price cap, which they may not be doing.

Figure X2: Adjustment to distribution prices on 1 April 2013

The chart shows the average change to the price each supplier is allowed to charge in 2013/14.

The year-on-year change in the allowed price is similar, but also includes a CPI adjustment.

Realigning forecast costs and revenues

X20   The estimates shown in Figure X2 above reflect our intent to realign forecast revenue with costs for each supplier. Figure X3 below shows our estimate of the difference between the revenues expected between 1 April 2012 and 31 March 2015 before and after applying the new price limits.

Figure X3: Forecast revenues minus forecast costs (1 April 2012 to 31 March 2015)[12]

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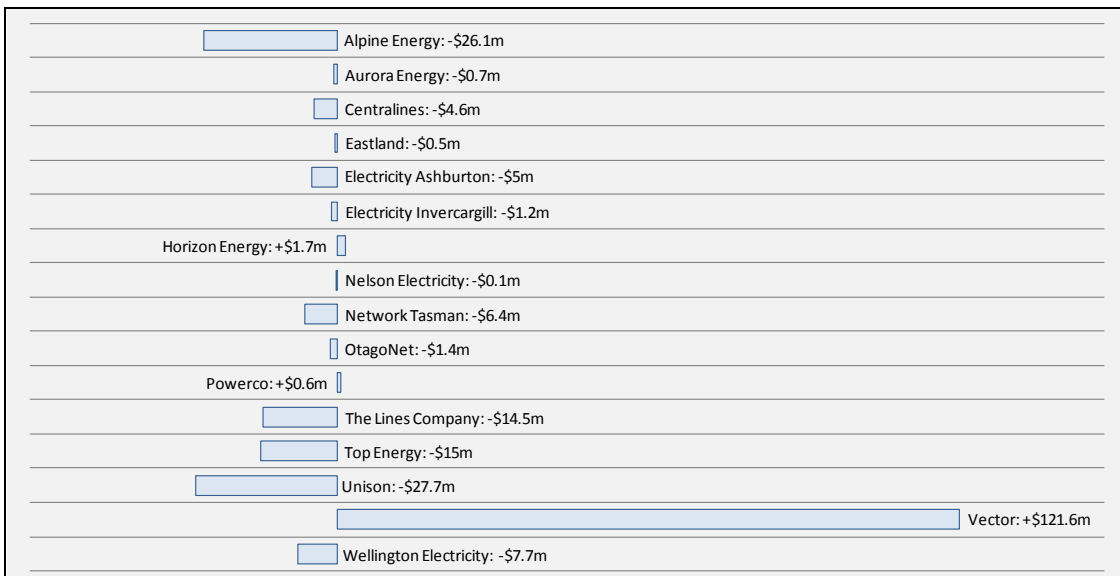
[12]   The figures shown are present values as at 1 April 2012.

1.   Introduction

Purpose of this paper

1.1   This paper provides an overview of, and reasons for, our decision to reset the default price-quality paths applying to 16 suppliers of electricity distribution services. The main impact of this decision will be on the maximum prices that each of these suppliers can charge between 1 April 2013 and 31 March 2015.

Resetting the current default price-quality paths

1.2   The current default price-quality paths were set, on 30 November 2009, for 17 suppliers of electricity distribution services.[13] Each of these paths specifies the maximum prices, and quality standards, that a supplier must comply with during the current regulatory period, ie, 1 April 2010 to 31 March 2015.

1.3   As required under Part 4 of the Commerce Act 1986 (the Act), we had to set these paths prior to establishing the key rules, requirements and processes of regulation, which are collectively known as 'input methodologies'. At that time, we recognised that each supplier's path may be reset once input methodologies were determined.

1.4   Input methodologies were subsequently published in December 2010; however, they could not be applied to default price-quality paths until they were re-issued (or 're-determined').[14] The re-determination process was required because certain matters were not originally specified as applicable to default price-quality paths.

1.5   We completed the process for re-determining input methodologies on 30 September 2012. In this paper, we refer to the input methodologies for default price-quality paths, including those originally determined in December 2010, as 're-determined input methodologies'.[15]

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[13]   Refer: Commerce Commission, *Initial Reset of Default Price-Quality Path for Electricity Distribution Businesses Decisions Paper,* 30 November 2009. We do not propose to reset Orion New Zealand's default price-quality path at this time (refer paragraph 1.19 below).

[14]   We were required by the High Court to re-determine the input methodologies for cost allocation, asset valuation, and the treatment of taxation so that they were specified as applicable to default price-quality paths; refer: *Vector Limited v Commerce Commission* HC Wellington, 26 September 2011, Clifford J, CIV-2011-485-536.

[15]   The consolidated version of the determination includes all the matters that were determined in December 2010, as well as the matters that were specified as applicable to default price-quality paths in September 2012. This version of the determination is entitled: Electricity Distribution Services Input Methodologies Determination 2012, November 15 2012.

A materially different path—Promoting the Part 4 Purpose

1.6   Now that the re-determination process is complete, we would only seek to reset a supplier's path if it would better promote the purpose of Part 4 (Part 4 Purpose). In the first instance, we must be confident that a materially different path would have been set for the supplier, had input methodologies applied on 30 November 2009.[16]

1.7   Two key adjustments would have been made on 30 November 2009, had re-determined input methodologies applied at the time:

1.7.1   the price allowed in the first year of the regulatory period (starting price) would have been adjusted, based on the current and projected profitability of each supplier;[17] and

1.7.2   the annual rate of change in price allowed during the regulatory period would also have been adjusted, to exclude the impact of the recent change in Goods and Services Tax (GST).[18]

1.8   A materially different path would therefore have been set for each supplier and, to promote the Part 4 Purpose, we have reset the paths in accordance with the relevant statutory processes.[19] In doing so, we have applied the re-determined input methodologies for default price-quality paths.

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[16]   The power to reset each supplier's default price-quality path may not be exercised later than nine months after input methodologies are published, refer: s 54K(3) and (4). As we discuss in Chapter Two, as a result of directions from the High Court in *Vector Ltd v Commerce Commission* HC Wellington CIV-2011-485-536 (26 September 2011) the 9 months in s 54K(4) will run from the date that input methodologies were re-determined, ie, from 30 September 2012.

[17]   The supplier's starting price is important because it anchors the price changes that are allowed until the end of the regulatory period.

[18]   The rate of change is expressed with reference to changes in the Consumer Price Index (CPI) in the form 'CPI-X', where X is a percentage differential known as the X factor. Excluding the impact of the October 2010 change in GST from the CPI would reduce the CPI price increase by approximately 2%.

[19]   As set out under s 53P of the Act.

Claw-back may be applied if a supplier's path is reset

1.9   As provided for under the s 54K(3) of the Act, we have also considered whether it would be appropriate to apply claw-back if a supplier's default price-quality path is reset. Applying claw-back would mean that either:[20]

    1.9.1   the supplier has to lower its prices on a temporary basis, to compensate consumers for some or all of any over-recovery that occurred under the prices previously charged; or

    1.9.2   the supplier is able to recover some or all of any shortfall in its revenues that occurred under the prices previously charged.

1.10   Any claw-back must be spread over time to minimise undue financial hardship to the supplier, or price shocks to consumers.[21]

How we have finalised our approach since our revised draft decision

1.11   On 21 August 2012 we released for consultation a revised draft decision to reset each supplier's default price-quality path ('revised draft decision').[22] We based our revised draft decision on the draft input methodologies for default price-quality paths that were published in June 2012, and sought views on our proposed approach.

1.12   We have now finalised our approach:

    1.12.1   by applying the re-determined input methodologies for default price-quality paths; and

    1.12.2   in response to material received since our revised draft decision was published, as well as material provided by suppliers outside of earlier consultation timeframes.

1.13   The following sub sections provide further information about these changes. A numerical analysis of the changes can be found in Attachment L.

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[20]   Refer: s 52D(1) of the Act.

[21]   As required by s 52D(2) of the Act.

[22]   Commerce Commission, *Revised Draft Reset of the 2010-15 Default Price-Quality Paths*, 21 August 2012. We issued a revised draft decision in August 2012 because the draft decision we published in July 2011 was never finalised. This is because we were required by the High Court to re-determine input methodologies before the reset could be made. Our original draft decision was: Commerce Commission, *2010-15 Default Price-Quality Path for Electricity Distribution – Draft Decisions Paper*, 19 July 2011.

Impact of applying re-determined input methodologies

1.14   Applying the re-determined input methodologies changed the way we calculated each supplier's costs when current and projected profitability was assessed. For example, the method for forecasting inflation has been updated, which constrains the way we estimate asset revaluations occurring during the regulatory period. We have also applied the updated method when forecasting changes in revenue.

Other material considered since our revised draft decision

1.15   We have also finalised our approach after considering other material since our revised draft decision was published. The material we have considered includes specific information that we requested from suppliers, as well as submissions and cross-submissions on:

    1.15.1   the revised draft decision; and

    1.15.2   the updated draft determination that was published on 19 November.[23]

1.16   We have also taken into account material that suppliers provided outside of earlier consultation timeframes.[24]

More accurate modelling of changes in allowed prices

1.17   By requesting information from suppliers about the prices they are currently allowed to charge, we have been able to more accurately model the price changes implied by our final decision. Previously, we relied on modelling of changes in each supplier's prices since 2009/10. Now, we have been able to rely on more up-to-date information about the price constraint that each supplier was subject to in 2012/13.

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[23]   Commerce Commission, *Implementation of the Proposed Reset of the 2010-15 Default Price-Quality Path*, 19 November 2012.

[24]   We signalled that we would take into account any relevant information contained in previously submitted material as part of the consultation on this revised draft decision. This material was published on our website alongside submissions and cross-submissions on the revised draft decision. Refer: Letter from Nathan Strong (on behalf of the Electricity Networks Association), *Addressing forecast error – testing forecast validity in setting the SPA IM and DPP*, 29 April 2012; available at http://www.comcom.govt.nz/additional-input-methodologies-for-electricity-and-gas-dpps/. See also: Letter from Allan Carvell (Group General Manager Regulation and Pricing, Vector Limited), *Re: Starting price adjustments for electricity distribution and gas pipeline services*, 5 July 2012; available at: http://www.comcom.govt.nz/2010-2015-default-price-quality-path/.

1.18   In Chapter 4, we present the price changes using our updated and more accurate approach. To demonstrate the change from our revised draft decision on a like-for-like basis, we have also calculated the price change using the method we used previously. This analysis can be found in Attachment L.

Scope of this decision

1.19   This decision sets out how and why we have reset the default price-quality paths that apply to 16 suppliers of electricity distribution services. Orion New Zealand (Orion) will be considered separately in light of the situation caused by the Canterbury earthquakes.[25]

1.20   The changes that we have made to each supplier's path are based on the application of re-determined input methodologies. The re-determined input methodologies do not affect each supplier's quality standards, or the industry-wide X factor.

Material released alongside this paper

1.21   The following material has been released alongside this paper:

1.21.1   the determinations that set out our final decision;

1.21.2   the Excel models that we relied on in reaching our final decision;

1.21.3   the Stata modelling and data files for our econometric analysis;

1.21.4   a report from the NZIER on regional forecast of Gross Domestic Product (GDP); and

1.21.5   an independent review undertaken by Nel Consulting Limited of supplier proposed adjustments to initial regulatory asset values.

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[25]   Orion will remain subject to the default price-quality path set out in the 2010 default price-quality determination. We will continue to work with Orion to develop an appropriate regulatory response to the circumstances surrounding the Canterbury earthquakes. Orion has indicated that it intends to propose a customised price-quality path in the February 2013 window. However, if that does not happen, then we may reset Orion's default price-quality path with updated information after the February window has closed. Should that happen, we intend to determine the reset of Orion's default path by 31 May 2013.

External review of our Excel modelling

1.22 We engaged Ernst & Young to independently review the Excel models supporting this determination. Ernst & Young reviewed various prior versions of these models and the reviews have lead to corrections, clarifications and improvements to the manner in which they reflect the Commission's specification documentation.

1.23 The models released on the Commission's website are subsequent to the versions reviewed, and have not been reviewed by Ernst & Young. The scope of the reviews covered the following:

1.23.1 examining whether the key assumptions set out in the specifications provided by the Commission are properly reflected in the models; and

1.23.2 examining whether the models were constructed appropriately, in so far as their logical integrity and arithmetic is concerned, so as to materially achieve the objective described by the Commission in the specifications document.

1.24 Amongst other things, the following matters were excluded from the scope of the review:

1.24.1 determining the appropriateness, extent and completeness of the assumptions that are included in the specification documents;

1.24.2 verifying any of the assumptions, judgements and commercial risks associated with the specifications, or comment upon the appropriateness of the specifications;

1.24.3 providing assurance that the specifications are consistent with the New Zealand accounting standards;

1.24.4 reviewing macros embedded in the models; and

1.24.5 verifying the inputs to the models.

1.25 Ernst & Young undertook a review of the formulae of certain prior versions and with a view to determining whether the models were constructed appropriately so as to materially achieve the objectives set out in the specifications documents. All issues identified during the course of the review were advised to the Commission with a process to work through and resolve material matters.

1.26   The review did not, and was not intended to, constitute an audit in accordance with New Zealand auditing standards. Moreover, the review does not constitute a guarantee that the models will meet a user's individual requirements or compute correctly in every circumstance. The review covers only those circumstances specifically considered in the specifications document as best understood by the reviewer.

1.27   The Commission provided Ernst & Young with a copy of a table to be posted on the Commission's website which tabulates key outputs of the model for each entity. Ernst & Young has compared those outputs to those generated by the base scenario of the last version of each model reviewed by Ernst & Young and has confirmed that the output depicted in the table corresponds to the output from the review version of the model. As stated above, that version preceded that finally released.

2.   Why we have reset each default price-quality path

Purpose of this chapter

2.1   In this chapter we set out why we consider we can reset each supplier's default price-quality paths under s 54K(3) as a result of re-determining input methodologies. We also explain why we have exercised our discretion in s 54K(3) to reset each supplier's path in the middle of the regulatory period.

Application of re-determined input methodologies

2.2   As noted in the Introduction, applying the re-determined input methodologies at the time each supplier's path was set, ie, on 30 November 2009, would have led to materially different paths to those we determined for suppliers at that time.[26] We explain this further in paragraphs 2.15 to 2.23.

2.3   We have determined the reset so that it can inform regulated suppliers' pricing decisions prior to the start of the next pricing year, ie, 1 April 2013.

Transitional reset at the start of the new Part 4 price-quality regime

2.4   In order to transition suppliers from the previous threshold regime, starting prices for the default price-quality path for the first regulatory period, of 1 April 2009 to 31 March 2010, were required to be those prices the businesses were charging at the end of their old threshold path.[27]

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[26]   We note that some suppliers, such as Vector Limited, responded to our July 2011 Draft Decision stating that s 54K(3) only permits us to reset the current paths to the extent that a specific input methodology would have resulted in a materially different path. Refer: Vector Limited *Submission to the Commerce Commission on Draft Decision and Starting Price Adjustments for Electricity Distribution Businesses* 24 August 2011, paragraph 16. Since then, we have consulted on re-determining input methodologies for default price-quality paths in accordance with *Vector Ltd v Commerce Commission* HC Wellington CIV-2011-485-536 (26 September 2011). The re-determined input methodologies now provide us with the key parts of the package required to set starting prices based on s 53P(3)(b). We note that our decision to reset is consistent with the recent Supreme Court judgment in *Vector Ltd v Commerce Commission* [2012] NZSC 99 paragraphs 67 to 77

[27]   The threshold regime was established under the now repealed Part 4A of the Commerce Act, and the threshold paths were transitioned across under s 54J(2). A threshold path was broadly similar to a default price-quality path in that it set a weighted average price path and the rate of change for the path was set in the form CPI-X%. However, the statutory requirements were very broadly expressed; the threshold could be expressed in quantitative or qualitative terms (refer to the now repealed s 57G). There was no starting price adjustment. There was also no concept of defined input methodologies to be applied to regulatory controls; we were under no requirement to determine a set approach to asset valuation or cost of capital to be applied to a threshold path.

2.5   We were subsequently required to reset each supplier's default price-quality path for the next regulatory period starting on 1 April 2010.[28] This meant we needed to have the reset paths determined by 30 November 2009 to be in place by 1 April 2010.[29]

2.6   The paths had to be reset regardless of whether some, or no, input methodologies had been set for default price-quality paths.[30] However, the paths could then be reset mid-period once input methodologies were determined, if those input methodologies would have led to a materially different path if they had been available for the reset of the path required to start on 1 April 2010 (s 54K(3)).

2.7   The starting prices for the paths to be in place by 1 April 2010 could be set on the basis of either:

    2.7.1   a further roll-over of the prices from the preceding period, that is from the threshold regime;[31] or

    2.7.2   our assessment of a supplier's current and projected profitability.[32]

2.8   To set starting prices on 30 November 2009, we decided to roll over prices that applied at the end of the preceding period. We decided to do this because, as noted at the time, we were still in the process of consulting on the methodologies required to calculate the key inputs to a starting price adjustment based on each supplier's current and projected profitability.[33]

2.9   We consulted on this approach and received near unanimous support for delaying adjusting prices until input methodologies were determined.[34]

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[28]   Section 54K(1).

[29]   Section 53M(7).

[30]   Section 54K(2).

[31]   Section 53P(3)(a).

[32]   Section 53P(3)(b).

[33]   Commerce Commission *Decisions Paper: Initial Reset of the Default Price-quality Path for Electricity Distribution Businesses,* 30 November 2009, paragraphs 4.47 to 4.48 and 4.51 to 4.55.

[34]   Refer: Commerce Commission, *Decisions Paper: Initial Reset of the Default Price-Quality Path for Electricity Distribution Businesses*, 30 November 2009, paragraph 4.52.

Determination of input methodologies

2.10   We subsequently determined input methodologies to apply to the regulation of electricity distribution businesses on 22 December 2010.[35]

2.11   Having determined the input methodologies, we then sought to carry out a mid-period reset of the current default price-quality paths so the reset paths would be in place for the pricing year to start on 1 April 2012.

2.12   We issued a draft reset decision with indicative price adjustments in July 2011. However, the High Court then held that before completing any reset we had to specify the input methodologies for cost allocation, asset valuation, and the treatment of tax as applicable to default price-quality paths.[36]

2.13   The High Court also held that we were to determine a stand-alone starting price adjustment input methodology for resetting prices under s 53P(3)(b). Despite appealing that finding, we started the process of determining that input methodology so as to ensure a reset could be in place for the pricing year to start on 1 April 2013.[37] We also signalled that we may use claw-back to neutralise the impact of the delay to the reset process.[38]

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[35]   The statutory deadline was extended pursuant to s 52U(2) to 30 December 2010. (MO No 183/09 (10 December 2009) *New Zealand Gazette* at 4426.

[36]   *Vector Limited v Commerce Commission* HC Wellington CIV-2011-485-536, 26 September 2011. Pursuant to directions of the High Court, the 9 month period for resetting the default price-quality path under s 54K(3) will run from the point the input methodologies are determined.

[37]   The High Court issued directions to extend the statutory period for determining these input methodologies under s 52U to 30 September 2012 to allow for this redetermination. The time period for any reset of a default price-quality path under s 54K(3) or s 55F(4) was thereby extended to 9 months from the redetermination of these input methodologies.

[38]   Refer to letter sent to suppliers that are subject to default price-quality paths, dated 15 December 2011: www.comcom.govt.nz/2010-2015-default-price-quality-path/

2.14   Our appeal has been upheld by the Court of Appeal and subsequently by the Supreme Court. As a result, we are not required to determine a starting price adjustment input methodology.[39] The Supreme Court has also confirmed that s 54K(3) permits us to reset the starting prices previously set under s 53P(3)(a) for the regulatory period 1 April 2010 to 31 March 2015 on the basis of current and future profitability under s 53P(3)(b).[40]

Why a materially different path would have been set

2.15   The key changes that occur when input methodologies are applied to each supplier's paths are an adjustment to:

2.15.1   the starting price based on the current and projected profitability of each supplier; and

2.15.2   the annual rate of change, due to the definition of the CPI in the specification of price input methodology which excludes the impact of changes in Goods and Services Tax ('GST').

2.16   Prior to doing the full analysis, we expected that setting the default price-quality paths on the basis of an assessment of each supplier's current and projected profitability, as opposed to simply rolling over prices from the previous threshold regime, would lead to materially different paths for most, if not all, suppliers.[41]

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[39]   Refer: *Commerce Commission v Vector Limited* [2012] NZCA 220 and *Vector Ltd v Commerce Commission* [2012] NZSC 99.

[40]   *Vector Ltd v Commerce Commission* [2012] NZSC pp, paragraph 90.

[41]   We also refer to Unison Networks Limited's cross submission on this issue in relation to the reset proposed last year (Unison Networks Limited *Cross-submission on Submissions on 2010-2015 Default Price-quality Path for Electricity Distribution, Draft Decisions Paper* (5 September 2011)). As Unison discusses, unless we were to adopt extreme approaches to starting price adjustments which would be unlikely to meet the Part 4 Purpose, the materiality of the changes resulting from the input methodologies and dispersion in return on investment is such that there would be a material difference.

2.17   The re-determined input methodologies provide us with the detailed building blocks to assess an adjustment to starting prices on the basis of a supplier's current and projected profitability to allow a normal return over the regulatory period.[42] This is because the input methodologies for the cost of capital, asset valuation, cost allocation and the treatment of tax enable us to assess the reasonable costs of a supplier to consider an appropriate return on investment over the regulatory period.[43]

2.18   In order to consider a reset, we previously obtained supplier specific information to allow us to apply the re-determined input methodologies. We have applied this data to make an assessment of the current and projected profitability of each supplier.[44]

2.19   Bearing in mind the changes between our draft and final decisions, the results of our analysis continue to indicate that materially different paths would have been set had we applied the re determined input methodologies in November 2009.

2.20   To provide some context for this conclusion, as noted in our draft decision paper we indicated in 2010 (when determining a materiality threshold for the cost allocation input methodology) that a 1-2% change in revenue from regulated services equates to a 3-6% change in earnings before tax.[45] We therefore considered that even a 1% change in revenue represented a material change from both the supplier and its consumers' point of view.[46]

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[42]   We explain what we mean by a 'normal return' under Part 4 in our paper *Input Methodologies (Electricity Distribution Businesses and Gas Pipeline Businesses) Reasons Paper,* 22 December 2010, paragraph 2.8.6.

[43]   *Input Methodologies (Electricity Distribution Businesses and Gas Pipeline Businesses) Reasons Paper,* December 2010, paragraph 2.8.32.

[44]   Ordinarily we would use the data collected from information disclosure regulation to apply to a reset of default price-quality path. However, due to the timing of the implementation of default price-quality paths, we have had to use s 53ZD notices to obtain the equivalent information.

[45]   Commerce Commission, *Input Methodologies (Electricity Distribution and Gas Pipeline Services) Reasons Paper,* December 2010 paragraphs B3.1 to B3.16.

[46]   A 1% change in revenue is also the threshold for a 'change event' allowing the reconsideration of a customised price-quality path. We also observe that the National Electricity Legislation in Australia for merits appeal to the Australian Competition Tribunal includes a financial threshold for allowing an appeal of 2% of average annual regulated revenue of the regulated network of a supplier.[46] Refer National Electricity (South Australia) Act 1996, s 71F(2).

2.21   Our modelled results indicate all default price-quality paths will change by at least 1% by applying the re-determined input methodologies, either at the beginning of the regulatory period or over the last three years (2012-2015). This is due either to the adjusted profitability based starting price (compared to the roll-over of previous prices), or the adjustment to the rate of change to take account of the change in GST in October 2010.

2.22   Further, there are a number of structural and specific changes to the path, such as the treatment of transmission charges, reflecting the unique nature of this transitional reset.

2.23   In aggregate we therefore consider that a materially different path would have been set if the re-determined input methodologies had been applied when we set the current paths.

Resetting the default price-quality path would promote the Part 4 Purpose

2.24   Section 54K(3) provides us with discretion as to whether or not to reset paths if a materially different path would have been set using input methodologies determined after 1 April 2010.

2.25   We consider we should use our discretion to carry out a mid-period reset as this will better promote the Part 4 Purpose. The key reason is that the reset path will apply the re-determined input methodologies which have been specifically developed to promote the outcomes in the Part 4 Purpose. By contrast, the existing paths were set without any reference to input methodologies determined under Part 4.[47] The current paths are therefore unlikely to promote the outcomes of the Part 4 Purpose to the same extent.[48]

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[47]   We note that to some extent any default price-quality path set under Part 4 will promote some aspects of the Part 4 Purpose. For reasons, refer to: Commerce Commission, *Input Methodologies (Electricity Distribution and Gas Pipeline Services): Reasons Paper*, December 2010. However, the reset path benefits from the direct application of input methodologies determined by reference to the Part 4 Purpose and will better promote that purpose.

[48]   We note that to some extent any default price-quality path set under Part 4 will promote some aspects of the Part 4 Purpose. However, the reset path benefits from the direct application of input methodologies determined by reference to the Part 4 Purpose and will better promote that purpose.

2.26   The re-determined input methodologies enable us to reset starting prices to allow most suppliers to earn a normal return. Our modelling suggests that some suppliers are earning above normal returns. (It may be that these suppliers have failed to share previous efficiency gains with consumers).[49] Our analysis also indicates some suppliers are currently earning less than normal returns.

2.27   Overall, we are satisfied that the reset will better promote the Part 4 Purpose. We therefore consider we should exercise our discretion to reset suppliers' paths as this will promote the long-term benefit of consumers.

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[49]   Section 52A(1)(b) to (d).

3. Key features of the reset

Purpose of this chapter

3.1   This chapter provides an overview of the key features of the reset, which are reflected in the determination that sets out our final decision. Our estimates of the likely impacts on prices on 1 April 2013 are shown in Chapter 4.

3.2   Applying the re-determined input methodologies results in a number of other changes to the default price-quality path determination, which are explained in Attachment K.

Key features of the reset

3.3   The determination that we have published for this reset has two main features:

3.3.1   the maximum revenue that each supplier can expect to recover through prices in 2013/14; and

3.3.2   the rate of change in price allowed on 1 April 2014, prior to any claw-back amounts being applied, as well as the amount of claw-back to be applied in 2014/15.

3.4   All of the changes will take effect from 1 April 2013. They will also affect the earlier years of the path set out in the determination, ie, from 1 April 2010, but those changes will have no practical effect on our compliance assessments.[50]

Maximum revenue expected in 2013/14

3.5   Figure 3.1 overleaf shows the amount of revenue that we expect each distributor will earn in 2013/14 as a result of this decision.[51]

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[50]   All businesses will still be required to report compliance against the determination that applied for the 2012/13 year.

[51]   Importantly, actual revenue in 2013/14 may differ from the amounts shown. For example, suppliers may be able to grow their quantities faster than we have assumed, or may choose to price below their price cap. Orion is not shown on the chart below because we do not propose to reset Orion's default price-quality path at this time.

Figure 3.1: Maximum revenue expected in 2013/14

Company	Revenue
Alpine Energy	$30.1m
Aurora Energy	$57.5m
Centralines	$8.9m
Eastland	$21.2m
Electricity Ashburton	$29.8m
Electricity Invercargill	$13.3m
Horizon Energy	$20.9m
Nelson Electricity	$7.2m
Network Tasman	$28.9m
OtagoNet	$24.8m
Powerco	$246.4m
The Lines Company	$30.3m
Top Energy	$31.9m
Unison	$91.6m
Vector	$416.8m
Wellington Electricity	$109.4m
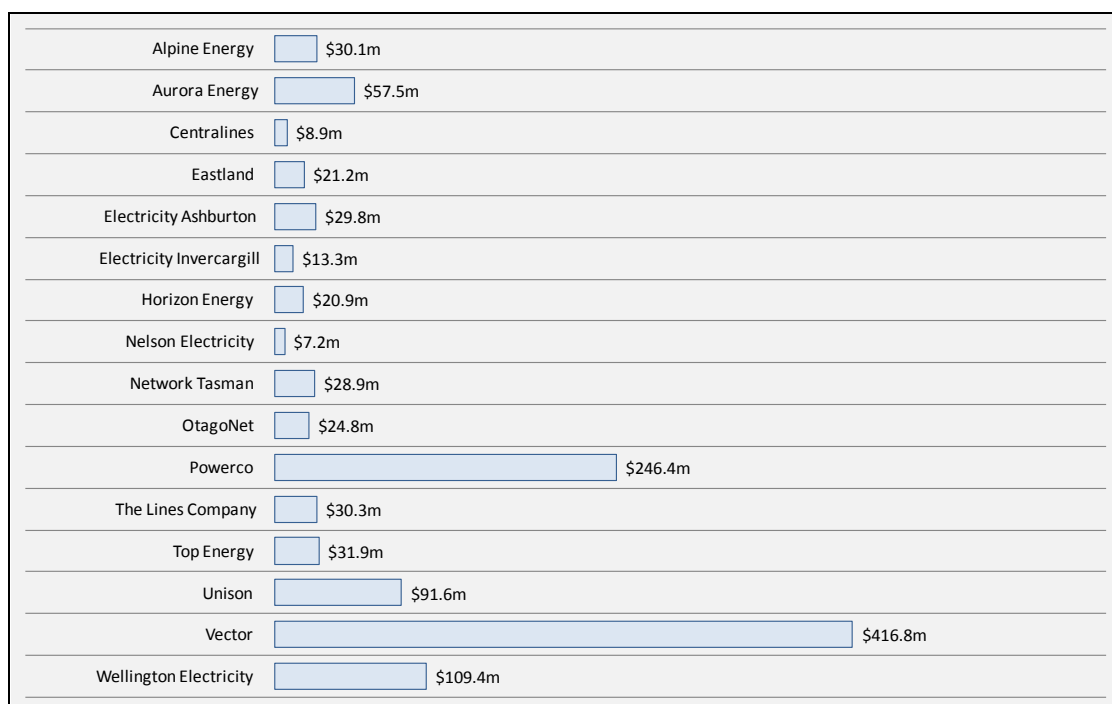
3.6 The next chapter sets out our analysis of the average price changes that these figures imply for consumers on 1 April 2013.

Average price change allowed on 1 April 2014

3.7 The average change in price allowed between 1 April 2013 and 1 April 2014 will depend on:[52]

　　3.7.1 the rate of change in price allowed between 1 April 2013 and 1 April 2014, prior to the application of any claw-back amounts; and

　　3.7.2 the amount of claw-back to be applied in 2014/15.

3.8 In practice, both of these factors will work in combination to determine the average price change allowed on 1 April 2014. However, both factors are set out separately in the determination.

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[52] Note that the changes shown refer to the average change in the price that suppliers are allowed to charge. Suppliers may increase their prices at a faster rate if they choose to price below the price cap in the preceding year.

3.9 Table 3.1 below shows the rate of change in the price each supplier is allowed between 1 April 2013 and 1 April 2014, prior to the recovery of any claw-back amounts. For most suppliers, the rate of change for that year is CPI-0%.[53] For other suppliers, however, the rate of change is higher (see Chapter 6).

Table 3.1: Allowable rate of change for each supplier

Supplier	Average rate of change in allowed price (1 April 2013 to 1 April 2014)
Alpine Energy	CPI+10%*
Aurora Energy	CPI-0%
Centralines	CPI+10%*
Eastland	CPI-0%
Electricity Ashburton	CPI-0%
Electricity Invercargill	CPI-0%
Horizon Energy	CPI-0%
Nelson Electricity	CPI-0%
Network Tasman	CPI-0%
OtagoNet	CPI-0%
Powerco	CPI-0%
The Lines Company	CPI+10%*
Top Energy	CPI+10%*
Unison	CPI+8%*
Vector	CPI-0%
Wellington Electricity	CPI-0%

3.10 To minimise price shocks to consumers, claw-back will not be applied in 2014/15 for the suppliers denoted with an asterisk in the table above. For these suppliers, the application of claw-back will be deferred until the next regulatory period.

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[53] This constraint is based on the long-run average productivity improvement rate achieved by suppliers in New Zealand, as required under s 53P(6) of the Act.

3.11 For the other suppliers, the practical impact of applying claw-back in 2014/15 is that the price change on 1 April 2014 will be broadly similar to the price change that occurs on 1 April 2013.[54] These price changes are set out in the chapter that follows.

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[54] As explained in Chapter 7, we will apply claw-back to allow all suppliers the opportunity to earn a normal return from 1 April 2012. The suppliers that are able to claw-back revenues in 2014/15 will therefore be allowed to recover the present value of the shortfall in revenues occurring in 2012/13. This will compensate those suppliers for the impact of the delay to the process to reset the default price-quality path.

# 4. Analysis of price adjustments and supplier profitability

Purpose of this chapter

4.1 This chapter provides an indication of the adjustments to each supplier's allowed prices on 1 April 2013, and explains the relationship with each supplier's profitability.[55]

Significant adjustment to prices across distributors—Less pronounced impact overall

4.2 Our final decision implies a significant adjustment to prices across electricity distributors, but there will be a less pronounced impact overall. The weighted industry average price change on 1 April 2013 will be approximately CPI–1.1%.

4.3 Figure 4.1 below provides an indication of the average adjustment to the distribution line charge component of consumer bills for each supplier.[56] These values have been calculated by comparing our forecasts of each supplier's price constraint in 2013/14 before and after the adjustment. It is therefore not the year-on-year change, which would include a CPI adjustment.

Figure 4.1: Adjustment to distribution prices on 1 April 2013

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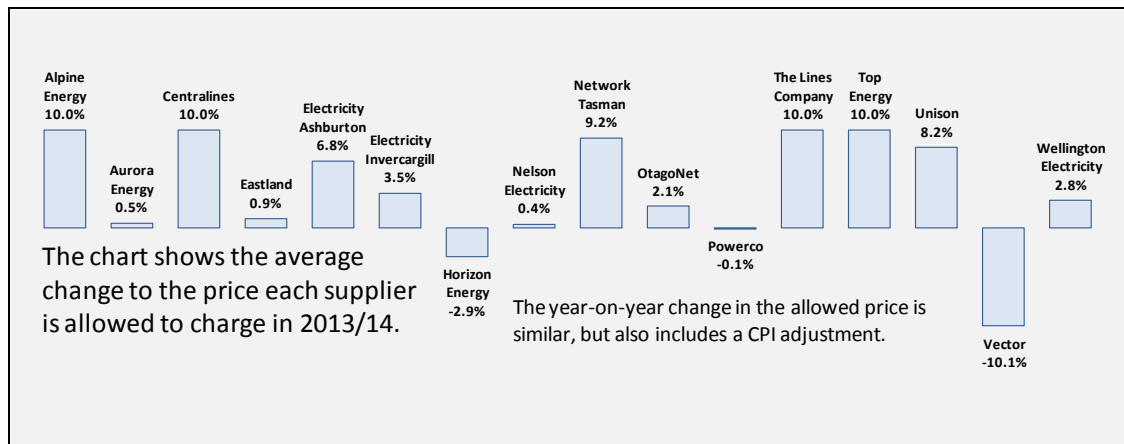
[55] Under s 53P(3)(b) of the Act, an adjustment to a supplier's starting price must be based on the current and projected profitability of each supplier.

[56] Guidance on how to interpret these figures is provided in paragraphs 4.20 to 4.22 of this chapter. Notably, the figures do not reflect the likely impact on retail prices (which include transmission charges and the cost of generated energy). Nor do the figures reflect the likely impact on individual consumers, or groups of consumers, because suppliers are able to vary their pricing structure. We also note that our estimates are based on suppliers pricing up to the price cap, which they may not be doing. For example, we are aware that Powerco did not take advantage of the full increase in CPI when setting prices for 2012/13.

4.4   As noted in the previous chapter, the change in the price allowed on 1 April 2014 is likely to be broadly similar to the price change shown in the figure above for 1 April 2013.

Main changes since our revised draft decision

4.5   The adjustments shown in the figure above are different to those shown in our revised draft decision for two main reasons. First, in light of submissions, we have updated our assessment of each supplier's costs and revenues. These updates have resulted in minor changes to the price constraint that will apply to each supplier in 2013/14 as a result of our decision. Second, we have improved our modelling of the price constraint that would apply if each supplier's price path was not reset.

4.6   The first effect is relatively minor because the changes to our assessment of each supplier's costs and revenue have broadly balanced out. Amongst other things:

4.6.1   we have applied the re-determined input methodologies, which produced a forecast of inflation that is more favourable to suppliers, at this reset, than the approach that we relied on in our revised draft decision;[57]

4.6.2   we have improved our approach for estimating the impact of network scale growth on each supplier's operating expenditure, which has led to higher forecasts of opex for some suppliers, and lower forecasts for others; and

4.6.3   we have also updated our approach for forecasting changes in regional GDP, which has had supplier-specific impacts on our forecasts of future revenue growth.

4.7   The second change between our revised draft decision and our final decision is presentational. We have been able to improve our modelling of the impact of our decision on prices. Suppliers have provided more recent information that has allowed us to more accurately determine the baseline against which we assess the price changes.[58]

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[57]   This is because the return that suppliers require after inflation is calculated by removing the effects of inflation from a nominal estimate of the cost of capital. Therefore, the lower the forecast of inflation, the higher the return suppliers require after inflation has been deducted. As a result of the change in the forecasting approach, allowed revenues have are approximately 1-2% higher than they would have been otherwise.

[58]   As noted in the Introduction, this is because suppliers have recently provided information on the price constraint that they were subject to in 2012/13.

4.8   A full numerical analysis of the changes since the revised draft decision can be found in Attachment L.

Price adjustments are part of the transition to a new regulatory regime

4.9   Price adjustments are not unusual when the interval between periodic price adjustments is equal to a regulatory period of five years or more. Between adjustments, it is appropriate that profits increase if a supplier achieves efficiency gains. Equally, profits will fall if costs are not controlled. However, neither effect would be expected to persist over the long-term in a competitive market.

4.10   Significant price changes were always likely at this reset because it is the first starting price adjustment since wide ranging reforms to the regulatory regime contained in the now revoked Part 4A of the Commerce Act. The extent of future price changes will depend on each supplier's ability to control their costs, as well as any movements in the industry-wide cost of capital, and the profile of recovery of returns for each supplier over the regulatory period.[59]

Adjustments are based on the current and projected profitability of each supplier

4.11   Unlike the prices that were rolled over from the thresholds regime, this pricing decision has been based on the current and projected profitability of each supplier. The thresholds relied on information that is now many years out of date.[60] However, the price changes that we have set out in this paper reflect more recent information, and a more detailed assessment of each supplier's costs.

Impact of applying re-determined input methodologies

4.12   To adjust prices based on the current and projected profitability of each supplier, we have calculated each supplier's costs on a 'building block' basis, and then set prices that factor in the outlook for future demand. The key building block cost components are the return *on* and *of* capital, operating expenditure (opex), and tax.

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[59]   The profile of recovery of returns for each supplier depends on factors such as the ratio of the value of capital expenditure to depreciation and the ratio of the regulatory tax asset value to RAB value, which differ between suppliers. Factors affecting the profile of returns are discussed in *Commerce Commission, 2010-15 Default Price-Quality Path Starting Price Adjustments and Other Amendments – Update Paper*, April 2011.

[60]   As noted in Chapter 2, the starting price for each supplier's existing default price-quality path was set using the prices that applied at the end of the previous regulatory period, which were similarly 'rolled over' from the price path thresholds that have applied since 2003. These in turn were based on prices originally set in 2001.

4.13 We calculated these costs by applying the re-determined input methodologies, which differ in two key respects to the way we calculated costs when we assessed profitability under the previous Part 4A information disclosure regime. Following almost two years of consultation on input methodologies.

4.13.1 Higher up-front cash flows are implied by the input methodologies for the treatment of taxation, relative to the tax payable approach used for information disclosure under the previous Part 4A regulatory regime. Providing greater up-front cash flows is consistent with providing incentives for new investments, because doing so brings forward the rate at which suppliers can recover those investments.[61]

4.13.2 The input methodologies for asset valuation have resulted in increases to asset values for certain suppliers compared to the values that applied at the end of the previous Part 4A regulatory regime. The allowed increases address the concerns suppliers have raised about the previous asset values, thereby reinforcing the credibility of the valuations used to set prices and assess returns under the Part 4 regime.[62]

4.14 Notably, because the input methodologies imply higher up-front cash flows on each investment, the rate of recovery of each investment will gradually fall as time progresses. Over time, therefore, this unwinding effect may be expected to limit the size of future price increases.

Realigning forecast costs and revenues

4.15 Figure 4.2 overleaf shows our estimate of the difference between the revenues expected between 1 April 2012 and 31 March 2015 before and after the adjustment. The figures shown are present values as at 1 April 2012.

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[61] Commerce Commission, *Input Methodologies (Electricity Distribution and Gas Pipeline Services) Reasons paper*, 23 December 2010, paragraph 4.3.9.

[62] Commerce Commission, *Input Methodologies (Electricity Distribution and Gas Pipeline Services) Reasons paper*, 23 December 2010, paragraph 4.3.40.

Figure 4.2: Forecast revenues minus forecast costs (1 April 2012 to 31 March 2015)

	Alpine Energy: -$26.1m
	Aurora Energy: -$0.7m
	Centralines: -$4.6m
	Eastland: -$0.5m
	Electricity Ashburton: -$5m
	Electricity Invercargill: -$1.2m
Horizon Energy: +$1.7m	
	Nelson Electricity: -$0.1m
	Network Tasman: -$6.4m
	OtagoNet: -$1.4m
Powerco: +$0.6m	
	The Lines Company: -$14.5m
	Top Energy: -$15m
	Unison: -$27.7m
	Vector: +$121.6m
	Wellington Electricity: -$7.7m
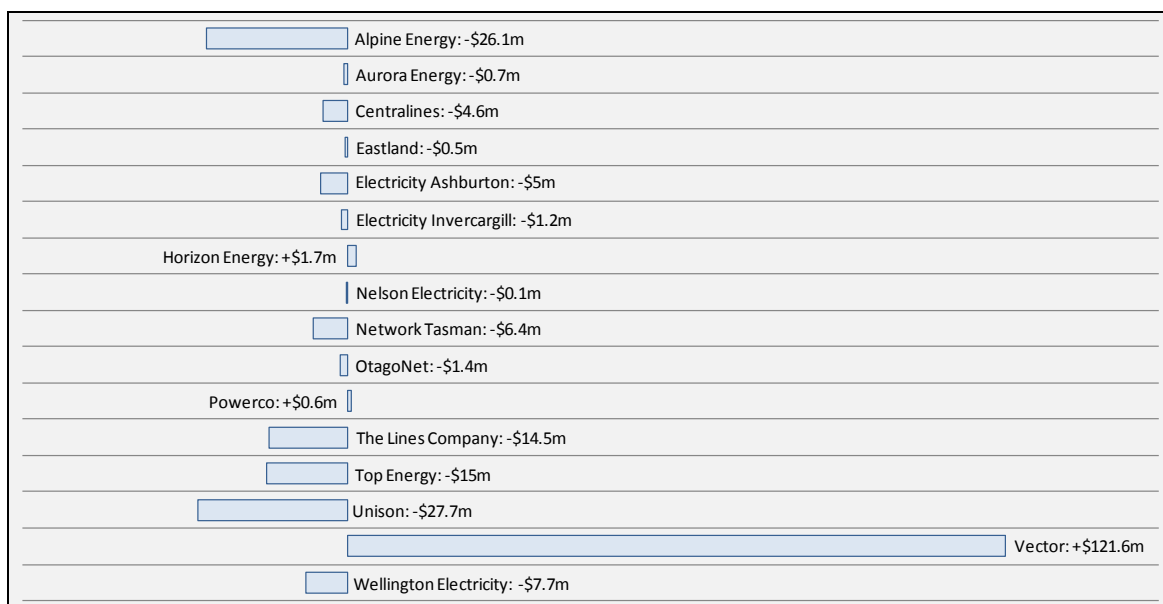
4.16 Because this reset would occur midway through the current regulatory period, it is important that the forecasts we rely on do not inadvertently:

4.16.1 penalise suppliers that have achieved efficiency gains since the start of the regulatory period in response to the incentives inherent in the price path; or

4.16.2 disadvantage consumers of suppliers that have not been able to control expenditure in response to the incentives inherent in the price path.

4.17 Consequently, we have attempted to reduce our reliance on information about a supplier's actual costs since the start of the regulatory period. We have, however, taken into account more recent information where it would be unlikely to undermine any action taken by suppliers or consumers since the start of the regulatory period.

4.18   Factors that are largely outside the control of either suppliers or consumers include:[63]

  4.18.1   movements in input prices;

  4.18.2   actual and expected changes in population; and

  4.18.3   changes in the outlook for regional output, ie, Gross Domestic Product (GDP).

4.19   However, for forecast changes in the CPI, the forecast that we have used is the forecast that was most recently available when the cost of capital was determined in September 2009. Such an approach ensures that the implied real return during the regulatory period is consistent with the inflation expectations that are embedded in our estimate of the cost of capital.

Guidance to help interpret our results

4.20   The next section explains how we calculated allowable prices for each supplier; first, however, we provide some guidance about how to interpret the results shown earlier in this chapter. The figures shown simply indicate the likely impact that our decision will have on the maximum allowable (average) price charged by each regulated electricity distributor, net of other price components.

4.21   Therefore, the adjustments do not reflect:

  4.21.1   the likely impact on the average price of electricity lines services. Claw-back and transmission charges would also have an effect.

  4.21.2   the actual impact on average retail prices.[64] All else being equal, the average percentage change in consumer bills would be approximately one third of the amount shown, before claw-back or changes in transmission charges are

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[63]   We note that a some submitters have argued that our forecasts of all variables should have been made closer to the date that we estimated the cost of capital, ie, September 2009. However, we only rely on forecasts of CPI from this date to the extent necessary to ensure we embed the real return expected at that point in time into our modelling. It is appropriate to rely on more-up-to-date data for other variables, to the extent that it will result in more accurate forecasts without penalising (rewarding) suppliers for past efficiency gains (losses). We have therefore relied on the most recent forecasts available as at 23 November 2012.

[64]   The Electricity Commission estimated that in 2006 network charges (which include transmission and distribution charges) made up approximately 40% of residential customer bills (Electricity Commission, *Market Design Review – Options Paper*, 8 July 2008, paragraph 56).

taken into account. Changes in the other components of electricity bills are also important, eg, the cost of generated energy and transmission charges.

4.21.3   the likely impact on any particular consumer, or group of consumers. The impact on different consumer groups will depend on whether electricity distributors choose to rebalance their pricing structure when price changes are notified, eg, price changes may be different for residential, industrial, and commercial users.[65]

4.22   These figures must therefore be interpreted with caution. The exact magnitude of any adjustment will also depend on the prices that electricity distributors choose to set, relative to their existing prices, given the constraint imposed by the price path compliance formula. For example, the price path sets a cap, and some suppliers, eg, those with some degree of consumer-ownership, have previously chosen to set prices that are below the cap.[66]
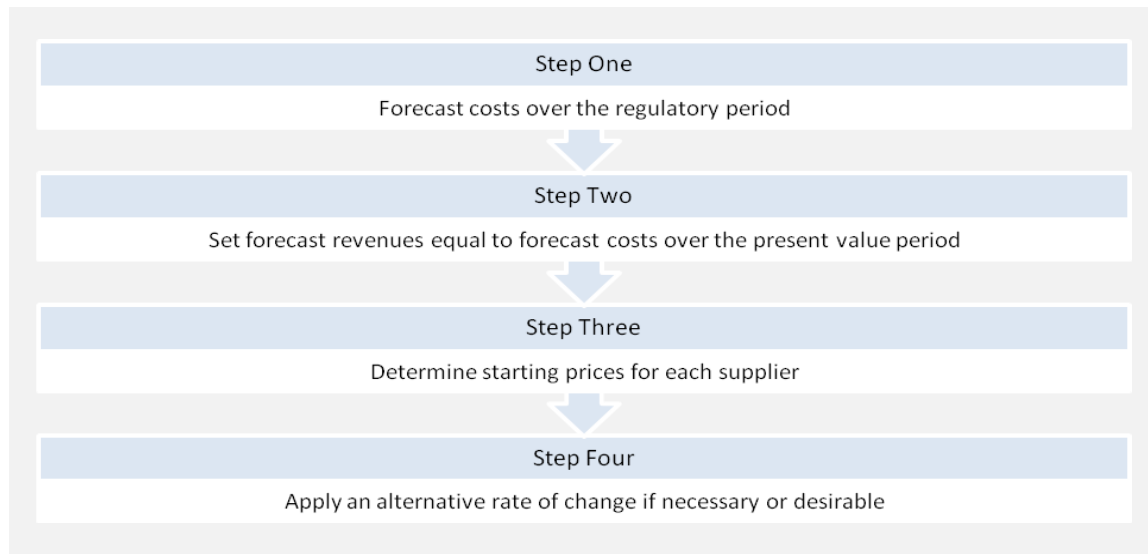
Summary of the approach that we used to adjust prices

4.23   The approach that we used to adjust prices for each supplier had 4 main steps. These steps are shown in Figure 4.3.

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[65]   The new prices charged to individual consumers will be determined by the pricing methodologies that each supplier applies when it determines prices and retail pricing (where the supplier does not bill end-use consumers of electricity directly).

[66]   We propose to monitor the impact of the adjustment on the prices charged by electricity distributors via information disclosure. This will allow us to identify where suppliers choose to set prices below the price cap, and to explore the reasons, as well as considering any impact the practice may be having on investment in the network. Where possible, we will also assess the impact of the adjustment on prices charged by the supplier to different consumer groups, and the impact on retail prices.

Figure 4.3: Overview of the approach we used to adjust prices

Step One
Forecast costs over the regulatory period

Step Two
Set forecast revenues equal to forecast costs over the present value period

Step Three
Determine starting prices for each supplier

Step Four
Apply an alternative rate of change if necessary or desirable

4.24   Each of the steps in the approach is explained in the sections that follow. We begin by setting out how the re-determined input methodologies applied to our decision making for the price reset, ie, by directing us to calculate each supplier's costs in a particular way.

Step One—How we forecast each supplier's costs over the regulatory period

4.25   Consistent with the re-determined input methodologies, we have applied a 'building block' based approach to forecast each supplier's costs. The main building block cost categories are:[67]

4.25.1   the return *on* capital, net of any revaluations of the Regulatory Asset Base (RAB);[68]

4.25.2   the return *of* capital, to allow recovery of depreciation;

4.25.3   operating expenditure (excluding pass through costs and recoverable costs); and

4.25.4   tax costs.

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[67]   An overview of the building block approach can be found in 2.8.5 to 2.8.20 of Commerce Commission, *Input Methodologies (Electricity Distribution and Gas Pipeline Services), Reasons Paper*, 22 December 2010.

[68]   Where necessary, the return *on* capital includes a term credit spread differential allowance to recognise additional costs that can be incurred by suppliers with longer term debt.

4.26 To calculate each of these cost categories, we applied the re-determined input methodologies, which set out how:[69]

    4.26.1 forecast and existing investments are valued;

    4.26.2 depreciation and revaluations are calculated;

    4.26.3 tax costs are calculated;

    4.26.4 costs are allocated; and

    4.26.5 the cost of capital is estimated.

4.27 We applied the re-determined input methodologies to forecasts of each supplier's capital expenditure (capex) and opex. This is because regulatory assessments of building block costs are informed by, but not the same as, assessments of each supplier's expenditure streams.[70]

4.28 To forecast each supplier's capex, opex, and other line items, we relied on a combination of low cost techniques, eg, reliance on the supplier's own forecasts, independent forecasts, and simplifying assumptions. This is because we are required to adopt relatively low cost approaches when resetting default price-quality paths.

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[69] Prior to input methodologies being introduced, these matters were amongst the most contentious aspects of regulatory decision making. For example, in the gas sector, we consulted for a number of years on the appropriate asset valuation methodology to be applied to our decision making for the Gas Authorisation. We consulted for a further two years on the same topic before input methodologies for asset valuation were determined in December 2010.

[70] For example, rather than recognising all expenditure in the year in which it is incurred, we smooth expenditure over time. This 'inter-temporal' allocation of expenditure recognises that assets are used to supply services over multiple time periods. Similarly, expenditure must be allocated between services because not all expenditure relates to a single type of regulated service.

4.29   More detail on the approaches that we used to forecast each supplier's capex, opex, and other line items can be found in:[71]

   4.29.1   Attachment B: How we forecast capital expenditure;

   4.29.2   Attachment C: How we forecast operating expenditure; and

   4.29.3   Attachment E: How we forecast other line items.

Step Two—How we set forecast revenue equal to forecast costs

4.30   Figure 4.4 overleaf provides an overview of the model that we used to set forecast revenue equal to forecast costs over the 'present value period'. The three year present value period began on 1 April 2012, ie, the date from which input methodologies would have been applied if our July 2011 Draft Decision had been implemented.

4.31   The reason for calculating present values over this period is to allow us to use our claw-back powers to neutralise the impact of the delay to the reset process. As discussed in our revised draft decision, and explained further in Chapter 7, we have applied claw-back so that all suppliers would be able to earn a normal return from 1 April 2012. For most suppliers, the amount to be clawed back will be equal to any over- or under-recovery in the 2012/13 year.

4.32   As will be apparent from Figure 4.4, while an adjustment to a supplier's starting price as at 1 April 2010 is the technical mechanism by which we reset their path, the starting price adjustment is actually 'back-cast' from an analysis of the returns required in the final three years of the period.

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[71]   We are required by the re-determined input methodologies to select a disclosure year as the base for our analysis. As noted in paragraphs 0 to 4.17 above, we have relied on information that pre-dates the start of the regulatory period. The most recent disclosure year prior to the start of the current regulatory period is 2009/10.

Figure 4.4: Setting forecast revenues equal to forecast costs
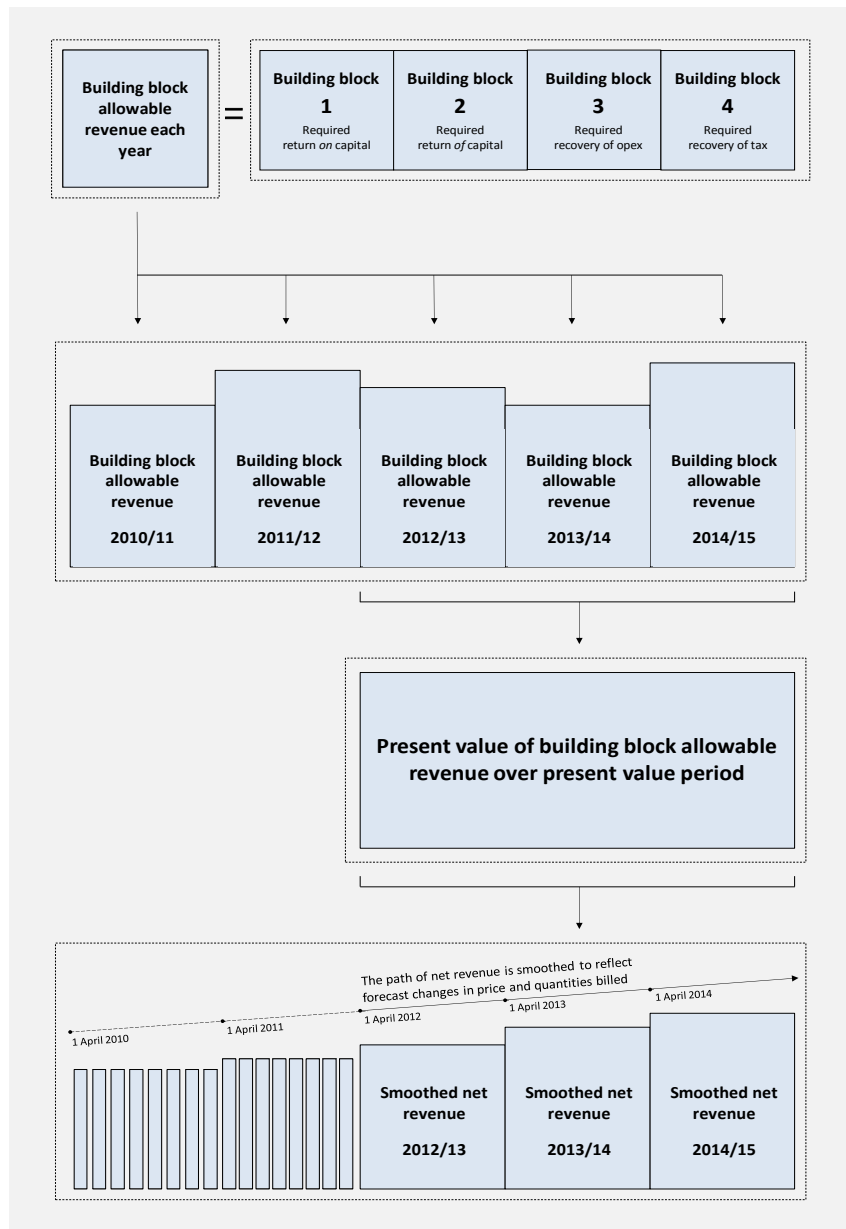
4.33 Once we calculated each supplier's building block costs in a particular year of the regulatory period, we added the various components together to determine 'building blocks allowable revenue'. Building blocks allowable revenue is our estimate of the amount of revenue that the supplier should be allowed to recover to offset their costs.[72]

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[72] In assessing building blocks allowable revenue, we take into account the likely timing of each cost item. The timing assumptions that we propose to rely on are explained in Attachment G.

4.34   Figure 4.4 also shows that we calculated building blocks allowable revenue in each and every year of the regulatory period. These amounts will vary depending on a number of factors, such as the age profile of the asset base, annual movements in opex, and changes in our assessment of tax costs.

4.35   Next, we calculated the present value of building blocks allowable revenue over the present value period. This is the amount of revenue that we expect the supplier would require to be able to earn a normal return from 1 April 2012. The discount rate used in the present value calculation is the industry-wide cost of capital.

4.36   Finally, we determined the path of revenue that would mean the supplier is able to recover the present value of building blocks allowable revenue over the present value period. This 'smoothed' path:

4.36.1   starts on 1 April 2010;

4.36.2   determines the amount of revenue that the supplier should have expected to recover through distribution prices in 2012/13; and

4.36.3   provides a baseline against which claw-back can be assessed.

4.37   The slope of the 'smoothed' path of revenue reflects the factors that affect each supplier's revenue during the regulatory period. In particular, a supplier's revenue depends on:

4.37.1   the price changes that a supplier is able to make, which will generally be constrained by the industry-wide rate of change in price, ie, CPI-0%; and

4.37.2   changes in the quantities billed, which result in 'constant price revenue growth'.

4.38   Because we are interested in setting forecast costs and revenues equal from 1 April 2012, the most relevant changes in revenue are those that are likely to occur from that date. As noted above, we forecast price changes by relying on forecast changes in the CPI that are consistent with our estimate of the cost of capital. Constant price revenue growth is assessed using the approach in Attachment F.

Step Three—How we determined starting prices

4.39   Before setting the price cap for 2013/14, we updated the price constraint implied for 2012/13 by applying actual inflation between 2012/13 and 2013/14.[73] This allows us to assess the price cap that each supplier would have been subject to, had this final decision taken effect on 1 April 2012, ie, in line with the timeframes for implementing our original draft decision on this matter.

4.40   In our view, this is consistent with submissions that argued that we should update the price path for actual inflation once we had determined that price path that should apply.[74] However, we note that we have not updated the price path for accumulated inflation in all prior years of the regulatory period.

4.41   We have updated the price path for a single year of actual inflation only because the price path has been set on the basis that suppliers should have the opportunity to earn a normal return over the three year period from 1 April 2012, rather than for the five year period commencing 2010/11.[75]

4.42   Once we determined the appropriate 2013/14 revenue figure, it is possible to calculate the starting price for the path using a formula. This formula sets out how we determined the starting price, ie, as at 1 April 2010, that would result in the supplier expecting to earn the appropriate amount of revenue in 2013/14. This formula can be found in Attachment J.

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[73]   The measure of CPI that we have used is consistent with the measure of inflation that would have been used to update the price path, ie, an 18 month lag has been applied, and the effect of GST has been removed.

[74]   PWC on behalf of Powerco proposed such an adjustment in its submission on the draft input methodologies. In our revised draft decision, we misunderstood this submission, because PwC's original submission included a reference to the CPI series used to revalue the asset base, rather than the CPI series used to update the price path. For PwC's submissions on this topic, please refer: PwC, *PWC submission (on behalf of Powerco), Draft Input Methodology for Default Price-Quality Paths – Inflation Issues*, 6 July 2012; and PwC submission (on behalf of Powerco), Revised Draft Default Price-Quality Paths – Inflation and Depreciation Issues, 28 September 2012.

[75]   By contrast, updating the price path for accumulated inflation in all prior years of the regulatory period would be consistent with suppliers expecting to earn a normal return from 1 April 2010 (rather than 1 April 2012).

Step Four—How we applied an alternative rate of change if necessary or desirable

4.43   We have applied alternative rates of change where necessary or desirable to minimise price shocks to consumers.[76] In these cases, we have recalculated a path of revenue with an alternative to the industry-wide rate of change in price between 2013/14 and 2014/15.

4.44   Each path of revenue that incorporates an alternative rate of change has been designed to spread the initial price change over more than one year. The price change between 1 April 2012 and 1 April 2013 will therefore be reduced when an alternative rate of change is applied. The price increase between 1 April 2013 and 1 April 2014 will be larger.

4.45   As discussed further in Chapter 6 and 7, we have also used our power to claw-back to ensure that all suppliers are able to earn a normal return from 1 April 2012. For most suppliers, the amount to be clawed back will be equal to any over- or under-recovery in 2012/13.

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[76]   Refer s 53P(8).

5.   The role of a customised price-quality path

Purpose of this chapter

5.1   This chapter explains why our approach to resetting a supplier's default price-quality path will be appropriate for the majority of suppliers and why, for individual suppliers, an alternative price-quality path is important.

Our approach will be appropriate for the majority of suppliers

5.2   Periodic price adjustments are a key part of the intended operation of 'default/customised price-quality regulation'. The purpose of this type of regulation is shown in the box below.[77]

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Box 5.1: Purpose of default/customised price-quality regulation

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

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5.3   To meet the purpose of this type of regulation, any approach we use to reset prices must be relatively low cost. The biggest contributor to the costs of setting price-quality paths are audit, verification, and approval processes. Alternative techniques have therefore been used instead.

Almost all suppliers will expect to earn a normal return if prices are adjusted

5.4   Although our approach is relatively low cost, we are confident that almost all suppliers will expect to earn a normal return if the default price-quality path is reset. This is because:

    5.4.1   our modelling relies on the supplier's own forecast of capital expenditure; and

    5.4.2   our modelling of operating expenditure and revenue relies on independent forecasts that are free of systematic bias, in either direction.

5.5   In addition, the rate of return that we allow is above the central estimate of the cost of capital for the industry.[78]

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[77]   This purpose of default/customised price-quality regulation is set out at s 53K of the Act.

A small number of suppliers may not expect to earn a normal return if the paths are reset
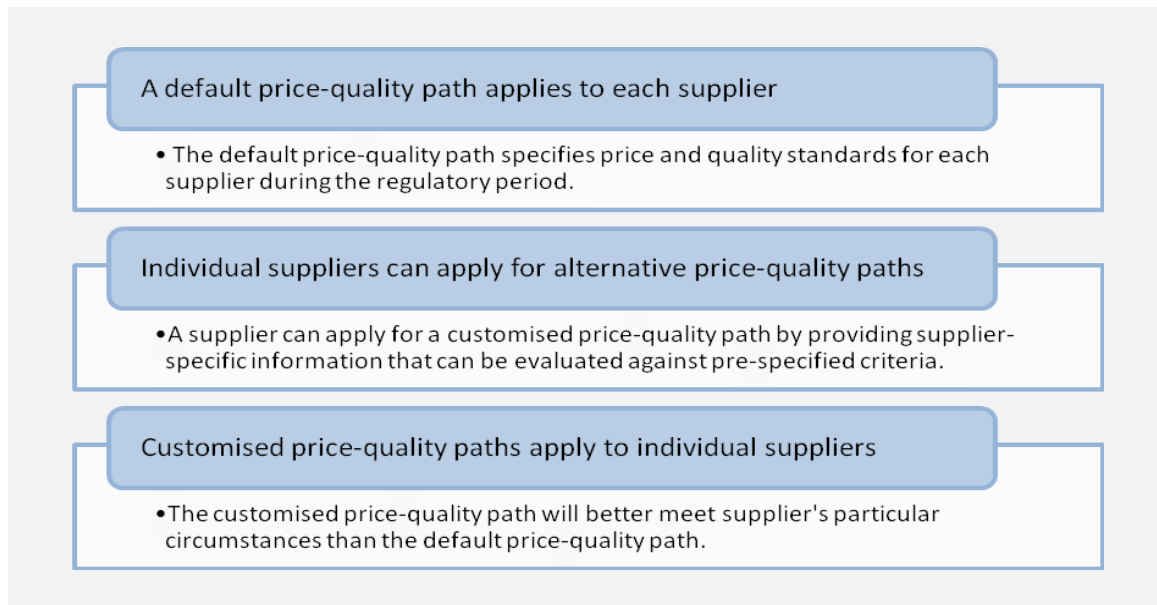
5.6   Nevertheless, because we rely on some information that is different to the supplier's own forecasts, a small number of suppliers may expect to earn less than a normal return under the default price-quality path. However:[79]

   5.6.1   it would be costly to take into account all supplier-specific information when default price-quality paths are reset, because full audit, verification and approval processes would be required; and

   5.6.2   customised price-quality paths provide an alternative option for suppliers that seek to have all of their information taken into account after testing through audit, verification and evaluation processes.

5.7   As shown in Figure 5.1 below the process for proposing customised price-quality paths is a fundamental feature of default/customised price-quality regulation. It ensures that suppliers can have alternative price-quality paths that better meet their particular circumstances relative to the default price-quality path.

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[78]   The difference between the 75th percentile estimate of the cost of capital and 50th percentile is equivalent to about 0.7 percentage points of annual returns.

[79]   Submissions received in response to our December 2011 Process and Issues Paper generally agreed that a simplified approach is required when setting the default price-quality path. However, we do not agree that a simplified approach implies that we should rely entirely on supplier's own information because, without full, audit, verification and evaluation processes, suppliers would have an incentive to inflate their forecasts to secure a higher starting price. Such an outcome would be less likely to be consistent with the Part 4 Purpose.

Figure 5.1: Overview of default/customised price-quality regulation

A default price-quality path applies to each supplier

- The default price-quality path specifies price and quality standards for each supplier during the regulatory period.

Individual suppliers can apply for alternative price-quality paths

- A supplier can apply for a customised price-quality path by providing supplier-specific information that can be evaluated against pre-specified criteria.

Customised price-quality paths apply to individual suppliers

- The customised price-quality path will better meet supplier's particular circumstances than the default price-quality path.

The costs and risks of customised proposals have been overstated

5.8   In response to our revised draft decision, regulated suppliers repeated arguments that customised price-quality paths would be a 'high risk' and 'costly' error correction mechanism if starting prices were set too low.[80] In their view, suppliers should be able to earn an appropriate return without having to either:

5.8.1   reduce investment under the default price-quality path; or

5.8.2   propose a customised price-quality path.

5.9   These submitters have therefore argued that we should include an 'additional allowance' to guard against the risk that our forecasts were likely to contain error, ie, that suppliers may expect to earn less than a normal return under the default price-quality path.[81]

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[80]   Refer, for example: Electricity Networks Association, Submission on the Revised Draft Reset of the 2010-15 Default Price-Quality Paths, 1 October 2012, p5; Horizon Energy, Submission to Commerce Commission on Revised Draft Reset of the 2010-15 Default Price-Quailty Paths, 1 October 2012, pp 9 to 10; PWC, Submission to the Commerce Commission on Revised Draft Reset of the 2010-15 Default Price-Quality Paths, Made on behalf of 20 Electricity Distribution Businesses, 1 October 2012, p6; Vector, Submissions to the Commerce Commission on Revised Draft Reset of the 2010-15 Default Price-Quality Paths for Electricity Distribution Businesses, 1 October 2012, p32.

[81]   The relevant forecast error here is the difference between our forecasts and the forecasts that we would rely on if we could apply audit, verification and evaluation processes to the supplier's own information. Unlike the estimation error associated with determining the industry-wide cost of capital, such errors can

Why customised price-quality paths are not a 'high risk' option for suppliers

5.10   Having considered these submissions over a number of rounds of consultation, we remain unconvinced that an additional allowance for this mid-period reset would better promote the Part 4 Purpose. As noted above, our approach will allow almost all suppliers to earn a normal return under the default price-quality path.

5.11   In addition, in our view, regulated suppliers have over-stated the risks associated with a customised price-quality path proposal.[82] All the rules, requirements and processes for a proposal have been determined up-front, following more than two years of consultation. Each supplier also has a form of 'merit' appeal to the High Court for:

5.11.1   the input methodologies determination applying to price-quality paths under s 52Z; and

5.11.2   a customised price-quality path determination.[83]

5.12   This interpretation is consistent with the general intent of default/customised price-quality regulation.[84] Given the low cost nature of the default price-quality path, which all submitters have agreed with, our approach best balances the competing outcomes set out in the Part 4 Purpose – suppliers can generally expect to earn normal returns under the default price-quality path, while excessive profits will be limited.

5.13   A customised price-quality path is available where the default price-quality path does not meet the particular circumstances of the supplier. This has been characterised as some sort of 'error correction' mechanism, but in our view it simply reflects the scheme mandated by the Act.

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be reduced by considering supplier-specific information in detail. By contrast, the more general risk of forecasting error is a risk that suppliers are routinely exposed to in workably competitive markets, eg, the risk of error when forecasting input prices. Unison Networks Limited, *Submission on Revised Draft Reset of the 2010-15 Default Price-Quality Paths*, 1 October 2012, paragraph 22a.

[82]   Refer, for example, Vector, *Submission to the Commerce Commission on Draft Decision and Starting Price Adjustments for Electricity Distribution Businesses* 24 August 2011.

[83]   Refer, for example: Vector, *Submission to Commerce Commission on Draft Decision on Starting Price Adjustments for Electricity Distribution Businesses*, 24 August 2011, pages 9 to 13.

[84]   Refer sub-part 6 of Part 4 of the Act. Our view of the structure of Part 4, and the inter-relationship between a default price-quality path and a customised price-quality path, is consistent with the approach taken by the Supreme Court in *Vector Ltd v Commerce Commission* [2012] NZSC 99. See, for example paragraphs 59 and 73 to 74.

5.14   Consumers are therefore protected against the risk of investment being deterred, because suppliers can propose a customised price-quality path if below normal returns are expected under the default price-quality path.[85]

Why an additional allowance would be unlikely to benefit consumers in the long-term

5.15   A large additional allowance for suppliers would be unlikely to benefit consumers in the long-term. Our analysis indicates that the additional allowances proposed by regulated suppliers would significantly outweigh any costs associated with a customised price-quality path proposal.[86]

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[85]   In our view, a customised price-quality path is a valuable option that is not available to consumers, eg, if starting prices are set too high.

[86]   For example, in the July 2011 Draft Decision we estimated that the present value of the additional allowance sought by regulated suppliers, over three years, would be worth approximately $9m for Unison, $22m for Powerco, and $41m for Vector. Refer: Commerce Commission, *July 2011 Draft Decision*, above at 22, paragraphs 2.49 to 2.52.

5.16   We also do not consider that a smaller, but more targeted, additional allowance for suppliers would benefit consumers in the long-term, even after accounting for the cost of a customised price-quality path proposal.[87] The reason is that such an allowance would generally be expected to cost consumers more than they would expect to benefit.

5.17   The two impacts on consumers of an additional allowance for suppliers are:

5.17.1   a reduced probability that a customised price-quality path will be proposed, so the expected cost to consumers of a proposal would be reduced;[88] or

5.17.2   if the supplier does not propose a customised price-quality path then the additional allowance for the supplier would mean that consumers face higher prices under the default price-quality path.[89]

5.18   Our analysis of these two impacts is set out in Attachment H. In summary, and in line with our revised draft decision, we find that the second of the two impacts tends to dominate and, given that suppliers have the option of applying for a customised price-quality path, an additional allowance would be unlikely to benefit consumers in the long-term, or otherwise promote the outcomes set out in the Part 4 Purpose.

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[87]   The majority of these costs can be passed onto consumers through higher prices. In particular, the audit, verification, and evaluation costs can be passed on, as well as the application fee.

[88]   For example, if the cost of a customised price-quality path proposal was $1m, and an additional allowance reduced the probability of a proposal by 20%, then the expected cost of a proposal to consumers would fall by $200,000 as a result of introducing the additional allowance, ie, $1m multiplied by 20%. In practice, the probability of a customised price-quality path proposal will be determined in part by movements in the WACC. One way to prevent movements in the WACC from affecting the probability of a customised price-quality path proposal would be to apply the WACC from the current regulatory period for the opening years of the term of the customised price-quality path, before using a forward starting rate to estimate the WACC applying during the next regulatory period.

[89]   For example, if the additional allowance is $1m then consumers will pay $1m more through distribution prices.

Customised price-quality paths are not intended to be one-way bets for suppliers

5.19   We do not agree that suppliers should be protected against the possibility that a customised price quality path may ultimately allow lower returns than a default price-quality path. This concern appears to underlie ENA's submission that the legislative 'restrictions' on customised proposals, such as the inability to withdraw applications and the ability of the Commission to set a lower price path than that proposed, are "direct incentives to encourage CPP applications under only the most significant circumstances".[90]

5.20   In the absence of the legislative 'restrictions' referred to by the ENA, every supplier would logically have an incentive to apply for a customised price quality path. This is because suppliers would be unable to lose (relative to the default price-quality path) by applying for one.

5.21   That is not our understanding of the role of the customised price quality path. Rather, where a supplier expects to earn below normal returns under a default price-quality path, the customised price-quality path allows the supplier to have an alternative path determined based on the best information available. That path, regardless of how it is set relative to the default price-quality path, is therefore most likely to ensure that the supplier recovers its costs. This interpretation is, in our view, consistent with the statutory scheme and legislative history.

5.22   Consequently, the fact that a supplier might ultimately forego above normal returns under the default price-quality path is not a relevant 'risk'.

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[90]   Electricity Networks Association*, Submission on the Revised Draft Reset of the 2010-15 Default Price-Quality Paths*, 1 October 2012, p8.

6. Instances in which alternative rates of change will apply

Purpose of this chapter

6.1 This chapter explains why we have set alternative rates of change for particular suppliers. In summary:

6.1.1 in our opinion, alternative rates of change are likely to be necessary or desirable to minimise price shocks to consumers; but

6.1.2 we did not receive any evidence in response to our revised draft decision to suggest that alternative rates of change are necessary or desirable to minimise undue financial hardship to the supplier.

6.2 We do not consider that suppliers should be able to select their own alternative rate of change. This is because, under the Act, alternative rates of change can only be set if we consider that certain circumstances are met.[91]

Minimising price shocks to consumers

6.3 We have identified prices shocks using CPI+10% as a guide.[92] This approach was proposed in our revised draft decision, and was also proposed in the July 2011 Draft Decision. None of the submissions raised a concern with using 10% as an indication of a price shock.[93]

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[91] PWC and ENA submitted that all suppliers should be able to apply an alternative rate of change, so long as it is net present value neutral, irrespective of any price shock or undue financial hardship. However, s 53P(8)(a) of the Act only allows an alternative rates of change to be applied if, in our opinion, this is necessary or desirable to minimise any undue financial hardship to the supplier or to minimise price shock to consumers. Refer: PWC *Submission to the Commerce Commission on 2010-15 Default Price-Quality Path for Electricity Distribution Businesses – Draft Decisions Paper Made on behalf of 19 Electricity Distribution Businesses*, 24 August 2011; Electricity Networks Association *Submission on 2010-15 Default Price-Quality Path for Electricity Distribution Businesses: Draft Decisions Paper* 24 August 2011.

[92] It is important to note that individual consumers may experience price increases greater than the permitted increase for an supplier's total revenue for the year of the reset, as prices are reset at an aggregate level and suppliers can choose to adjust individual tariffs (e.g. for different consumer classes) at different rates subject to the overall constraint.

[93] We also received some support for using 10% as a guide. Refer, eg: Aurora, *Submission to the Commerce Commission on its Draft Decision Paper (July 2011) on 2010-15 Default Price Quality Path for Electricity Distribution*, 24 August 2011.

6.4   As a general rule, we have sought to minimise any price shocks by spreading the price adjustment over the regulatory period in an NPV-equivalent manner within the regulatory period. This is because we generally aim to set prices that are consistent with the amount of revenue that suppliers require to be able to earn a normal return over time.

6.5   However, in the current context, price shocks are unlikely to be minimised if we spread all price adjustments in an NPV-equivalent manner within the regulatory period. This is because the reset will take effect on 1 April 2013, with only two years of the regulatory period remaining. The scope for spreading the largest price adjustments to minimise price shocks is therefore limited.

How we calculated the alternative rates of change

6.6   Where it is possible to minimise price shocks in an NPV-equivalent manner, as was the case for Unison (CPI+8% in each year), the alternative rates of change that we applied was consistent with the principles set out in our revised draft decision. Namely, we calculated an alternative rate of change that was:

   6.6.1   NPV-equivalent to the price path, so Unison was not made any better or worse off as a result;

   6.6.2   calculated as a whole number; and

   6.6.3   less than or equal to the initial price adjustment, eg, CPI+4% is not followed by CPI+10%.

6.7   However, where the potential increases were substantial, we have limited the price increases at CPI+10% per year. Before we apply claw-back, the outcome for the affected suppliers would therefore be NPV-negative over the remainder of the regulatory period.[94] The limit on price changes reflects the fact that year-on-year price increases that exceed CPI+10% are undesirable for an essential service.[95]

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[94]   We signalled the potential for NPV-negative rates of change in the April 2011 Update Paper. Refer, for example: Commerce Commission, *2010-15 Default Price-Quality Path Starting Price Adjustments and Other Amendments: Update Paper*, April 2011, paragraph 6.24.

[95]   There was no major opposition to the application of a limit on the largest price increases. For example, refer: PWC, *Submission to the Commerce Commission on Revised Draft Reset of the 2010-15 Default Price-Quality Paths, Made on behalf of 20 Electricity Distribution Businesses*, 1 October 2012, paragraphs 53 to 57.

6.8 However, claw-back will be applied to the extent necessary for suppliers to be able to earn a normal return from 1 April 2012. Claw-back will therefore be greater than it would have been otherwise for suppliers that are subject to the CPI+10% limit on their price changes.

6.9 Consequently, NPV-equivalence would still be achieved for suppliers even if they have a limit of CPI+10% applied to their price increases. The only difference is that NPV-equivalence will be achieved over a longer timeframe.

6.10 The limit of CPI+10% differs to that proposed in our revised draft decision, which was CPI+15%. This is because we received submissions that indicated that a lower limit would be preferable to a higher limit, and we see little reason to disagree with this view.[96]

No evidence of undue financial hardship for suppliers

6.11 We have not set alternative rates of change to minimise undue financial hardship to suppliers. This is because we have not been provided any evidence to suggest that suppliers would face financial hardship, eg, in response to our revised draft decision, and the price reductions are of a similar magnitude.

Criteria for identifying undue financial hardship

6.12 In our revised draft decision, we stated that any supplier that believes the proposed price adjustments would cause undue financial hardship must provide evidence that:[97]

6.12.1 the revenue adjustment would, or would be likely to, limit the supplier's ability to finance its reasonable investment needs and meet its debt repayments as they fall due; and/or

6.12.2 it is not reasonable (and/or possible) for the supplier to address its limited ability to finance its reasonable investment needs and meet its debt repayments as they fall due by altering its behaviour.[98]

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[96] Contact Energy, *The Commerce Commission's Revised Draft Reset of the 2010-15 Default Price-Quality Paths: Submission to the Commerce Commission*, 1 October 2012, p6; Major Electricity Users' Group, *Cross-submission on Revised Draft Reset of the 2010-15 Default Price-Quality Paths for EDB*, 12 October 2012, p2.

[97] The expenditure objective for customised price-quality paths provides guidance on what is meant by reasonable investment needs. Refer: *Commerce Act (Electricity Distribution Services Input Methodologies) Determination 2010*, 23 December 2010, clause 1.1.4.

6.13   In addition, given the size of the reductions, we think it is unlikely that any prudently financed suppliers would face financial hardship on the basis of the figures indicated.

Why we have not relied on a specific threshold for financial hardship

6.14   We have not identified a threshold for the size of a price decrease that would justify an alternative rate of change. PWC and Vector, for example, have suggested a CPI-10% threshold;[99] however, we consider it appropriate to allow greater flexibility in determining where undue financial hardship may occur. In addition, undue financial hardship is demonstrable with evidence, and we have not set any price reductions that are greater than CPI-10%.[100]

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[98]   It may not be reasonable for a supplier to address its financial hardship by altering its behaviour if a change in behaviour would, on balance, have a negative impact on the efficient running of the business.

[99]   PWC, *Submission to the Commerce Commission on Revised Draft Reset of the 2010-15 Default Price-Quality Paths, Made on behalf of 20 Electricity Distribution Businesses*, 1 October 2012, p12; Vector "Submission to Commerce Commission on Additional DPP IMs Process and Issues Paper" 27 January 2012.

[100]   We therefore do not consider that we should simply exercise judgment to reach a decision about whether suppliers are facing financial hardship, as was suggested by PwC (on behalf of 20 electricity distributors). Financial hardship should be demonstrable with evidence, just as price shocks can be assessed through analysis of the likely size of price changes. For PwC's submission on this point, refer: PWC, *Submission to the Commerce Commission on Revised Draft Reset of the 2010-15 Default Price-Quality Paths, Made on behalf of 20 Electricity Distribution Businesses*, 1 October 2012, paragraph 55.

7. Application of claw-back

Purpose of this chapter

7.1 This chapter explains our approach to claw-back. It covers why we have applied claw-back, and how that claw-back would be applied over time.

Claw-back will allow suppliers to earn a normal return from 1 April 2012

7.2 We will apply claw-back so as to achieve broadly similar outcomes for suppliers and consumers, in net present value terms, as if the price reset had been implemented in full on 1 April 2012. For most suppliers, the amount to be clawed back would be equal to any over- or under-recovery in 2012/13.

Claw-back would neutralise the impact of the delay in the reset

7.3 Prior to the High Court's directions to re-determine input methodologies, price adjustments could have taken effect from 1 April 2012. Those price changes will now take effect on 1 April 2013. We can see no reason why the delays to the process should be allowed to have an impact on supplier returns, where such an outcome could be avoided once the price path has been reset.

7.4 We have previously signalled that claw-back for 2012/13 may be applied. In December 2010, in response to concerns about the delay to the reset process, the Chair of the Commerce Commission wrote to suppliers to inform them that claw-back may be applied for 2012/13 when the price path was reset.[101]

Why we have not applied a general claw-back for other years

7.5 We do not agree with submissions that have argued that we should apply claw-back for all under- or over-recovery since 1 April 2010.[102] 1 April 2012 provides the relevant date from which suppliers should have the opportunity to earn a normal return.[103] This is because input methodologies would have been reflected in pricing from that date, had our July 2011 Draft Decision been implemented.[104]

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[101] Letter from Mark Berry (Chair, Commerce Commission) to all non-exempt Electricity Distribution Businesses on the Default Price Quality Path – 2012/13 Pricing Year (15 December 2011).

[102] Unison Networks Limited, Submission on Revised Draft Reset of the 2010-15 Default Price-Quality Paths, 1 October 2012, pp 18-22; Major Electricity Users' Group "Submissions on additional Input Methodologies – starting price adjustments" 20 January 2012.

[103] Because we are applying claw-back from 1 April 2012, we must assess each supplier's costs between 1 April 2012 and 31 March 2015, ie the present value period. The input methodologies provide the appropriate basis for assessing each supplier's costs over that period using information that is available

7.6   In addition, the power to apply claw-back for earlier years is not mandatory. We do not expect any adverse impacts on investment incentives if claw-back is not applied. For example, we have not received any submissions from a regulated supplier which has established that it would be adversely affected, and investment deterred, if we did not back date claw-back to 1 April 2010.

7.7   As noted in paragraph 6.9, however, the amount of claw-back applied for some suppliers that face price increases will exceed the amount of any under-recovery in 2012/13. This is because NPV-negative alternative rates of change have been applied to certain suppliers, and so greater claw-back would be required for these suppliers to ensure they have an opportunity to earn a normal return from 1 April 2012.

How claw-back would be applied

7.8   This section explains why:

7.8.1   no claw-back can be applied in 2013/14; and

7.8.2   we spread claw-back over time.

Why no claw-back can be recovered in 2013/14

7.9   The first year that claw-back could be recovered is the last year of the current regulatory period. This is because 2014/15 will be the first year that actual quantities for 2012/13 will be available, and those quantities are required to calculate the amount to be clawed back under the requirements for the compliance formula for each path.

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about the past. We have applied the same input methodologies consistently throughout earlier years of the regulatory period. We therefore do not consider our approach to be "inconsistent" or "retrospective". Unison, for example, commented in its submission we have applied certain input methodologies retrospectively, eg, back-dating the change in treatment of capital contributions, applying the GST adjustment to CPI retrospectively, and applying related party transaction rules to past transactions. Refer: Unison Networks Limited, Submission on Revised Draft Reset of the 2010-15 Default Price-Quality Paths, 1 October 2012, pp 18-22.

[104] In addition, the majority of submitters during earlier consultation processes provided support for only one year or less of claw-back. For a recent submission refer to Powerco, *Submission on the Revised Draft Reset of the 2010-15 Default Price-Quality Paths*, 1 October 2012, p18.

Why we spread claw-back over time

7.10   We are required to spread claw-back over time to minimise price shocks to consumers or undue financial hardship to the supplier. As discussed in Chapter 6, we have applied a limit to the maximum price increases allowed in the remainder of this regulatory period. We have therefore spread claw-back over more than one year, including into the next regulatory period, if the implied price change is sufficiently large.

7.11   In assessing whether the price change is likely to be sufficiently large, we will consider the overall impact on prices of both the supplier's rate of change and the claw-back amount. In practice, this consideration only applies to suppliers that are subject to an alternative rate of change.

7.12   Given the size of the price increases, we currently expect that:

7.12.1   most suppliers will be able to recover the full claw-back amount in 2013/14; and

7.12.2   suppliers that are subject to an alternative rate of change will recover their claw-back amounts in the next regulatory period, and we would consult on the appropriate rate of recovery at the next reset (by which time we will be able to factor in the price changes proposed at the time).

7.13   We provide further information on how claw-back is calculated in Attachment J, including the interest rate that must be used to calculate present value amounts. Attachment J also explains how we have adjusted the claw-back calculation since our revised draft decision.

8. Responses to submissions about incentive mechanisms

Purpose of this chapter

8.1 This chapter provides responses to submissions on incentive schemes that could be applied under the default price-quality path.

Enhancing each supplier's incentive to achieve efficiency gains

8.2 A supplier's incentive to maintain or achieve efficiency gains tends to diminish towards the end of the regulatory period, as the gains are shared with consumers when prices are adjusted.

8.3 This diminishing of incentives can be overcome by what are known as 'rolling incentive' schemes, where the benefits of efficiency gains are retained for a fixed number of years, irrespective of when they occurred during the regulatory period. We put in place an incremental rolling incentive scheme (IRIS) in the input methodologies applicable to customised price-quality paths in December 2010.[105]

8.4 Submitters have repeated requests that we put an IRIS in place for the default price-quality path.[106] As noted in our revised draft decision, doing so would require an amendment to the existing rules and processes input methodologies for the default price-quality path, which are not the subject of this consultation. We will consider that request at a later date.

Staggered sharing proposed by Vector

8.5 Vector has repeated its submission that we should put in place a staggered sharing mechanism.[107] The staggered sharing mechanism would result in a less pronounced reduction in a supplier's starting price if the supplier is currently earning above normal returns, eg, due to efficiency gains in the supply of regulated services. Vector has argued that this approach would provide greater incentives to make the gains in the first place.

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[105] Refer: Commerce Commission, *Input Methodologies (Electricity Distribution Businesses and Gas Pipeline Businesses) Reasons Paper, 22 December 2010.*

[106] Electricity Networks Association, *Submission on the Revised Draft Reset of the 2010-15 Default Price-Quality Paths*, 1 October 2012, pp 22 to 23; Vector, Submissions to the Commerce Commission on Revised Draft Reset of the 2010-15 Default Price-Quality Paths for Electricity Distribution Businesses, 1 October 2012, pp 33 to 36.

[107] Refer: Vector, *Efficiency impacts of Starting Price Adjustments – Stylised Example*, 19 December 2011.

8.6   We have not applied a staggered sharing mechanism at this reset because incentive mechanisms only provide benefits to consumers when they have been signalled to suppliers up front. That is not the case for any efficiency gains that were achieved prior to the start of this regulatory period.

8.7   In addition, two further factors are relevant. First, suppliers will be able to keep the benefits of any efficiency gains that have been achieved since the start of the regulatory period. Secondly, because of our approach to claw-back, any supplier required to reduce their prices would be able to retain the profits earned in the first two years of the regulatory period.

8.8   We are not currently inclined to apply a staggered sharing mechanism in the future either. This is due to the adverse incentives that may be created; in particular, suppliers may have an incentive to artificially inflate their returns in the year prior to the adjustment.[108] Starting prices would consequently be higher than they would be otherwise.

8.9   Finally, as we noted in our revised draft decision, a staggered sharing mechanism may also serve to 'lock in' any excessive profits that would be earned in future if prices from before the introduction of Part 4 are continued.[109] As noted by PwC (on behalf of Powerco), the simple staggering mechanism "creates the potential for windfall gains and losses". This is because above normal returns are not necessarily attributable to efficiency gains.[110]

Energy efficiency

8.10   In response to our revised draft decision, we received a number of submissions that have repeated arguments in favour of explicit incentive schemes that could be put in place for energy efficiency, demand side management, and the reduction of energy losses. Under s 54Q of the Act, we are required to promote incentives, and avoid imposing disincentives, for these matters.

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[108]   For example, suppliers may have an incentive to make early payments for services used in that year, or to delay activities until the next period

[109]   Some businesses, for example, are likely to be earning relatively high returns at present, simply as a result of prices not yet having been adjusted following the publication of input methodologies.

[110]   We also considered whether it would be possible to implement a low cost approach to assess whether above normal profits achieved prior to the amendments to Part 4 were attributable to efficiency gains. On balance, we concluded that such a scheme would require audit, verification and evaluation processes, which would be too costly to implement under the default price-quality path.

8.11   We do not consider that it would be appropriate to put in place an explicit incentive scheme for these matters to apply in the remaining two years of the regulatory period. The re-determined input methodologies do not give rise to revisiting the determination to enhance the existing structure of incentives.

8.12   As we noted when the 2010-15 default price-quality paths were first set, our approach does not impose any disincentive for suppliers to invest in energy efficiency, demand side management, or for the reduction in losses.

8.13   Suppliers will retain pricing flexibility to set time-of-use tariffs, eg, peak/off-peak, and seasonal prices. This pricing flexibility allows suppliers to manage peak demand on their networks, which can achieve sub-network peak demand reductions, defer investment, and lower costs, while still generating the same level of revenue.

8.14   We also consider that it is appropriate to address s 54Q across our regulatory instruments as a whole, rather than through a single instrument in isolation. We are therefore developing information disclosure requirements that capture information on energy efficiency. Suppliers also have the option of proposing a customised price-quality path based on, among other things, their policies on distributed generation and non-network solutions.

8.15   Nevertheless, we will give further consideration to any proposals, including those made in prior consultation, as part of work leading up to the reset in 2015. We are grateful for the submissions that have been made in advance of the work leading up to that reset.

Attachment A: Summary of key inputs

Purpose of this attachment

A1   This attachment summarises the key inputs into our financial model for each supplier.[111] The key inputs are:

  A1.1   capex forecasts for 2010/11 to 2014/15;

  A1.2   opex forecasts for 2010/11 to 2014/15;

  A1.3   other regulatory income; and

  A1.4   constant price revenue growth for 2012/13 to 2014/15.

Allowances for capital expenditure

A2   Our capex allowances are based on forecasts of network, and non-network capital expenditure.

  A2.1   Network capex is expenditure on assets that form part of the distribution network. We have relied on each supplier's forecasts to model their network capex in constant prices.

  A2.2   Non-network capex is expenditure on assets that do not form part of the distribution network.[112] We have modelled non-network capex based on each supplier's historic average level of expenditure.

A3   Table A1 overleaf shows the amount of nominal capex we have allowed for each supplier each year.

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[111] All figures shown in this chapter must be treated with caution. They have been developed for regulatory purposes only and the Commission does not warrant the use of the figures for other purposes.
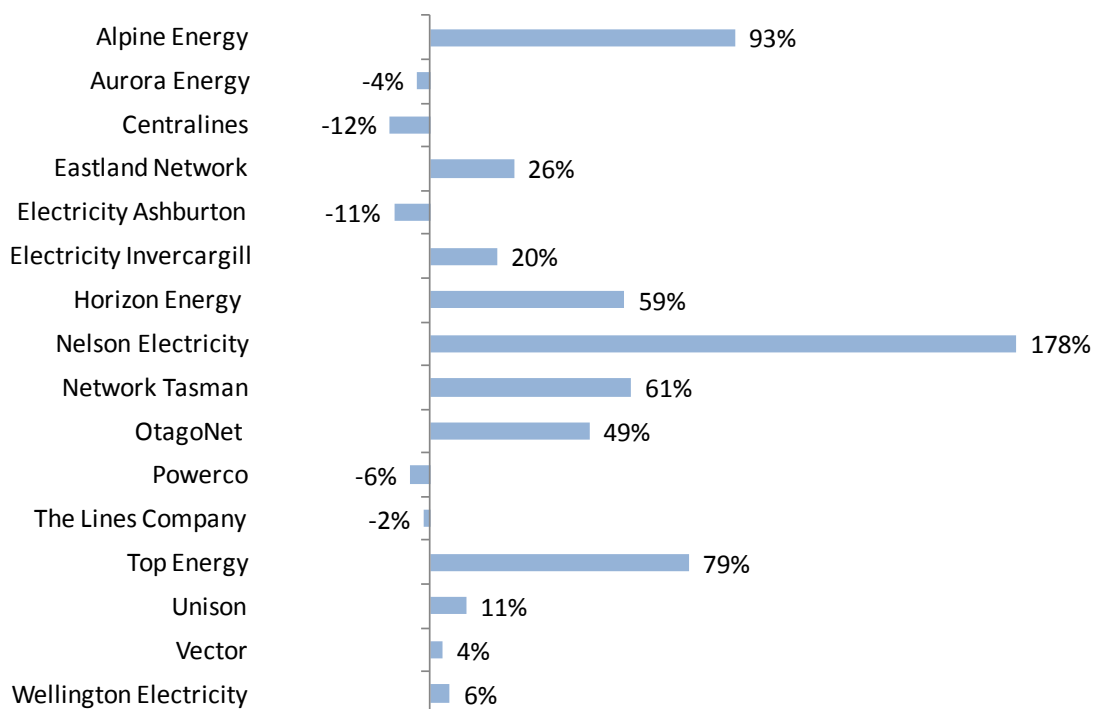
[112] For example, office buildings, depots, workshops, motor vehicles, tools, plant and machinery. These definitions are consistent with those proposed under our information disclosure requirements for suppliers.

Table A1: Nominal capital expenditure forecasts 2010/11 to 2014/15 ($m)

Supplier	10/11	11/12	12/13	13/14	14/15
Alpine Energy	24.1	22.2	29.3	20.2	13.6
Aurora Energy	20.0	20.6	16.7	20.6	19.6
Centralines	5.9	3.0	3.8	3.2	3.5
Eastland	5.5	5.9	5.9	6.0	6.1
Electricity Ashburton	12.7	16.3	9.8	11.4	12.8
Electricity Invercargill	4.1	3.6	3.6	3.2	3.2
Horizon Energy	6.0	6.1	5.7	4.4	4.7
Nelson Electricity	6.2	6.3	1.9	1.6	1.7
Network Tasman	8.7	7.6	6.4	5.6	6.4
OtagoNet	9.6	9.9	10.4	10.3	10.2
Powerco	74.3	75.1	77.4	83.5	88.1
The Lines Company	8.5	8.0	8.5	9.1	8.5
Top energy	14.7	16.5	15.6	15.0	15.9
Unison	37.4	46.5	43.7	46.3	29.7
Vector	120.0	131.1	142.9	152.7	146.3
Wellington Electricity	28.3	31.5	34.6	35.2	37.1
Total	**385.9**	**410.3**	**416.2**	**428.2**	**407.3**

A4   Figure A1 overleaf compares each supplier's average annual capex allowance for 2010/11 to 2014/15 to their historic average in constant prices.

Figure A1: Constant price increase in average capital expenditure allowance for this reset (2010/11 to 2014/15) compared to historical average (2007/08 to 2009/10)

| Supplier	Value
Alpine Energy	93%
Aurora Energy	-4%
Centralines	-12%
Eastland Network	26%
Electricity Ashburton	-11%
Electricity Invercargill	20%
Horizon Energy	59%
Nelson Electricity	178%
Network Tasman	61%
OtagoNet	49%
Powerco	-6%
The Lines Company	-2%
Top Energy	79%
Unison	11%
Vector	4%
Wellington Electricity	6%

Allowances for operational expenditure

A5   Our opex allowances are based on our calculations of the likely trends for each supplier, with an adjustment to reflect the increased insurance costs following the Canterbury earthquake and other natural disasters. We consider that trends in supplier opex are influenced by the following three key factors.

A5.1   Network scale – The scale of the network would be expected to affect opex because the volume of service provided will change;

A5.2   Partial productivity – Improvements in opex partial productivity will reduce the amount of opex needed to provide a given level of service; and

A5.3   Input prices – Changes in input prices will affect the annual cost of providing a given level of service.

A6   Table A2 overleaf shows the nominal opex we have allowed for each supplier each year.

Table A2: Nominal operational expenditure forecasts 2010/11 to 2014/15 ($m)

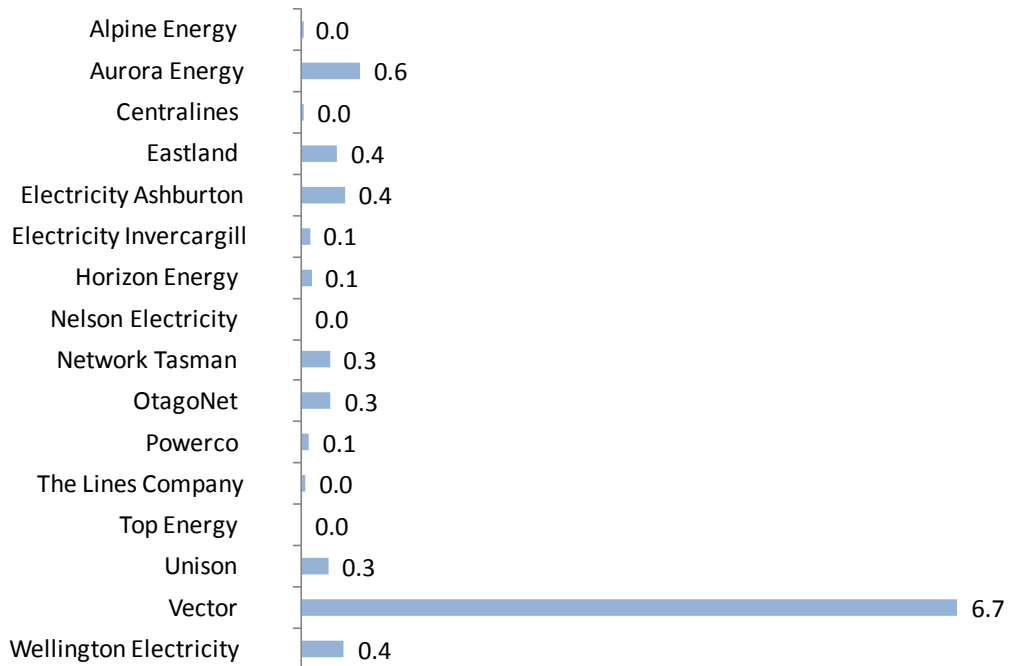| Supplier	10/11	11/12	12/13	13/14	14/15
Alpine Energy	10.5	10.8	11.0	11.3	11.6
Aurora Energy	19.7	20.5	21.0	21.6	22.3
Centralines	2.6	2.7	2.8	2.8	2.9
Eastland	6.1	6.3	6.4	6.6	6.7
Electricity Ashburton	6.2	6.4	6.6	6.8	7.0
Electricity Invercargill	4.5	4.7	4.8	4.9	5.0
Horizon Energy	6.8	7.0	7.1	7.3	7.5
Nelson Electricity	2.2	2.3	2.3	2.4	2.5
Network Tasman	7.5	7.8	8.0	8.2	8.5
OtagoNet	5.0	5.2	5.3	5.4	5.5
Powerco	67.4	69.7	71.5	73.6	75.9
The Lines Company	8.5	8.7	8.9	9.1	9.3
Top energy	11.5	11.8	12.1	12.4	12.8
Unison	26.9	28.0	29.4	30.4	31.4
Vector	106.0	110.7	114.7	118.9	123.5
Wellington Electricity	29.8	31.1	32.1	33.1	34.4
Total	**321.0**	**333.6**	**343.9**	**354.8**	**366.8**

A7   Figure A2 overleaf shows the percentage growth in opex from 2010/11 to 2014/15 broken down by the main components. It shows that the changes in input prices are fairly consistent across all suppliers, whereas there are large differences in the change in network scale effects.[113] In some cases, network scale effects were negative.

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[113] Note that the change in partial productivity was 0% for all suppliers and is therefore not shown in this chart.

Figure A2: Projected growth in operational expenditure from 2010/11 to 2014/15
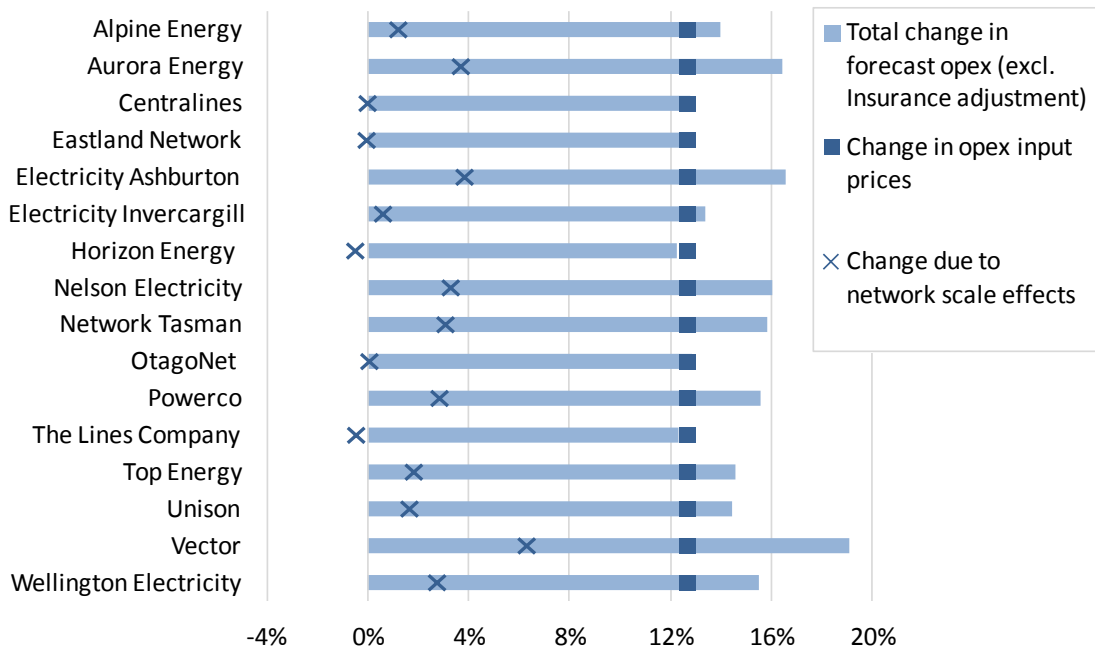

Deductions for other regulatory income

A8   Other regulated income is income from the provision of regulated services that is recovered in a different manner from line charges. Examples of other regulated income are lease or rental income from regulated assets.

A9   We have estimated each supplier's other regulated income by using an average of their actual figures from 2007/08 to 2010/11. We have excluded a small number of line items that are particularly large and unlikely to reoccur.

A10   Figure A3 overleaf shows the estimates of other regulatory income we have used in our modelling.

Figure A3: Other Regulated Income 2010/11 to 2014/15 ($m)

Supplier	Value
Alpine Energy	0.0
Aurora Energy	0.6
Centralines	0.0
Eastland	0.4
Electricity Ashburton	0.4
Electricity Invercargill	0.1
Horizon Energy	0.1
Nelson Electricity	0.0
Network Tasman	0.3
OtagoNet	0.3
Powerco	0.1
The Lines Company	0.0
Top Energy	0.0
Unison	0.3
Vector	6.7
Wellington Electricity	0.4

Forecasts of constant price revenue growth

A11   Constant price revenue growth is the revenue growth that occurs as a result of changes in quantities billed. It is calculated separately for residential users and industrial and commercial users. Constant price revenue from residential users is modelled as a function of the number of residential users and energy use per residential user. Constant price revenue from industrial and commercial users is modelled as a function of GDP.

A12   Figure A4 overleaf presents the constant price revenue forecasts we have used in our modelling for each supplier.

Figure A4: Forecast of constant price revenue (cumulative 2012/13 to 2014/15)
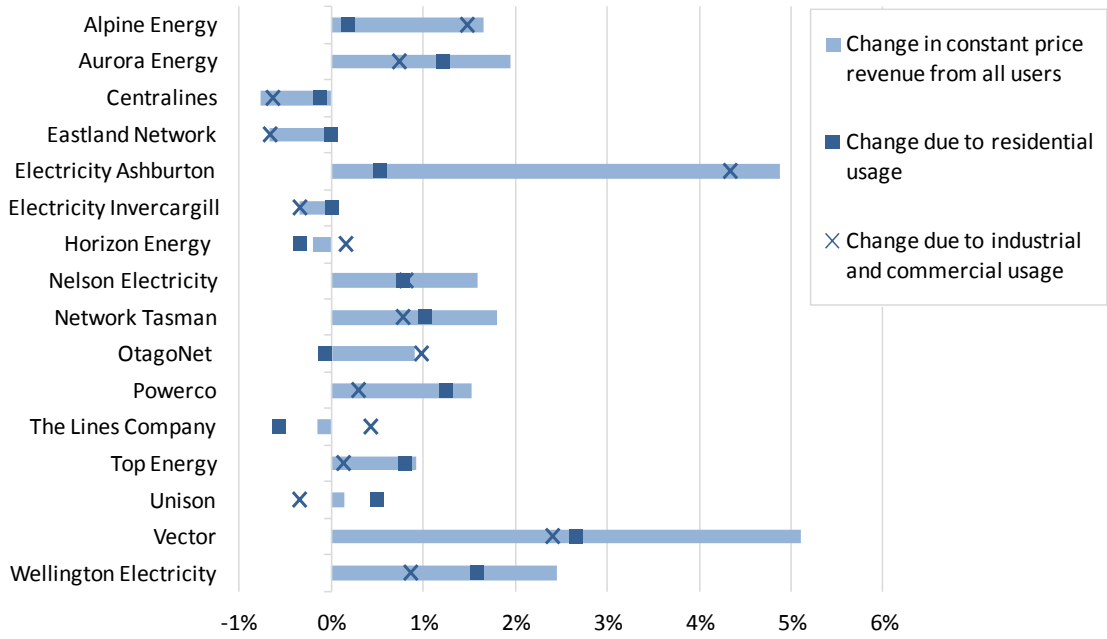
Attachment B: How we forecast capital expenditure

Purpose of this attachment

B1   This attachment provides an overview of, and reasons for, our approach to forecasting each supplier's capital expenditure. The capital expenditure forecast is used to calculate the return *on* and *of* capital in Step One in Chapter 4.

We have separately modelled two categories of capital expenditure

B2   We have separately modelled network and non-network capex in constant prices. We treat each category separately because there are differences in:

    B2.1   the extent to which forecasts are available;

    B2.2   the relative impact on starting prices; and

    B2.3   the nature and drivers of expenditure.

B3   We then combined the forecasts for each category in each year, and then made an adjustment to the constant price series to reflect the impact of future changes in input prices. This approach was supported by Horizon, who acknowledged that the separation helps forecasting because of the different nature and drivers of the expenditure.[114]

Main changes since our revised draft decision

B4   The changes to our capital expenditure allowances have resulted from:

    B4.1   using a more up to date source of input price data, both for forecast and actual movements in input prices; and

    B4.2   re-submission of information previously provided by suppliers, to ensure it is all prepared on a consistent basis.[115]

B5   However, we have not made any changes to our overall approach for modelling capex since our revised draft decision was published. This is because the overall approach was generally supported by submitters.[116]

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[114]   Horizon Energy, *Submission to Commerce Commission on Revised Draft Reset of the 2010-15 Default Price-Quality Paths* 1 October 2012, p11.

[115]   We have also updated Powerco's forecasts to include its Independent Transmission Services, which were incorrectly excluded from the forecast contained in its 2009/10 Asset Management Plan.

How we model network capital expenditure

B6   To model each supplier's network capex, we have relied on the forecasts disclosed by suppliers in their 2009/10 Asset Management Plan (AMP).[117]

B7   We have relied on each supplier's forecast because:

B7.1   suppliers have access to the best information about current and future demand drivers for its services, how to efficiently meet this demand, and the costs incurred in providing the services;

B7.2   this information puts a supplier in a relatively good position (perhaps with some external help) to forecast demand and expenditure requirements for providing the service;

B7.3   suppliers have an incentive to forecast capex accurately and efficiently through the disclosure of expenditure and associated information in Information Disclosure; and

B7.4   previous submissions strongly supported using each supplier's own forecasts.[118]

B8   However, if we rely on each supplier's forecasts, we provide suppliers with an incentive to systematically bias their forecast to increase their starting price, eg, by adopting conservative forecasting assumptions. Contact Energy and the Major Electricity User Group (MEUG) have voiced concerns of this nature.[119]

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[116]   Electricity Networks Association, *Submission on the Revised Draft Reset of the 2010-15 Default Price-Quality Paths, 1 October 2012* p17; Otagonet, *Submission on the Revised Draft Reset of the 2012/15 Default Price-Quality Paths*, 1 October 2012 p3; Powerco, *Submission on the Revised Draft Reset of the 2010-15 Default Price-Quality Paths*, 1 October 2012 p11; Unison Networks Limited, *Submission on Revised Draft Reset of the 2010-15 Default Price-Quality Paths*, 1 October 2012 p16.

[117]   We have confirmed with suppliers that this data is the best proxy available of the value of commissioned assets as discussed in paragraph B26.

[118]   Horizon, *Submission to the Commerce Commission on Additional Input Methodologies for Default Price-Quality Paths Process and Issues Paper* 27 January 2012 at paragraph 40, Powerco, *Submission on additional input methodologies for default price-quality paths: process and issues paper 27 January 2012* p11, Vector *Submission to Commerce Commission on Additional DPP IMs Process and Issues Paper* 27 January 2012 at paragraph 95, Wellington Electricity *Additional Input Methodologies: Process and Issues Paper* 27 January 2012, p 8.

[119]   Contact Energy, *The Commerce Commission's Revised Draft Reset of the 2010-15 Default Price-Quality Paths: Submission to the Commerce Commission*, 1 October 2012 pp5-6; Major Electricity Users' Group,

B9   As noted in our revised draft decision, we recognise that the figures we have used are generally high when assessed against historic levels of expenditure and actual levels of expenditure in 2010/11. It is therefore very unlikely that we would rely on each supplier's forecasts if they were this high in future, given the incentive that suppliers will have to increase their forecast to secure a higher starting price.[120]

B10   Nevertheless, we do not consider that the forecasts that we have relied for this decision are likely to have been inflated as a result of incentives that we created. Our reason for reaching this view is repeated again at paragraph B12.2 below. The accuracy of each supplier's forecast will also be assessed against actual levels of expenditure, which will provide useful context for the next reset.

Why we have relied on the forecasts from each supplier's 2009/10 AMP

B11   We consider it appropriate to use the forecasts from each supplier's 2009/10 AMP as this is the most recent data we have before the beginning of the regulatory period. Submissions generally supported relying on each supplier's 2009/10 AMP.[121]

B12   Using the data from the 2009/10 AMP will:

   B12.1   allow suppliers to retain the benefit of any efficiency gains achieved since the start of the current regulatory period; and

   B12.2   help ensure that forecasts are not significantly biased, in either direction, because suppliers did not know that the data would be used for setting starting prices, so there was no incentive to inflate forecasts at that time.

Cross-Submission on Revised Draft Reset of the 2010-15 Default Price-Quality Paths for EDB, 12 October 2012 p1.

[120] One option that we will consider at future resets would be to cap the capex increases relative to historic averages. A variant on this approach was recently proposed in our recent draft decision for gas pipeline services. Refer: Commerce Commission *Revised Draft Decision for the Initial Default Price-Quality Path for Gas Pipeline Businesses*, 24 October 2012.

[121] Powerco and Unison support the use of the 2009/10 AMPs refer Powerco, *Submission on the Revised Draft Reset of the 2010-15 Default Price-Quality Paths*, 1 October 2012 p11 and Unison Networks Limited, *Submission on Revised Draft Reset of the 2010-15 Default Price-Quality Paths*, 1 October 2012 p16. PWC and ENA support the use of the 2009/10 AMP although they suggested that the 2009/10s AMPs may underestimate the required levels of capex particularly in later years refer PWC, *Submission to the Commerce Commission on Revised Draft Reset of the 2010-15 Default Price-Quality Paths, Made on behalf of 20 Electricity Distribution Businesses*, 1 October 2012 p8; Electricity Networks Association, *Submission on the Revised Draft Reset of the 2010-15 Default Price-Quality Paths*, 1 October 2012 pp13-14.

B13   We received submissions from Vector and Horizon requesting that we use capex forecasts from a more recently disclosed AMP.

  B13.1   Vector suggest we should adopt the 2011/12 (or at least the 2010/11) AMP rather than the 2009/10 AMP.[122]

  B13.2   Horizon submitted that the 2010/11 AMP should be used as this forecast is more recent, and was disclosed before suppliers knew it would be used for setting starting prices.[123]

B14   We have not accepted submissions that we should use the forecasts contained within each supplier's 2010/11 or 2011/12 AMP as this will:[124]

  B14.1   disadvantage suppliers that have achieved efficiency gains in response to the incentives inherent in the price path;

  B14.2   disadvantage consumers of suppliers that have not been able to control expenditure in response to the incentives inherent in the price path; and

  B14.3   potentially result in biased forecasts (in the 2011/12 AMP) as suppliers were aware of our approach to base our capex forecasts on the supplier's own forecast following our July 2011 Draft Decision.

B15   In its submission on our July 2011 Draft Decision, Powerco recognised the trade-off between the potentially improved accuracy of more recent forecasts, and the benefit of sharing efficiency gains and losses that may have occurred relative to the 2009/10 AMP forecast.[125] As noted above, we have made this trade-off in favour of suppliers' 2009/10 forecasts.

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[122]   Vector, *Submissions to the Commerce Commission on Revised Draft Reset of the 2010-15 Default Price-Quality Paths for Electricity Distribution Businesses*, 1 October 2012 pp11-12.

[123]   Horizon Energy, *Submission to Commerce Commission on Revised Draft Reset of the 2010-15 Default Price-Quality Paths*, 1 October 2012 p11.

[124]   Horizon *Submission to the Commerce Commission on Additional Input Methodologies for Default Price-Quality Paths Process and Issues Paper* 27 January 2012 at paragraph 40, Vector *Submission to Commerce Commission on Additional DPP IMs Process and Issues Paper* 27 January 2012 at paragraph 91.

[125]   Powerco *Submission on Additional Input Methodologies for Default Price-Quality Paths: Process and Issues Paper* 27 January 2012 paragraph 133 Powerco understands the Commission's concern not to penalise suppliers or consumers when adopting the most recent year for the base year. However, that concern must be balanced against the potential advantages of using the most recent information to project profitability. So this is, in Powerco's view, an exercise of judgement for the Commission.

How we model non-network capital expenditure

B16   We have modelled non-network capex using each supplier's historic arithmetic average level of expenditure for the period 2007/08 to 2009/10 in constant prices. We consider that this approach is appropriate because:

    B16.1   we do not have a forecast of non-network capex;[126]

    B16.2   this type of expenditure is relatively small compared to network capex;[127]

    B16.3   due to the nature of the expenditure, total non-network capex over the regulatory period is likely to be similar to past levels of expenditure;[128] and

    B16.4   we do not consider that changes in scale or partial productivity would have a significant impact on the overall level of required capital expenditure.[129]

B17   As our approach does not include an estimate of the impact of changes in scale or partial productivity the use of the arithmetic average results in a constant (flat) profile in real terms, ie, there is no year on year change.

Generally support for our approach from submitters

B18   The majority of submitters supported our approach for forecasting non-network capex.[130] Powerco in particular agreed with all aspects of our approach supporting "the inclusion of non-network expenditure in the capital expenditure forecast and the approach the Commission has taken for the mid period reset".[131]

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[126]   Suppliers were not required to provide projections in 2009/10, so we do not have these projections.

[127]   There is a significant difference in the size of non-network capex compared to network capex. The industry average spend on network capex is 10 to 20 times larger than non network capex.

[128]   Non-network capex is made up of a number of unrelated projects with a diverse range of stable drivers related to network scale.

[129]   Unlike opex, developing an econometric model for estimating the impact of change in scale and change in partial productivity on non-network capex would not be appropriate given the materiality of non-network capex and the low-cost nature of the default price-quality path.

[130]   Powerco, *Submission on the Revised Draft Reset of the 2010-15 Default Price-Quality Paths*, 1 October 2012 p12; PWC, *Submission to the Commerce Commission on Revised Draft Reset of the 2010-15 Default Price-Quality Paths, Made on behalf of 20 Electricity Distribution Businesses*, 1 October 2012 p8.

[131]   Powerco, *Submission on the Revised Draft Reset of the 2010-15 Default Price-Quality Paths*, 1 October 2012 p12.

B19   We were not persuaded by Horizon's submission that we should request a forecast of non-network capex from suppliers.[132] While we recognise that non-network capex may constitute up to 10% of total capex, the impact on the supplier's starting price is still fairly limited. This is because capex is not recovered in a single regulatory period. Therefore, we did not consider it necessary to request a forecast from suppliers.

B20   Vector argued that our approach for forecasting non-network capex understates their needs because, unlike most other suppliers, we have only relied on two years worth of data. However, because Vector sold the Wellington part of its network at the beginning of 2008/09, it would be inappropriate to include this year in the series used to calculate an average.

The average is calculated using three years data

B21   We calculated the historic average for non-network capex using data from information disclosure years 2007/08, 2008/09 and 2009/10. These are the years for which consistent data is available.

B22   Vector submitted that we should also include 2011 actual non-network capex figures.[133] However, while more recent information is usually preferable, in this mid-period reset we have decided it is more appropriate to take data from before the regulatory period began.

Changes in input prices

B23   To arrive at a nominal estimate of each supplier's capex, we have applied an input price index to the combined network and non-network capex amount.

B24   The most dependable source of information about future changes in capex input prices for each industry is the Capital Goods Price Index (CGPI) for all groups. We consider that this provides a good proxy for industry-specific indices, which are hard to predict individually. Unison expressed doubt that this will accurately predict sector-specific price inflation, but recognised that there is no ready alternative, so accepted its use at this reset.[134]

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[132]   Horizon Energy, *Submission to Commerce Commission on Revised Draft Reset of the 2010-15 Default Price-Quality Paths*, 1 October 2012 pp11 -12.

[133]   Vector, *Submissions to the Commerce Commission on Revised Draft Reset of the 2010-15 Default Price-Quality Paths for Electricity Distribution Businesses*, 1 October 2012 p12.

[134]   Unison Networks Limited, *Submission on Revised Draft Reset of the 2010-15 Default Price-Quality Paths*, 1 October 2012 p17.

B25   We have used the latest available forecast from NZIER to project input prices for the period 2013 to 15.[135] We have used actual changes in CGPI where this is known, which includes the all industries CGPI in 2009/10 and 2010/11.

Capital expenditure forecasts are used as a proxy for the value of commissioned assets

B26   We have made a simplifying assumption that the nominal forecast of capex can be used to forecast the value of commissioned assets.[136] To ensure that this assumption is consistent we requested updated information from suppliers to confirm, or amend their 2009/10 AMP so it is net of customer contributions and is in 2009/10 constant prices. This assumption is appropriate because:

B26.1   the cost of finance during construction is included in the forecast or, if it is not included, it is not material to the starting price adjustment;[137] and

B26.2   the forecast is on a commissioned basis (rather than spend basis), or the difference between the two profiles does not significantly affect the starting price adjustment.

B27   In response to our revised draft decision, Vector argued that we should revert back to an approach based on growth rates.[138] Such an approach would consist of applying growth rates, where the growth rate is derived from the change in the capital expenditure forecasts over time.

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[135]   Under commercial terms between the Commission and NZIER, forecast CGPI may be shared with the industry, but not more widely. Suppliers may request this information from the Commission.

[136]   This approach was supported in submissions by Electricity Networks Association, *Submission on the Revised Draft Reset of the 2010-15 Default Price-Quality Paths*, 1 October 2012 p17; Otagonet, *Submission on the Revised Draft Reset of the 2012/15 Default Price-Quality Paths*, 1 October 2012 p3; Unison Networks Limited, *Submission on Revised Draft Reset of the 2010-15 Default Price-Quality Paths*, 1 October 2012 p16.

[137]   Refer, for example: Electricity Networks Association, *Submission on the Revised Draft Reset of the 2010-15 Default Price-Quality Paths*, 1 October 2012, paragraph 54, pp13-14.

[138]   Vector, *Submissions to the Commerce Commission on Revised Draft Reset of the 2010-15 Default Price-Quality Paths for Electricity Distribution Businesses*, 1 October 2012 p13 We previously proposed this approach in Commerce Commission, *2010-15 Default Price-Quality Path for Electricity Distribution: Draft Decisions Paper*, July 2011.

B28   We continue to consider that using capital expenditure forecasts as a proxy for commissioned assets provides a better estimate than any other source. This forecast includes dollar amounts that have been forecast for each year. The ENA supported our approach for this reset.[139]

Summary of the information sources for modelling capital expenditure

B29   Table B1 below sets out the information source for all information used to model capex.

Table B1: Information for modelling capital expenditure

Item	Information used	Source
Network capex	Suppliers annual forecast of network capex	Information disclosures 2009/10 AMP with updated information in the 2012 information request
Non-network capex	Suppliers annual actual non-network capex	Information disclosures actual expenditure for 2007/08, 2008/09 and 2009/10
Change in input prices	Capital Goods Price Index	NZIER forecasts for 2012/13, 2013/2014 and 2014/15 Actual CGPI for 2010/11 and 2011/12, Statistics New Zealand

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[139]   Electricity Networks Association, *Submission on the Revised Draft Reset of the 2010-15 Default Price-Quality Paths*, 1 October 2012, p4, paragraph 12

Attachment C: How we forecast operating expenditure

Purpose of this attachment

C1   This attachment provides an overview of, and reasons for, our approach to forecasting each supplier's operating expenditure. The operating expenditure forecast is used in Step One in Chapter 4.

We have modelled the impact of different variables on operating expenditure

C2   To forecast each supplier's opex, we first modelled the impact of changes in the main factors that affect opex, and then made an additional adjustment to reflect increases in insurance costs that are attributable to natural disasters. This adjustment is appropriate as the increase in insurance costs is largely outside the control of all suppliers, is significant, and is not fully captured in our original forecast.

Main changes since our revised draft decision

C3   The main changes to our opex forecasts have resulted from a revised approach to forecasting the effect of network scale on opex.[140] Most significantly we now include customer numbers as a factor effecting scale for network opex.

C4   We have also updated our input data. Suppliers submitted updated data on line length, and we have used the most up to date LCI and PPI data.

Three main factors affect operating expenditure

C5   Before making the adjustment for increased insurance costs, we modelled the impact of the following three factors on each supplier's opex.

    C5.1   Network scale – Changes in the scale of the network affects opex because it is associated with a change in the level of service.[141]

    C5.2   Partial productivity – Changes in opex partial productivity change the amount of opex needed to provide a given level of service.[142]

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[140]   We have also updated the initial level of operational expenditure for Powerco to include its Independent Transmission Services, which were incorrectly excluded from the forecast contained in its 2009/10 Asset Management Plan.

[141]   For example, every additional kilometre of electricity line constructed will require maintenance, thereby increasing maintenance opex.

[142]   Opex partial productivity measures changes in the ratio of operational expenditure outputs.

C5.3   Input prices – Changes in input prices affect the cost of providing a given level of service.

C6   The formula we used is shown in Box C1 below.[143] This formula results in an adjustment to opex in the previous year based on changes in each of the three factors.

Box C1: Formula for calculating opex

$opex_t = opex_{t-1} \times$ (1+ Δ due to network scale effects
- Δ opex partial productivity
+ Δ input prices)

C7   It is appropriate to forecast opex in this way because the majority of opex is 'recurring'. Recurring opex is expenditure that is related to operational activities that are likely to be repeated regularly, and which can be expected to be influenced by certain known and predictable factors.[144]

C8   A number of submitters argued that we should test our modelling against known past expenditure by electricity distributors and compare its accuracy to other approaches.[145] However, we consider that:

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[143]   CEG highlighted that the opex projection omits interaction terms between network scale, input prices and partial productivity. Competition Economists Group, *Default Price-Quality Path Reset*, October 2012 paragraphs 35 to 41. However, no other submitter raised an issue with the specification of the formula, and there is regulatory precedent for a similar specification. We therefore have not modified the formula. Essential Services Commission, *Gas Access Arrangement Review 2008-2012: Final Decision – Public Version*, 7 March 2008, p. 224. We also note that including an interaction term assumes that the input price forecast excludes the effect of partial productivity. It also assumes that the same productivity factor applies to the input price forecasts and opex.

[144]   Some submitters argued that our approach may underestimate opex over the entire period, because there are greater risks of atypical events that will lead to higher than forecast opex. However, as noted by Unison, 'there is little that can be done to address this issue in this reset'. Unison Networks Limited, *Submission on Revised Draft Reset of the 2010-15 Default Price-Quality Paths*, 1 October 2012 pp13-14; Powerco also considered that our approach was fit for purpose for this reset. Powerco, Cross Submission to Revised Draft Reset of the 2010-15 Default Price-Quality Paths, 12 October 2012 p1.

[145]   Electricity Networks Association, *Submission on the Revised Draft Reset of the 2010-15 Default Price-Quality Paths*, 1 October 2012 p13; Unison Networks Limited, *Submission on Revised Draft Reset of the 2010-15 Default Price-Quality Paths*, 1 October 2012; Castalia, *Review of Revised Draft Reset of the 2010-2015 Default Price-quality Paths: Report to Vector Limited*, September 2012 and Powerco, *Submission on the Revised Draft Reset of the 2010-15 Default Price-Quality Paths*, 1 October 2012.

C8.1   there is a range of reasons why actual expenditure may differ from any forecast, such as unforeseen events, efficiency changes, changes in strategy; and

C8.2   while the analysis undertaken by suppliers highlighted issues with the econometric models that we have addressed, it does not suggest that there is an alternative approach that is systematically more accurate.[146]

C9   A more useful test would be an evaluation over a full regulatory period, which would reveal how the forecast performed and how well companies respond to the incentives provided by the price path. We agree with Powerco's submission that depending on the results of such analysis, the forecasting approach may need to be revisited in the next reset, balanced against the need for regulatory certainty.[147]

Why we did not rely on each supplier's forecast

C10   We do not agree with submissions that have argued that our opex modelling should rely on each supplier's forecasts from information disclosure.[148] Where appropriate, we have used supplier specific information.[149] However, there are good grounds for modelling each supplier's opex ourselves, because:

C10.1   the low cost nature of default price-quality paths means we cannot subject supplier opex forecasts to the same level of scrutiny as for a customised price-quality path; and

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[146]   For example, the analysis Castalia undertook on behalf of Vector analysis shows different methods are similar for most suppliers, and that extrapolating a time trend performs better at predicting historic opex for some suppliers and worse for others. Castalia, *Comments on Submissions on Revised Draft Reset of Electricity Distribution Prices*, 12 October 2012, p3.

[147]   Powerco, *Submission on the Revised Draft Reset of the 2010-15 Default Price-Quality Paths*, 1 October 2012 para100.

[148]   Horizon Energy, *Submission to Commerce Commission on Revised Draft Reset of the 2010-15 Default Price-Quality Paths, 1 October 2012*, paragraph 70; ENA *Submission on Additional Input Methodologies for Default Price-Quality Paths* 27 January 2012 and 29, PwC *Submission to the Commission on Additional Input Methodologies for Default Price-Quality Paths Process and Issues Paper* 27 January 2012 at p. 10.

[149]   Horizon has supported the use of supplier specific information Horizon Energy, *Submission to Commerce Commission on Revised Draft Reset of the 2010-15 Default Price-Quality Paths*, 1 October 2012 p15.

C10.2   opex in the electricity distribution industry is relatively straightforward to model because it is typically recurring and tends to be influenced by known and predictable factors.[150]

C11   Consequently, we have retained the approach set out in the revised draft decision.

Why we did not rely on time series analysis

C12   The only alternative to our approach that was proposed by submitters was time series analysis, such as extrapolation of each supplier's historic opex.[151] This approach was favoured by Unison in its submission.

C13   However, we did not rely on this approach because if suffers from a significant flaw. In particular, such an approach would reward companies that have been unable to control costs in the past, while penalising companies that have tended to reduce their costs.[152] We have modelled the change in opex using factors that are largely outside suppliers' control.

Initial level of operational expenditure

C14   The starting point for our formula is the initial level of opex in the 2009/10 disclosure year.[153] This data is the most recent available before the start of the regulatory period.[154] We have also examined historic trends in supplier's opex using information disclosure data and have no reason to consider that opex in 2009/10 was atypical, or that future opex will be significantly different from opex in 2009/10.

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[150]   As explained in B, we consider that these factors do not apply in the case of network capex, and so we propose to rely on each supplier's forecasts of this type of expenditure.

[151]   Unison Networks Limited, *Submission on Revised Draft Reset of the 2010-15 Default Price-Quality Paths*, 1 October 2012.

[152]   The analysis Castalia undertook on behalf of Vector analysis also shows that different methods are similar for most suppliers, and that extrapolating a time trend performs better at predicting historic opex for some suppliers and worse for others. Castalia, *Comments on Submissions on Revised Draft Reset of Electricity Distribution Prices*, 12 October 2012, p3.

[153]   We have updated Powerco's data from the Revised Draft Decision to include its ITS services.

[154]   ENA submitted that suppliers should be given the opportunity of confirming this data is fit for the purpose for the reset Electricity Networks Association, *Submission on the Revised Draft Reset of the 2010-15 Default Price-Quality Paths*, 1 October 2012 p 13. We requested suppliers to re-submit any inconsistent data, and to raise any data issues. These have now all been resolved in our view.

C15   Using 2009/10 data will also:[155]

    C15.1   help ensure that any ongoing efficiency gains that were achieved prior to the start of the regulatory period are passed on to consumers in lower prices; and

    C15.2   allow suppliers to retain the benefit of any efficiency gains achieved since the start of the current regulatory period.

C16   We have not accepted submissions that propose we use 2010/11 data as this information will:[156]

    C16.1   disadvantage suppliers that have achieved efficiency gains in response to the incentives inherent in the price path; and

    C16.2   disadvantage consumers of suppliers that have not been able to control expenditure in response to the incentives inherent in the price path.

C17   The advantage with relying on 2009/10 data is that it emphasises that regulated suppliers will benefit under Part 4 if they are able to improve their efficiency. Over time, this will help to address a concern raised by Contact Energy in its submission, which was that our opex forecasts are likely to be biased in favour of suppliers if there is inefficiency in the base year.[157]

Changes due to network scale effects

C18   Changes in scale relate to changes in the size of the network and the number of users of distribution services. We consider that changes in scale will affect opex. This view is supported by submissions on the December 2011 Process and Issues Paper and related papers on this topic.[158]

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[155]   Vector have supported using 2009/10 data for the base year for this reset - Vector, *Submissions to the Commerce Commission on Revised Draft Reset of the 2010-15 Default Price-Quality Paths for Electricity Distribution Businesses*, 1 October 2012 p5.

[156]   Horizon Energy, *Submission to Commerce Commission on Revised Draft Reset of the 2010-15 Default Price-Quality Paths*, 1 October 2012 p15, PwC *Submission to the Commerce Commission on 2010-2015 Default Price-Quality Path Starting Price Adjustments and Other Amendments* 23 May 2011 at p. 16

[157]   Contact Energy, *The Commerce Commission's Revised Draft Reset of the 2010-15 Default Price-Quality Paths: Submission to the Commerce Commission*, 1 October 2012, pp5-6.

[158]   Wellington Electricity *Additional Input Methodologies: Process and Issues Paper* 27 January 2012 p9. See also submissions on Commerce Commission *Information Disclosure: Approaches for Understanding EDB and GPB Cost Efficiency,* Technical paper for consultation 7 October 2011.

C19   We have modelled changes in opex as a result of the weighted changes in scale for expenditure:

   C19.1   on the network (network opex); and

   C19.2   to support the network (non-network opex).[159]

C20   Our approach estimates the impact of scale on opex across the whole industry.[160] We have not accepted submissions arguing for a more supplier specific approach.[161] Such simplifications are necessary to fit within the confines of a low-cost default price quailty path, as we do not have enough verified data to carry out individual analysis.

Measuring the impact of changes in network scale on operational expenditure

C21   Consistent with the approach set out in the revised draft decision, we have used historic information disclosure data to develop econometric models that:

   C21.1   identify suitable measures of scale; and

   C21.2   measure the impact of changes in scale on network and non-network opex.

C22   In light of submissions we have improved both our network and non-network econometric models. We undertook further modelling of the relationship between scale and opex, which is discussed in Attachment D.

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[159]   Non-network opex includes system operations, network support and business support.

[160]   Horizon submitted that the use of industry-wide data is akin to comparative benchmarking on efficiency, which is prohibited under the Act. Horizon Energy, *Submission to Commerce Commission on Revised Draft Reset of the 2010-15 Default Price-Quality Paths*, 1 October 2012 p13. However, we have not used comparative benchmarking on efficiency because we have not tried to benchmark the efficiency performance of suppliers relative to each other. Rather, we have developed supplier-specific forecasts of operating expenditure that rely on industry-wide values where necessary (including the use of an industry-wide partial productivity assumption and industry-wide estimates of the average relationship between scale and opex).

[161]   Electricity Networks Association, *Submission on the Revised Draft Reset of the 2010-15 Default Price-Quality Paths*, 1 October 2012, p13; and Horizon Energy, Submission to Commerce Commission on Revised Draft Reset of the 2010-15 Default Price-Quality Paths, 1 October 2012 p13; Powerco, *Submission on the Revised Draft Reset of the 2010-15 Default Price-Quality Paths*, 1 October 2012 p13.

C23   In summary, our modelling for network opex shows that a 1% change in:[162]

    C23.1   network length is associated with a 0.48% change in network opex holding the number of users (ICPs) fixed; and

    C23.2   the number of users (ICPs) is associated with a 0.47% increase in network opex, holding network length fixed.

C24   For non-network opex, our modelling shows that a 1% change in the number of connections is associated with a 0.82% change in non-network opex.

Forecasting the growth of the network for each supplier

C25   Our approach requires assumptions on future changes in scale for network and non-network opex. We have based these forecasts on:

    C25.1   historic trends in network length for each supplier;[163] and

    C25.2   a population forecast tailored to the area served by each supplier (as a proxy for the growth in the number of connections).[164]

C26   Therefore, the growth rates that we have relied upon have been tailored to each supplier.

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[162]   CEG submitted that the formula used to apply the scale elasticity in the opex forecast equation is inconsistent with the econometric model specification. We agree that the change they suggest would lead to greater consistency, but as noted by CEG the different methods produce very similar results for small growth rates and elasticities. Competition Economists Group, *Default Price-Quality Path Reset*, October 2012 pp 11-12.

[163]   The trend growth in network length is calculated for each supplier using data from 20007/08 to 2010/11. We agree with submissions that pointed out that in the draft decision the trend growth was distorted by the change in definition of circuit length Horizon Energy, *Submission to Commerce Commission on Revised Draft Reset of the 2010-15 Default Price-Quality Paths*, 1 October 2012 p15; Powerco, *Submission on the Revised Draft Reset of the 2010-15 Default Price-Quality Paths*, 1 October 2012 p13. From 2007/08 onwards the definition excluded the circuit length used for street lighting. Using information from 2007/08 onwards removes this distortion. We have excluded data for Vector prior to 2009/10 because, before this time the network length included the Wellington network now operated by Wellington Electricity. Some suppliers resubmitted and recertified their line length data and we have used the resubmitted information for Centralines, Horizon Energy, Powerco and Unison. There are data issues with some of the information by The Lines Company and Top Energy, and neither business has submitted new data. For these businesses we have used our trend growth estimates from the draft decision.

[164]   The population forecast we use is the same as used in modelling constant price revenue. This forecast is discussed in Attachment H of the draft decision reasons paper.

Weighting of network and non-network operating expenditure

C27 Because we assess the impact on network and non-network opex separately, we must first reach a view on the appropriate weighting to apply to each.

C28 We chose to weight network and non-network opex using the average proportion of these costs across the industry. This proportion has been calculated using opex data from information disclosures in 2009/10 and 2010/11.[165]

C29 We applied the same weight to all suppliers. We observed some variation across suppliers in the distribution of network and non-network opex between 2009/10 and 2010/11.[166] We did not have sufficiently reliable information that could be used to make the weights supplier specific or develop assumptions that would reflect the future changes in the share of network and non-network opex.[167]

C30 The resulting weights are 41% for network opex, and 59% for non-network opex.

Changes in partial productivity

C31 We have assumed a 0% change in opex partial productivity for this one-off reset. This assumption is informed by analysis provided by Economic Insights and by Pacific Economics Group on historical opex partial productivity changes for New Zealand suppliers and overseas electricity distribution suppliers.[168]

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[165] The proportion is calculated as the arithmetic average and therefore gives equal weight to all suppliers.

[166] Horizon also submitted that suppliers' weightings between network and non-network opex may vary from year to year. - Horizon Energy, Submission *to Commerce Commission on Revised Draft Reset of the 2010-15 Default Price-Quality Paths*, 1 October 2012 p13.

[167] CEG consider that, "given the potentially different growth rates of network and non-network opex over time, it would not be reasonable to assume that this proportion remains constant over time." Competition Economists Group, *Default Price-Quality Path Reset*, October 2012, p11. The alternative proposed by CEG would split the initial level of opex into network and non-network opex first, and then grow each element individually. While we recognise that this approach would have some merit, we do not consider that it would lead to a significant difference in the results of our modelling.

[168] Economic Insights, *Electricity Distribution Industry Productivity Analysis: 1996–2008, Report prepared for the Commerce Commission*, 1 September 2009, Pacific Economics Group, *Reset of Default Price Path for Electricity Distribution Businesses: Submission to the Commerce Commission,* Report prepared for the Electricity Networks Association, August 2009, Pacific Economics Group, *TFP Research for Victoria's Power Distribution Industry: 2007 Update*, Report prepared for Essential Services Commission, 2008.

C32   An annual opex partial productivity rate of 0% is appropriate on the basis of recent, but likely temporary, declines in the opex partial factor productivity growth rate observed for New Zealand suppliers in the Economic Insights and Pacific Economists Group studies, and evidence of ongoing positive opex PFP growth rates for Australian suppliers.

C33   We have set the change in opex PFP to be the same for each supplier. We have not used supplier-specific partial productivity estimates as the resulting partial productivity estimate could be inconsistent with the default price-quality path X factor.

C34   Vector submitted that the opex partial productivity component should be removed from the opex cost calculation, in order to avoid duplication with the role of the X factor.[169] However, the X factor does not affect the overall level of revenue suppliers can expect to recover over the regulatory period. Therefore, the two productivity factors do not compound.

C35   MEUG requested we use a forward looking opex partial productivity factor that has some incentive for all electricity distributors to improve.[170] We consider that suppliers will have incentives to improve efficiency under the default price-quality path, irrespective of the partial productivity assumption.

Changes in input prices

C36   Opex is adjusted for forecast changes in the cost of inputs used by suppliers using the weighted average forecasts of the changes in the all industries labour cost index (LCI), and the all industries producer price index (PPI). We have used forecasts provided by NZIER.[171]

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[169]   Vector, *Submissions to the Commerce Commission on Revised Draft Reset of the 2010-15 Default Price-Quality Paths for Electricity Distribution Businesses*, 1 October 2012 p5.

[170]   Major Electricity Users' Group, *Submission on Revised Draft Reset of the 2010-15 Default Price-Quality Paths for EDB*, 1 October 2012 p1.

[171]   Under commercial terms between the Commission and NZIER, forecast PPI and LCI may be shared with the industry, but not more widely. Suppliers may request this information from the Commission.

C37   We do not agree with submissions that have suggested using more sector-specific price indices.[172] Using an all industries forecasts is appropriate as it is likely to provide a good proxy for sector-specific indices, which are hard to predict individually.[173]

C38   We have used actual changes in LCI and PPI where they are available, ie, for 2009/10 and 2010/11. This approach should neither advantage nor disadvantage suppliers that have achieved efficiency gains.

C39   We have weighted the forecast LCI by 60% and the forecast PPI by 40% for this reset. In the absence of labour expenditure data from New Zealand suppliers, these weights are based on analysis of labour expenditure by Australian suppliers.[174]

Adjustment for insurance costs

C40   We have included an adjustment for increased insurance costs resulting from the Canterbury earthquakes and other natural disasters. We consider that this adjustment is appropriate because the costs:

   C40.1   are largely outside the control of suppliers;

   C40.2   are significant;

   C40.3   affect all suppliers in the industry; and

   C40.4   are unlikely be captured in our original forecast of each supplier's opex.

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[172]   Powerco, *Submission on the Revised Draft Reset of the 2010-15 Default Price-Quality Paths*, 1 October 2012, pp 13-14; Powerco *Submission on additional input methodologies for default price-quality paths: process and issues paper* 27 January 2012 and 35, Maui, *Submission to the Commerce Commission ("the Commission") on the Process and Issues Paper for Additional Input Methodologies for Default Price-Quality Paths* 27 January 2012.

[173]   Based on the limited information available, the all-industries LCI has a correlation of over 97% with the Electricity, Gas, Water and Waste Services LCI. The all-industries PPI has a correlation of 71% with the Electricity, Gas and Water PPI and a correlation of 64% with the Electricity and Gas Supply PPI. Analysis of New Zealand Statistics ANZSIC06 LCI data and NZSIOC PPI (input) data (source: www.stats.govt.nz/infoshare).

[174]   Pacific Economics Group, *TFP Research for Victoria's Power Distribution Industry: 2005 Update, Report prepared for Essential Services Commission*, 2006. Meyrick and Associates, The Total Factor Productivity Performance of Victoria's Gas Distribution Industry, Report prepared for Envestra, Multinet and SP AusNet, Denis Lawrence, 2007.

C41   Submissions support the inclusion of the impact of step changes in insurance costs in this mid period reset.[175]

C42   We have included the nominal insurance forecasts provided by each supplier in response to our 22 June 2012 information request. To give us assurance that the forecast increases are reasonable, suppliers were required to have any change in the level of risk, their insurance premiums and any self-insurance allowance independently verified and the associated analysis and documentation certified by a Director.[176]

C43   We have accepted all suppliers' forecasts of insurance expense.[177] We requested and assessed further evidence from a small number of suppliers that forecast unusually large increases in insurance expenditure. Following on from this, we saw no justification for disallowing any of the proposed increases.[178]

C44   Our expectation is that similar adjustments in insurance costs will not be necessary in future resets if we use the same approach. Unison submitted that electricity suppliers face a greater chance of higher expenditure than lower expenditure, and that it is not cost effective to insure against such risk. It suggested that to allow for this risk at the next reset it would be possible to develop an approach for including a self-insurance premium.[179]

C45   We expect that by the next reset, any increases in insurance costs (including on self insurance if it meets the captive insurer criteria) will be included in the actual opex figures. We also expect that an approach such as that described by Unison would require a substantial level of scrutiny, and assessment by the Commission. The approach therefore would not be appropriate in the context of a default price path.

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[175]   Horizon *Submission to the Commerce Commission on Additional Input Methodologies for Default Price-Quality Paths Process and Issues Paper* 27 January 2012 p7; ENA *Submission on Additional Input Methodologies for Default Price-Quality Paths* 27 January 2012 p25.

[176]   Several suppliers have requested their insurance forecasts to be treated in confidence. We have ensured confidentiality by presenting their opex forecasts as an aggregate value in the financial model.

[177]   An exception is the captive insurance amount submitted by one supplier as it does not meet the criteria for captive insurance.

[178]   Suppliers had to provide evidence that supports the forecast, such as invoices or quotes by an insurer. We did not assess whether the cost or scope of suppliers' insurance cover is efficient.

[179]   Unison Networks Limited, *Submission on Revised Draft Reset of the 2010-15 Default Price-Quality Paths*, 1 October 2012 p14.

C46 Over time, we will be able to assess whether suppliers have taken out the level of insurance indicated in their forecasts. This is because suppliers are required to disclose information about their actual insurance costs, which will allow us to compare actual with forecast insurance expenses.

Summary of information sources for forecasts of operational expenditure

C47 Table C1 below provides a summary of the information sources that we have relied for each aspect of our modelling of operating expenditure.

Table C1: Information for modelling operational expenditure

Item	Information used	Source
Insurance adjustment	Suppliers forecasts	Section 53ZD information request
Initial level of opex	Suppliers actual opex for 2009/10	Section 53ZD information request
Changes in scale	Historic trends in network length for each supplier	Information disclosures
	Supplier-specific population forecasts	Statistics NZ Commission calculations and assumptions to match data to each supplier's operational area
Impact of changes in scale on opex	Historic trends of opex and scale across the industry	Information disclosures
Changes in opex partial productivity	Historic trends of opex and associated inputs and outputs across the industry	Information disclosures
Changes in input prices	All industries PPI and LCI	NZIER

Attachment D: Econometric analysis of operational expenditure

Purpose of this attachment

D1 This technical attachment explains our econometric analysis of the relationship between supplier scale and opex. The results from the analysis are used in our forecast of opex.[180]

D2 The Stata modelling and data files used to undertake this analysis are published alongside this paper.

Summary of main findings

D3 Following our draft decision, we have undertaken further econometric modelling of the relationship between supplier scale and opex to assess the suggestions put forward by submitters. We have consequently developed new specifications for our models of network and non-network opex.

D3.1 Network opex is modelled using network length and the number of connections as explanatory variables.[181] The modelling indicates that for a given number of users, a 1% change in network length is associated with a 0.48% change in network opex. It also indicates that for a given line length, a 1% change in the number of users is associated with a 0.47% change in network opex.[182]

D3.2 Non-network opex is modelled using the number of connections as the sole explanatory variable.[183] The modelling indicates that a 1% change in the number of connections is associated with a 0.82% change in non-network opex.

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[180] Jeff Borland, a Professor in the Department of Economics at the University of Melbourne, reviewed a draft of this technical attachment and provided comments.

[181] For the draft decision our model only included the length of circuit.

[182] An installation control point is a physical point of connection on a local network or an embedded network which the distributor nominates as the point at which a retailer will be deemed to supply electricity to a consumer installation control point (Source: Electricity Authority).

[183] For the draft decision we modelled non-network opex using circuit length, the amount of electricity delivered, and the number of connections per circuit length.

We received a number of comments on the specification of our econometric models

D4 We received a number of submissions on the model specification of our opex econometric models for our draft decision. Submissions included suggestions on additional explanatory variables in the network opex model, and modelling total operating expenditure rather than separately modelling network and non network opex.

D5 We discuss below the additional modelling we have undertaken of the relationship between scale and opex and the submissions we received.

Our approach to developing a model of scale and operational expenditure

D6 Our approach to developing our models for the decision was similar to the approach we used for the draft decision.

D7 We modelled the relationship between network and non-network opex, and relevant scale drivers for suppliers across the period 2009/10 to 2010/11. Consistent with industry knowledge, we expected the relationship between scale and opex to be positive, and that there may be economies of scale.

D8 We separately developed models for network and non-network opex, rather than modelling total opex. We explain the reasons for this below.

D9 We also ran a number of hypothesis and diagnostic tests to assess the robustness of our modelling, and tested for statistically influential data points. We discuss the results of this testing below.

Data in our analysis

D10 Our starting point for the analysis was information disclosed by suppliers for the period 2003/04 to 2010/11. We reviewed and cleaned the data to the best of our ability. The dataset for estimation includes the following changes.

D10.1 We excluded network and non-network opex prior to 2009/10 from our analysis, and hence our analysis is based on two years of data. Not all suppliers provided network and non-network information prior to 2009/10, and we observed inconsistencies in the data that was provided.

D10.2 Network and non-network opex have been converted to 2010/11 real prices using quarterly CPI data from Statistics New Zealand, which we adjusted to remove the impact of the October 2010 GST increase.[184]

D10.3 Several suppliers have submitted revised information of their circuit length.[185] We have included the revised information in our modelling.

D10.4 A small number of observations were excluded from the modelling based on results from statistical outlier tests and an assessment of the quality of the data. We discuss this further below.

D10.5 No data is available for Orion in 2010/11. Orion was granted an exemption to information disclosure following the Canterbury earthquakes.

D11 The dataset provides several potential measures of scale: circuit length, electricity supplied to ICPs, and number of ICPs. The dataset also provides some information on other factors which may help explain the variations in opex between suppliers and over time (for example, the number of ICPs per length of line, a measure of customer density), and in turn may help us to better identify the impact of scale on opex.

Why it is appropriate to separately model network and non-network opex

D12 We consider that, on balance, separately modelling network and non-network opex is the appropriate approach for this mid period reset.

D13 Vector submitted that we should model total opex, rather than separately modelling network and non-network opex, because modelling total opex:[186]

D13.1 would expand the size of the dataset by another year (ie, it would include data for 2008/09 as well as 2009/10 and 2010/11) which would increase the confidence in the statistical relationships;[187] and

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[184] A GST adjustment has been included as suppliers do not pay GST and we would not therefore expect their operational expenditure to increase following the GST increase.

[185] See Attachment J for a discussion of the changes.

[186] Vector, *Submissions to the Commerce Commission on Revised Draft Reset of the 2010-15 Default Price-Quality Paths for Electricity Distribution Businesses*, 1 October 2012, paragraph 5.d.

[187] Castalia, *Review of Revised Draft Reset of the 2010-2015 Default Price-quality Paths: Report to Vector Limited*, September 2012.

D13.2   may eliminate the risk of measurement error due to different accounting interpretations of network and non-network opex.[188]

D14   To assess whether it would be preferable to model total operating expenditure instead of separately modelling network and non-network opex, as suggested by submitters, we undertook further modelling. We considered this question both from an intuitive and a statistical viewpoint.

D15   We have modelled network and non-network opex separately as they are driven by different factors. Our econometric modelling discussed below indicates the number of connections and line length are appropriate explanatory variables for modelling variations in network opex. For non-network opex, we found that a model with the number of connections is the preferred specification for modelling variations in network opex.

D16   The split into network and non-network opex, and the explanatory factors we have identified for each type of opex are intuitive.

D16.1   Network opex, ie, expenditure on maintaining the network, reflects the activity that takes place on the physical network. Line length and the number of connections are suitable proxies for reflecting the scale of the network and, therefore, the level of direct activities needed to maintain that network.

D16.2   Non-network opex (ie, expenditure on business support activities) is more related to the size of each business. The number of connections is a suitable proxy for scale of the business and therefore the associated overheads.

D17   In relation to Vector's comment on the potential benefits from having a larger dataset, we agree that in statistical theory the accuracy of a relationship increases as the number of data points in the estimation increases. However, the actual change in statistically accuracy is an empirical matter and will depend on the nature of the data points. While data for an additional year potentially increases the number of data points, the accuracy of our estimation may be reduced by having to model total opex.[189]

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[188]   Castalia, *Review of Revised Draft Reset of the 2010-2015 Default Price-quality Paths: Report to Vector Limited*, September 2012, p 7.

[189]   As shown below, network and non network share the number of connections as an explanatory variable but the impact of additional connections on costs is lower for non-network than for non-network opex. The length of circuit is a statistically significant driver of network opex but not of non-network opex.

D18   In relation to Vector's point on potential measurement error, we would not expect measurement error in the dependent variable to affect the robustness of our estimates. Under reasonable assumptions, ie, that the measurement error is uncorrelated with explanatory variables, the ordinary least squares estimator retains its desirable properties, including that the estimates are unbiased.[190]

Our econometric model includes both exempt and non-exempt suppliers

D19   While the mid period reset applies to non-exempt suppliers only, we have included data for both exempt and non-exempt suppliers in our analysis to increase the number of observations, and therefore the robustness of our analysis.[191] We have no reason to believe that a different relationship between scale and opex applies to exempt and non-exempt suppliers. We have tested the impact of excluding exempt suppliers and found that the relationship was not statistically different for our preferred models.

Description of the dataset

D20   The figures below show the relationship between network and non-network opex and the proxies of scale in the information disclosure database: length of network, electricity supplied to ICPs, and number of ICPs. These scatter plots indicate a positive relationship between scale and opex. Our econometric modelling is intended to estimate the impact on network and non-network opex of a change in scale.

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[190]   Wooldridge, J.M, *Introductory Econometrics, A Modern Approach*, 2nd Edition, Thomson South-Western, chapter 9.

[191]   'Non-exempt' electricity distributors are subject to both information and price-quality regulation under Part 4. 'Exempt' electricity distributors are only subject to information disclosure regulation. The exclusion of exempt suppliers would reduce the number of observations from 57 to 33.

Figure D1: Network opex and scale, 2009/10 to 2010/11 (real prices)
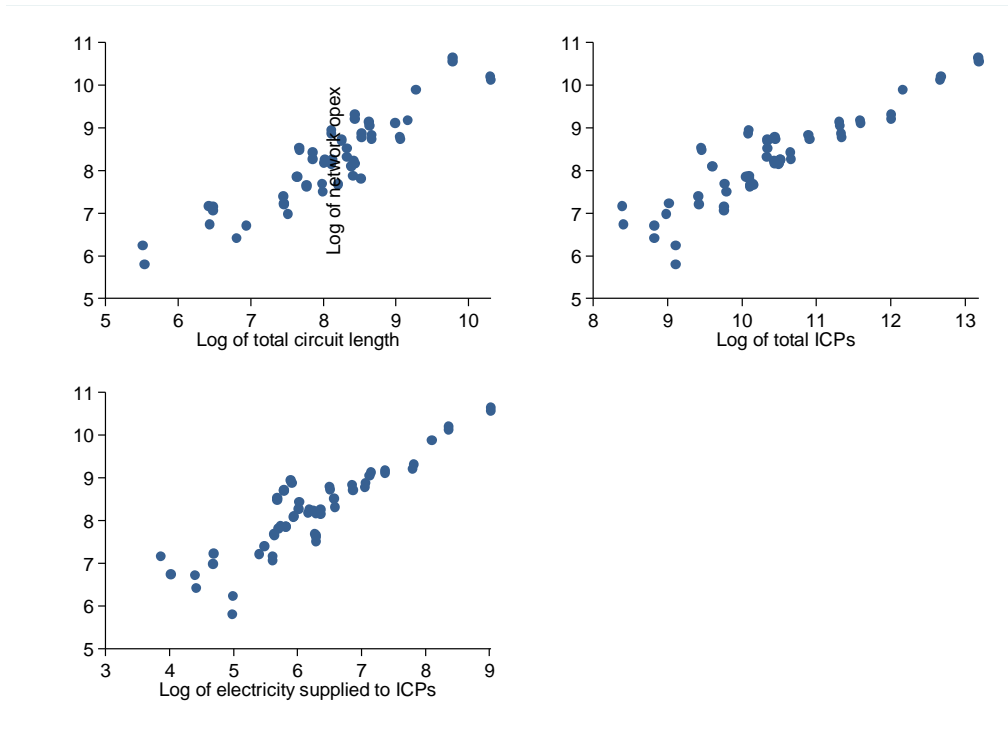
Note: For readability, the graphs do not start at zero.
Source: Commission analysis

Figure D2: Non-network opex and scale, 2009/10 to 2010/11 (real prices)
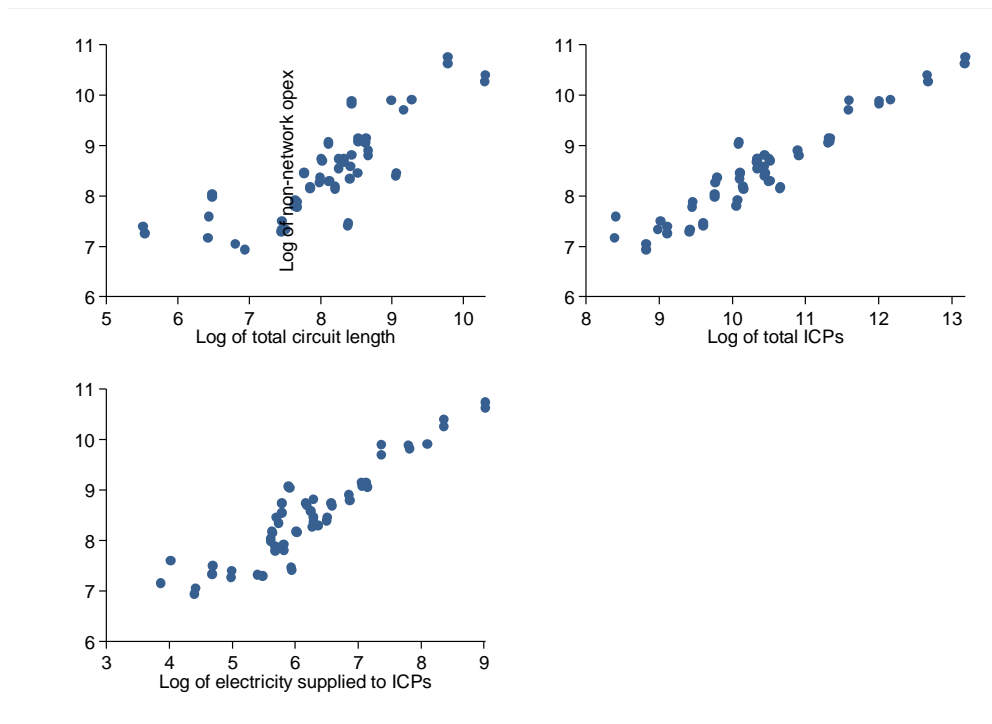
Note: For readability, the graphs do not start at zero.
Source: Commission analysis.

Discussion of the results of our modelling

D21   This section presents the results of our modelling. In summary:

D21.1   our preferred model for network opex includes the length of network and the number of connection points as explanatory variables;

D21.2   our preferred model for non-network opex includes the number of ICPs as the explanatory variable; and

D21.3   non network opex and network opex have separate drivers and we therefore prefer separate models to a total expenditure model.

D22   We explored potential combinations of these measures of scale and other opex drivers, and assessed the statistical robustness of the results and the intuition of the resulting coefficients.

D23   The preferred models, their coefficients, measures of the model fit, F-statistics and the number of observations used in the modelling are summarised in the Table D1 below.

Table D1: Network and non-network operational expenditure econometric results

	Network opex	Non-network opex
ln(network length for supply)	0.478***	
ln(number of ICPs)	0.472***	0.815***
Constant	-0.512	0.018
Adjusted R^2	0.88	0.91
AIC	39.53	19.75
BIC	45.55	23.8
F-statistic	260.78	1,216.86
N	55	56

*Notes: *** significant at 1% confidence level. Models have been estimated using heteroscedasticity-robust standard errors. AIC means Akaike Information Criterion. BIC means Bayesian Information Criterion.*
Source: Commission analysis

D24   The econometric models identified and the results of statistical tests indicate a positive relationship between the measures of scales used, and that there are constant returns to scale for network opex and economies of scale for non-network opex.[192]

Results of modelling network opex

D25   Our preferred model for network opex includes the length of network and the number of connection points as explanatory variables.

D26   For the draft decision we modelled network opex using the length of network as the sole explanatory variable. We received submissions by Castalia and CEG (both on behalf of Vector) and the ENA that suggested alternative model specifications:

D26.1   Castalia submitted that our model of network should include customer density as an explanatory variable.[193]

D26.2   CEG proposes a model for network opex that includes network length and the amount of electricity supplied.[194]

D27   Vector and the ENA submissions suggest that there is a positive relationship between network opex and density. Vector explained that a larger number of connections within an area increases the number of assets per km of line. The need to maintain more equipment per km of line in turn results in higher network opex.[195] ENA submitted that network growth in urban areas includes adding new connections to the existing network that may not be replicated in rural areas.[196]

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[192]   We used a Wald test to test if the coefficients on the scale variables were statistically different from one.

[193]   Castalia shows that both density (measured as the number of ICPs per km of circuit) and the length of circuit are statistically significant explanatory variables of network opex. Castalia Strategic Advisors on behalf of Vector Ltd, *Review of Revised Draft Reset of the 2010-15 Default Price-Quality Paths,* 1 October 2012.

[194]   CEG submitted that despite a high degree of correlation between network length, electricity supplied to ICPs and the number of connections, the correlation is not perfect. Competition Economists Group, *Default Price-Quality Path Reset*, October 2012, paragraphs 76 and 77.

[195]   Vector, *Submissions to the Commerce Commission on Revised Draft Reset of the 2010-15 Default Price-Quality Paths for Electricity Distribution Businesses*, 1 October 2012 paragraph 104.

[196]   Electricity Networks Association, *Submission on the Revised Draft Reset of the 2010-15 Default Price-Quality Paths*, 1 October 2012, paragraph 52.

D28   We note that an inverse relationship between opex and density may also be possible, for example if lower density means that longer travel times or more engineers are needed to maintain a desired quality of service.[197]

D29   When we assessed Castalia's proposal to include both the length of circuit and the number of connections per circuit length, we found that customer density is simply a proxy for the number of connections. Once the number of connections is included in the modelling, density no longer is statistically significant.

D30   We found very little difference between our preferred model and the model proposed by CEG on behalf of Vector, supported by Wellington Electricity in a cross submission.[198] CEG suggested a specification including network length and electricity supplied. We adopted a specification including the number of connections because we find this relationship more intuitive.

D31   We prefer the number connections as a proxy for opex (both for network and non-network opex) as it is less likely to be influenced by variations that are unlikely to result in changes of opex. We consider that the number of connections is a reasonable proxy for the size of the business which determines the amount of opex. Energy is highly correlated with the number of connections and hence in many circumstances it is also likely to be a good proxy for opex.

D32   However, we do not expect this relationship to always hold. For example, if there is a large change in electricity delivered, such as following a very large customer connecting to or disconnecting from the network without any additional network being built, we would not expect opex to be significantly affected.

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[197]   For example Gale and Strong found that electricity distributors with fewer customers per square kilometre systematically exhibit higher costs per customer. Gale, S. and N. Strong, *Normalising performance measures: Can Electricity Lines be Ranked?*, Report prepared by NZ Institute of Economic Research for the Ministry of Commerce, Wellington 1999. Economic Insights found that gas distributors with higher customer density (measured as the number of customers per line length) have lower costs. Economic Insights, *Econometric Estimates of the Victorian Gas Distribution Businesses' Efficiency and Future Productivity Growth*, 28 March 2012, table 5.

[198]   Competition Economists Group, *Default Price Quality Path Reset*, October 2012, section 3.3. Wellington Electricity, *Cross Submission on Revised Default Price-Quality Path Reset Decision*, 12 October 2012.

D33 Powerco, the ENA and PwC submitted that there are fundamental differences between urban and rural networks.[199] For example, urban networks are typically underground, whereas rural networks tend to be overhead. Network growth in urban areas also includes infill growth, not replicated in rural areas. Horizon submitted that there are a number of additional factors that may affect opex, such as geography, the mix urban and rural supply areas, and vegetation growth rates.[200] To robustly model such differences would require more in depth research and modelling than what is possible within the scope of the mid period reset.[201]

D34 Table D2 overleaf summarises the results of our modelling.

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[199] Electricity Networks Association, *Submission on the Revised Draft Reset of the 2010-15 Default Price-Quality Paths*, 1 October 2012, p13; Powerco, *Submission on the Revised Draft Reset of the 2010-15 Default Price-Quality Paths*, 1 October 2012, p13; PWC, *Submission to the Commerce Commission on Revised Draft Reset of the 2010-15 Default Price-Quality Paths, Made on behalf of 20 Electricity Distribution Businesses*, 1 October 2012 paragraph 40.

[200] Horizon Energy, *Submission to the Commerce Commission on Revised Draft Reset of the 2010-15 Default Price-Quality Paths*, 1 October 2012, paragraphs 65-66.

[201] As part of our exploratory analysis we examined model specifications that include the proportion of network that is underground and the proportion of terrain that is classified as rugged. We found that these variables are not statistically significant in explaining variations in opex.

Table D2: Network opex econometric results

	Preferred model	Model proposed by Castalia	Model proposed by CEG	Model with three drivers	Model with four drivers	Draft decision model
ln(network length for supply)	0.478***	0.962***	0.498***	0.565***	0.470***	0.958***
ln(number of ICPs)	0.472***			0.357**	0.428**	
ICPs per km of circuit		0.032***		0.007		
ln(electricity supplied to ICPs)			0.443***	0.029	0.051	
Constant	-0.512	0.081	1.466***	-0.291	-0.307	0.501
Adjusted R^2	0.88	0.88	0.87	0.88	0.88	0.8
AIC	39.53	41.8	45.65	43.29	41.44	67.64
BIC	45.55	47.83	51.68	53.33	49.47	71.65
F-statistic	260.78	246.9	243.91	123.39	169.06	212.78
N	55	55	55	55	55	55

Notes: *** significant at 1% confidence level; * significant at 10% confidence level. Models have been estimated using heteroscedasticity-robust standard errors. All models exclude Nelson and The Lines Company information for 2010/11.
Source: Commission analysis

D35 Our preferred model's ability to predict suppliers' actual opex in 2009/10 and 2010/11 is similar to that of Castalia's and CEG's models, and all three have better explanatory power than the model we proposed for the draft decision. This is illustrated in the chart below, which compares the model fit of our preferred model (top panel, left), with the model proposed by Castalia (top panel, right), and the draft decision (bottom panel, right). A data point below the fitted line indicates that model under-predicts opex, whereas a data point above the fitted line indicates that the model over-predicts opex.

Figure D3: Comparison of predictive power of network opex models
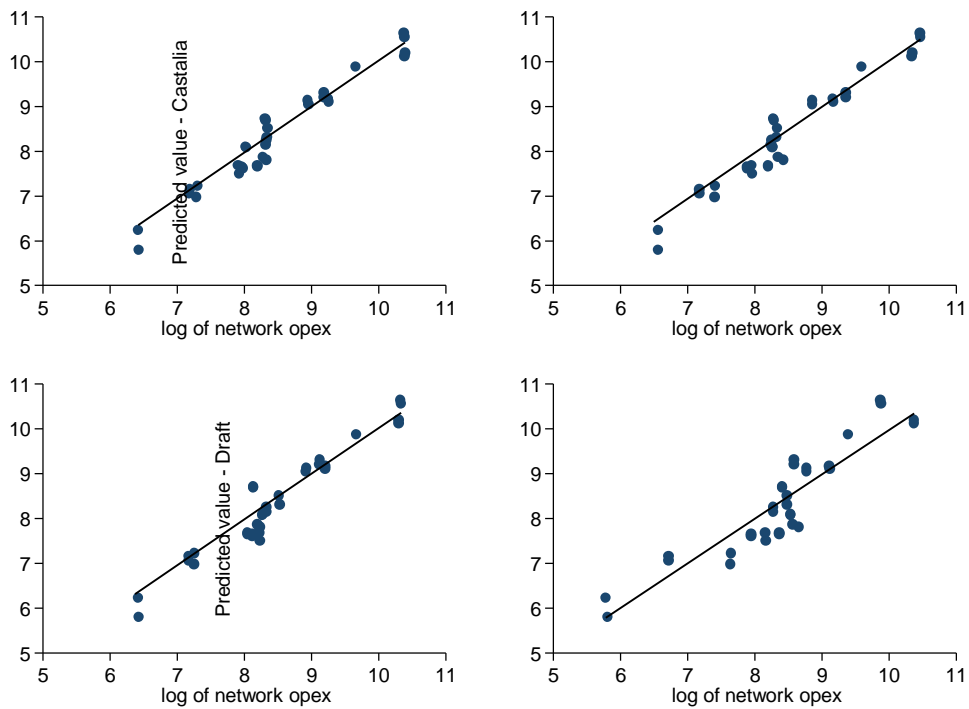
Note: For readability, the graphs do not start at zero.
Source: Commission analysis.

Removing influential data points from our network opex modelling

D36   As part of our modelling, we visually explored the data and ran formal statistical tests that examine the influence of individual observations on the model coefficients.[202] We found that in our preferred model the 2011 observation for Nelson exceeded the critical values of all our tests. We therefore excluded this data point from our network opex modelling.[203]

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[202]   As a broad rule we exclude data points that exceeded the critical values of three out of the four tests we ran on the pooled model. The tests we ran are implemented in Stata and are: Dfits, which summarises the information in the leverage versus residual-squared plot into a single statistic; Cook's distance, which is a function of dfits and is a metric for deciding whether a particular data point affects regression estimates much; Welsch's distance, which is function of dfits; and Leverage, which refers to the influence of observations on the estimated relationship.

[203]   Castalia objected to our approach to outlier analysis in the context of our econometric modelling of revenue. We consider that our approach, using a combination of statistical tests and assessment of known data quality issues is pragmatic, and consistent with the approach taken by other practitioners and standard textbooks (including the reference to Wooldgridge provided by Castalia). Castalia, *Review of Revised Draft Reset of the 2010-2015 Default Price-quality Paths: Report to Vector Limited*, September 2012, pp 12-13.

D37　　We also excluded information from The Lines Company in 2011 from the modelling. While it is not identified as a statistical outlier according to our criteria, we observed an unusually large change line length between 2010 and 2011, which indicated that this data was not sufficiently robust to include in our analysis.[204]

Discussion of diagnostic and hypothesis testing

D38　　We identify our preferred model based on the analysis we undertook in response to submissions. We considered the intuition of the estimated coefficients and our visual analysis, and statistical diagnostic and hypothesis test. We also considered statistics that reflect how well the model fits the data using adjusted R^2, the Akaike Information Criterion (AIC) and the Bayesian Information Criterion (BIC).[205]

D39　　Table D3 overleaf summarises our results of testing the preferred model.

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[204]　According to information disclosure data The Line Company's line length changed from 4491 in 2010 to 5001 in 2011.

[205]　For a discussion of goodness-of-fit criteria refer to Kennedy, P., *A Guide to Econometrics*, 6th Edition, Wiley Blackwell, chapter 6.

Table D3: Results of hypothesis and diagnostic testing of network opex model

Purpose	Statistic	p- value	Result
Ramsey RESET test	0.13	0.9393	Accept null of correct model specification
Test if log functional form is appropriate (Davidson MacKinnon test)	68.6	0.000	Reject the null hypothesis and conclude that a log model is appropriate
Test if coefficients differ between exempt and non-exempt EDB's	2.26	0.0929	Accept the null hypothesis that coefficients do not differ between exempt and non-exempt electricity distributors
Test if coefficients are equal across all quartiles	Refer to do-file		Accept null hypotheses that coefficients are equal across all quartiles
Test whether pooled model is appropriate (Chow test and the Roy-Zellner test)	Refer to do-file		Accept the null hypothesis that a pooled model is appropriate
Cameron & Trivedi's decomposition of IM-test (heteroscedasticity test)	24.55	0.0019	Reject null of constant variance of the error
Shapiro-Wilk test for normality of error distribution	3.138	0.00085	Reject the null hypothesis of normally distributed error

Source: Commission analysis

D40   We interpreted the results from our testing as follows.[206]

  D40.1   Most of the models in Table D2 above have a similar fit. Our preferred model has a marginally better trade-off between explanatory power and simplicity, as measured by the AIC and BIC statistics.

  D40.2   The model appears to be well specified. The Davidson MacKinnon test suggests that our choice of log linear is appropriate. The RESET test suggests

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[206]   We also considered whether to use a weighted or unweighted regression approach. Our view is that an unweighted regression approach is appropriate to derive parameter estimates because we consider it appropriate to provide equal weight to each supplier. The results of the econometric analysis apply to all non-exempt suppliers and we do not therefore consider it appropriate for larger suppliers to disproportionately influence the results of the analysis.

that our model is correctly specified. We also find that the estimated coefficients do not vary across quartiles.[207]

D40.3   Our expectation that the same cost function applies to exempt and non-exempt suppliers is confirmed.

D40.4   We find that it is appropriate to pool data from 2010 and 2011 in a pooled cross-sectional model, which treats different suppliers and a given supplier over time as separate data points. We also tested whether the relationship between scale and opex differs by year, and therefore whether a panel model was more appropriate. Using the Chow test and the Zellner-Roy test we found that the relationship between scale and opex does not vary by year, and concluded that a pooled cross-sectional model is appropriate.

D40.5   Some of the diagnostic tests indicated issues with the distribution of the residual, this not unusual in smaller sampler. While the coefficient estimates we rely on for forecasting opex are unbiased, the standard errors used and hence the results from diagnostic testing might may be less reliable.

Results of modelling non-network opex

D41   Our preferred model for non-network opex includes the number of connections as explanatory variable. For the draft decision we modelled non-network opex using the length of network, the number of connections for km of circuit and electricity supplied.[208]

D42   In assessing submitters' suggestions (discussed above), we found that a simple non-network opex model with only the number of connections as explanatory variables to be statistically robust and to have similar or better in sample predictive power than alternative, more complex specifications, such as the model we had proposed in our draft decision.

D43   Table D4 overleaf summarises the results of our modelling. The finding that circuit length is not statistically significant when including the number of connections as explanatory driver informed our decision to model the two categories of opex separately.

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[207]   We also prefer a log-linear specification as we were interested in the impact of changes in scale on opex, rather than the relationship between the level of scale and opex.

[208]   In the modelling for the draft decision we found that energy delivered and the number of connections are strongly correlated, and at the time we decided to include electricity delivered in the modelling.

**Table D4: Non-network operational expenditure econometric results**

	Preferred model	Draft decision model	Model with same spec as network opex	Model with number of ICPs and electricity supplied	Model including three scale drivers
ln(number of ICPs)	0.815***		0.770***	0.684***	0.669***
ln(network length for supply)		0.502***	0.063		0.05
ln(electricity supplied to ICPs)		0.345***		0.135	0.112
ICPs per km of circuit		0.029***			
Constant	0.018	1.915***	-0.02	0.537	0.42
Adjusted R^2	0.91	0.88	0.91	0.91	0.91
AIC	19.75	34.39	20.92	20.81	22.29
BIC	23.8	42.49	26.99	26.88	30.39
F-statistic	1216.86	292	692.45	575.98	434.14
N	56	56	56	56	56

*Notes: *** significant at 1% confidence level; **significant at 5% confidence level; * significant at 10% confidence level. Models have been estimated using heteroscedasticity-robust standard errors. All models exclude Buller information for 2010/11.*
Source: Commission analysis

D44 Our preferred model's ability to predict suppliers' actual opex in 2009/10 and 2010/11 is similar or better than that of the model we proposed for the draft decision. This is illustrated in the chart below, which compares the model fit of our preferred model (left hand side) with the model we proposed for the draft decision (right hand side). A data point below the fitted line indicates that the model under-predicts opex, whereas a data point above the fitted line indicates that the model over-predicts opex.

Figure D4: Comparison of predictive power of decision and draft decision models
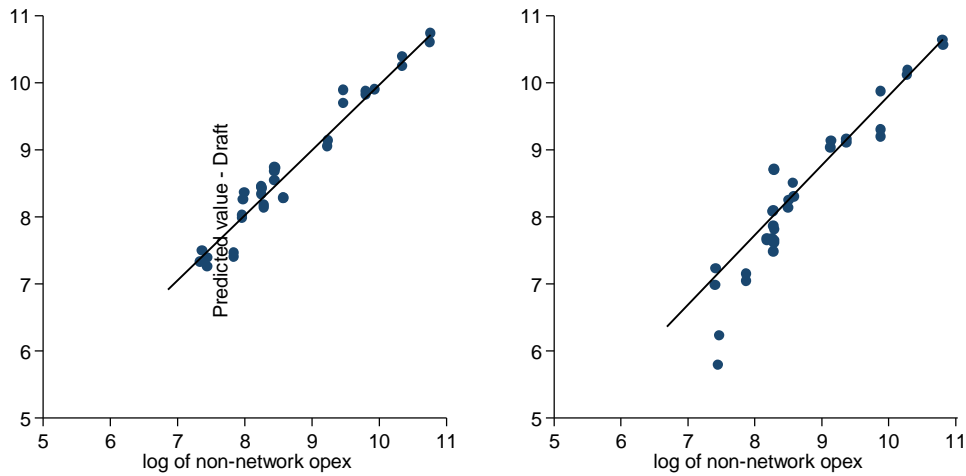
Note: For readability, the graphs do not start at zero.
Source: Commission analysis.

Removing influential data points from our non-network opex modelling

D45   As part of our modelling, we visually explored the data and ran formal statistical tests that examine the influence of individual observations on the model coefficients.[209] We found that in our preferred model the 2011 observation for Buller exceeded the critical values of all our tests. We therefore excluded this data point from our non-network opex modelling.

Discussion of diagnostic and hypothesis testing of non- network opex modelling

D46   We followed a similar approach as for network opex in identifying our preferred model. Table D5 overleaf summarises our results of testing the preferred model. Our preferred model fits the data considerable better than the more complex model used for the draft decision.

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[209]   As a broad rule we exclude data points that exceeded the critical values of three out of the four tests we ran on the pooled model. The tests we ran are implemented in Stata and are: Dfits, which summarises the information in the leverage versus residual-squared plot into a single statistic; Cook's distance, which is a function of dfits and is a metric for deciding whether a particular data point affects regression estimates much; Welsch's distance, which is function of dfits; and Leverage, which refers to the influence of observations on the estimated relationship.

Table D5: Results of hypothesis and diagnostic testing of non-network opex model

Purpose	Statistic	p- value	Result
Ramsey RESET test	0.18	0.9072	Accept null of correct model specification
Test if log functional form is appropriate (Davidson MacKinnon test)	28.42	0.0000	Reject the null hypothesis and conclude that a log model is appropriate
Test if coefficients differ between exempt and non-exempt EDB's	0.45	0.6427	Accept the null hypothesis that coefficients do not differ between exempt and non-exempt electricity distributors
Test if coefficients are equal across all quartiles	Refer to do-file		Indicates that suggests that coefficient on 25th and 75th percentile may be different
Test whether pooled model is appropriate (Chow test and the Roy-Zellner test)	Refer to do-file		Accept the null hypothesis that a pooled model is appropriate
Cameron & Trivedi's decomposition of IM-test (heteroscedasticity test)	5.61	0.2303	Accept the null of constant variance of the error
Shapiro-Wilk test for normality of error distribution	1.341	0.0899	Reject the null hypothesis of normally distributed error

Source: Commission analysis

D47   We interpreted the results from our testing as follows.

D47.1   Most of the models in Table D4 above have a similar fit. Our preferred model has more explanatory power than our draft decision model and better trade-off between explanatory power and simplicity is reflected in the AIC and BIC statistics.

D47.2   The model appears to be well specified. The Davidson MacKinnon test suggests that our choice of log linear is appropriate.[210] The RESET test suggests that our model is correctly specified. While we found that the estimated coefficients may differ between those from the 25th and the 75th

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[210]   We also prefer a log-linear specification as we were interested in the impact of changes in scale on opex, rather than the relationship between the level of scale and opex.

quartiles, this possible non-linearity is likely due to the relatively small number of data points in each quartile.

D47.3   Our expectation that the same cost function applies to exempt and non-exempt suppliers is confirmed.

D47.4   We find that it is appropriate to pool data from 2010 and 2011 in a pooled cross-sectional model, which treats different suppliers and a given supplier over time as separate data points. We also tested whether the relationship between scale and opex differs by year, and therefore whether a panel model was more appropriate. Using the Chow test and the Zellner-Roy test we found that the relationship between scale and opex does not vary by year, and concluded that a pooled cross-sectional model is appropriate.

D47.5   Some of the diagnostic tests indicated issues with the distribution of the residual, this not unusual in smaller sampler. While the coefficient estimates we rely on for forecasting opex are unbiased, the standard errors used and hence the results from diagnostic testing might may be less reliable.

Limitations of our modelling

D48   Overall, we consider the econometric analysis presented in this attachment to be robust, to provide a reasonable degree of explanatory power for opex. We therefore consider it appropriate to use the econometric estimates in forecasting opex for the mid period reset. However, like all econometric analysis, our models have limitations.

D49   We prefer to estimate separate models for network and non-network opex, which means that we can only rely on two (instead of three) years of data. There are also limits on the data available describing distributors' characteristics that could be used in modelling their opex.

D50   Because of these data limitations we need to adopt models that are relatively parsimonious, and a modelling approach that is appropriate within the limitations of the data. This rules out more advanced techniques that could be applied to model opex.

Attachment E: How we forecast other line items

Purpose of this attachment

E1   This attachment explains the approach we used to calculate other material line items. In particular, it sets out how we forecast other regulated income, disposed assets, and discretionary discounts and customer rebates.

Other regulated income

E2   Our modelling requires a nominal forecast of other regulated income from 2009/10 to 2014/15. Other regulated income is income from the provision of regulated services that is recovered in a different manner from line charges. For example, it includes lease or rental income from regulated assets.

E3   A forecast of other regulated income should be netted off in the calculation of building blocks allowable revenue. While building blocks allowable revenue generally relates to income received from standard electricity distribution line charges, other income they receive is also relevant to determining a supplier's revenue requirement.

E4   We used the arithmetic average of each supplier's other income as a forecast, scaled up for the effects of inflation each year.[211] When calculating the averages we found that some suppliers had one year with unusually large amounts of other regulated income. We reviewed the breakdown of other regulated income to understand whether the type of other unregulated income is likely to be recurring or one-off.

E5   From this analysis we modified the calculations for two suppliers.

E5.1   Electricity Invercargill had a particularly large amount of other income in 2007/08. Our average is calculated excluding 2007/08; and

E5.2   In 2008/09 a large proportion of Horizon's other regulatory income was from the proceeds of litigation in terms of its stated 'Committed Supply Agreements'. We have excluded this amount from the calculation as we do not expect such payments to regularly occur.

E6   We also excluded the 2008 value for Wellington Electricity from the calculation as at that time it was still part of Vector. Finally, we accepted resubmitted values from

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[211]   We asked for other regulated income for the years 2007/08 to 2010/11 in – Commerce Commission *Notice to supply information to the Commerce Commission under section 53ZD of the Commerce Act 1986* 22 June 2012.

Vector on the basis that the figures we relied on for the revised draft decision included an embedding adjustment. This journal adjustment did not represent a cash receipt and has been excluded from the resubmitted values.

Disposed assets

E7   To reach our final decision, the forecast value of disposed assets in each year of the regulatory period is equal in real terms to the value of disposed assets in 2009/10. The most material impact of this assumption was on Powerco, and it supported the approach that we have used.

E8   This forecast of disposed assets reduces each supplier's starting price, because the value of a disposed asset must be removed from the RAB. In our revised draft decision, we had set the forecast of disposed assets to nil.

E9   We have made this assumption to be broadly consistent with our treatment of losses on disposal. Losses on disposal are included in the initial level of opex that we use to forecast opex. The opex forecast is therefore higher than it would be if we forecast that there were no assets disposals during the period.

Discretionary discounts and customer rebates

E10   Some suppliers of electricity distribution services provide returns to their owners through a range of mechanisms, including rebates, discounts, line charge holidays, and dividends.

E11   These 'discretionary discounts and customer rebates' (as opposed to posted discounts, which are not discretionary once posted) are not treated as a building blocks cost for the purposes of determining revenue requirements under our modelling. Neither are they treated as a tax deductible expense for the purposes of calculating tax costs.

E12   We consider that this approach is appropriate because under a low cost default price-quality path we cannot verify forecasts of discounts that are up to the discretion of the supplier to make.

Treatment of taxation

E13   As para 79 of its submission, Vector recommend that the tax depreciation rate applied to new assets in the years 2011-15 is the rate derived by dividing 2010 tax depreciation by 2010 opening regulatory tax asset value, reduced by 20%.

E14   However, the input methodologies require us to take the approach we have adopted. Even if this were not the case, we would not necessarily adopt Vector's recommended approach. We note that Vector's recommendation would considerably over-compensate suppliers for the removal of the 20% depreciation loading. Vector's recommendation could be appropriate if all the disclosed 2009/10

tax depreciation were subject to a 20% loading and if assets that had been allowed this loading in the calculation of the 2009/10 tax depreciation were to have no loading in the future. This is not the case.

E15   Firstly, loadings have not been applied to all existing assets. A 25% loading applied to assets acquired in the 15.5 months from 16 December 1991 to 31 March 1993 and a 20% loading applied to assets acquired in the 5 years and 1.7 months from 1 April 2005 to 20 May 2010. The majority of Vector's assets will have been acquired outside these dates and will therefore have never had a loading.

E16   Secondly, these loadings continue to apply to assets that have had loadings in the past, and have not been discontinued.

Attachment F: How we forecast constant price revenue

Purpose of this attachment

F1   This attachment explains how we have forecast constant price revenue for each supplier. These forecasts are used in Step Two of our approach to setting starting prices in Chapter 4.

Overview of the approach to modelling constant price revenue

F2   To set the price path for electricity distributors, we require constant price revenue forecasts for the present value period, ie, 1 April 2012 to 31 March 2015.[212] These forecasts are used along with forecasts of the CPI to estimate the amount by which each supplier's revenue will change under the reset default price-quality path.

F3   Our approach involves modelling constant price revenue separately for residential users, and industrial and commercial users.[213] We have relied on information provided by suppliers under an information gathering request to classify revenue into those two categories, and have modelled the quantities a supplier charges for using relevant drivers.

F4   Revenue from residential users is modelled as a function of the number of residential users and energy use per residential user. Revenue from industrial and commercial users is modelled as a function of GDP.

Main changes since our revised draft decision

F5   The overall approach we have used for modelling constant price revenue is the same used for the draft decision. Most submissions stated that the approach we proposed is appropriate for the mid period reset, and agreed with the approach we have taken to make the information more supplier-specific.[214]

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[212]   The forecasts of constant price revenue for 2012/13 and 2013/14 are also used to calculate ΔD discussed in Attachment J.

[213]   We use users throughout this paper to describe the technical term installation control point (ICP). An installation control point is the physical point of connection on a local network or an embedded network which the distributor nominates as the point at which a retailer will be deemed to supply electricity to a consumer. (Source: Electricity Authority).

[214]   Refer, for example Electricity Networks Association, *Submission on the Revised Draft Reset of the 2010-15 Default Price-Quality Paths*, 1 October 2012, p15. However, Vector submitted that we should consider extrapolating historic trends in national GDP. Vector, *Submissions to the Commerce Commission on Revised Draft Reset of the 2010-15 Default Price-Quality Paths for Electricity Distribution Businesses*, 1

F6   Submissions requested clarification of the large year-on-year variation exhibited in some years of the NZIER's regional GDP forecasts.[215] We asked NZIER to comment on its forecast and have published this commentary alongside this paper. As a result, we made two main changes to the GDP input used in our revenue modelling.[216]

F6.1   Consistent with NZIER's approach to publish its figures as five year compounding growth rates, we applied the five year trend growth in GDP in each year, rather than a separate forecast for each individual year.[217]

F6.2   On advice by NZIER we used an alternative regional GDP forecast for the Otago region.

F7   We also received submissions that suggested we should test our modelling against actual data.[218] However, our forecast is for a regulatory period, and the quality of the forecast can only be properly considered once information on a full (or close to full) dataset of actual values is available.[219] Such an assessment could be undertaken as part of the Commission's summary and analysis.[220]

October 2012 paragraph 119. We note that submissions generally have suggested making our forecasts more rather than less supplier specific.

[215]   Refer, for example: Vector, *Submissions to the Commerce Commission on Revised Draft Reset of the 2010-15 Default Price-Quality Paths for Electricity Distribution Businesses*, 1 October 2012, p21.

[216]   We also updated the modelling to include GDP estimates from NZIER's September 2012 Quarterly Projections.

[217]   Note that we also used a five year average of GDP in the April 2011 update paper. Commerce Commission, *2010-15 Default Price-Quality Path Starting Price Adjustments and Other Amendments*, April 2011.

[218]   For example Electricity Networks Association, *Submission on the Revised Draft Reset of the 2010-15 Default Price-Quality Paths*, 1 October 2012, paragraph 15.

[219]   A model that better fits actual data is useful but not a guarantee that it will forecast information more accurately than an alternative. If future relationships are expected to be different to those currently or in the past, then a model that incorporates this knowledge can be expected to be more accurate.

[220]   PwC and Otagonet submitted that small networks in particular may be dominated by particular characteristics and that we should confirm our approach with some networks. PWC, *Submission to the Commerce Commission on Revised Draft Reset of the 2010-15 Default Price-Quality Paths, Made on behalf of 20 Electricity Distribution Businesses*, 1 October 2012, paragraphs 45 to 47; Otagonet, *Submission on the Revised Draft Reset of the 2012/15 Default Price-Quality Paths*, 1 October 2012 p2. Since this is a default price path we are unable to take all supplier specific circumstances into account, but a supplier can apply for a customised price path if required.

We separately model revenue from two user groups

F8   Figure F1 below gives an overview of our approach involving modelling of two main user groups—residential users and industrial and commercial users.

Figure F1:Approach to modelling constant price revenue for suppliers of electricity distribution services
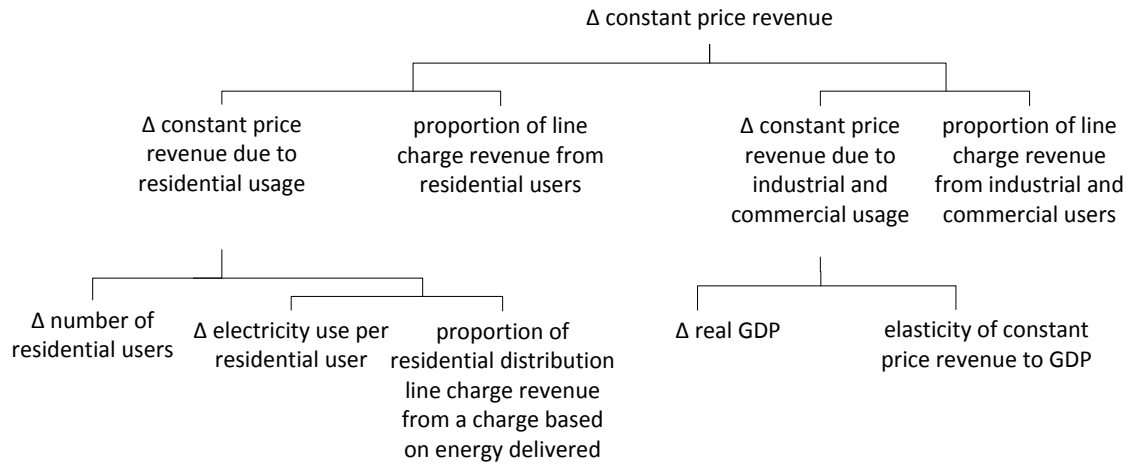
F9   Below we explain the role of each of the elements outlined above, how they fit together and our reasons for adopting this approach.

F10   The following box sets out the formula for calculating the change in constant price revenue for each supplier.[221]

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[221]   We use Δ to denote the % change in data from one information disclosure year to the next.

Box F1: Change in constant price revenue for each supplier

Δ constant price revenue =

Δ constant price revenue due to residential usage

x

proportion of line charge revenue from residential users

+
Δ constant price revenue due to industrial and commercial usage

x
proportion of line charge revenue from industrial and commercial users

F11   Suppliers of electricity distribution services use a combination of charges, including those based on the quantity of energy delivered to users, quantities relating to peak demand, measures of the quantity of capacity provided by the network connection, and annual charges per user.

F12   Our analysis of information from an information request shows that there is significant variation among suppliers in the structure of their charges and the amount of revenue they get from different types of quantities they bill for. Suppliers tend to get a greater share of their revenues from charges based on the quantity of energy delivered from residential users, whereas for industrial and commercial users a greater share of revenues is from demand or capacity based charges.[222]

F13   Suppliers choose what type of quantities they charge for (in most cases suppliers charge retailers). Our approach reflects information from each supplier on their choices. To this extent the forecast is tailored to each supplier. Suppliers can also structure their tariffs according to their own policy and can restructure their tariffs as long as they stay under the weighted average price cap. Our approach assumes that the structure of tariffs stays constant over the default price path regulatory period.

F14   For further discussion of the information from suppliers we used for the modelling refer to Attachment G of the revised draft decision.

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[222]   We have included updated information from Electricity Invercargill and OtagoNet. Both businesses resubmitted the breakdown of revenue by type of users, and we have updated the proportions of revenue from different users.

Modelling constant price revenue from residential users

F15   The formula for calculating the change in revenue from residential users is set out in Box F2 below.

Box F2: Change in constant price revenue from residential users

Δ constant price revenue due to residential usage =

Δ number of residential users

+

Δ electricity use per residential user
x
proportion of residential distribution line charge revenue from a charge based on energy delivered

F16   Residential users have broadly similar demand characteristics.[223] It is reasonable to assume that as a starting point:

F16.1   existing residential users will on average continue to be billed the same quantities as in the recent past; and

F16.2   new connections will on average be billed on basis of the same quantities as existing users.

Change in the number of residential users

F17   One of the drivers of the forecast change in constant price revenue from residential users therefore is the change in number of residential users.

F18   To model the impact from changes in residential users we used population forecasts from Statistics New Zealand as a proxy.

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[223] See Attachment G in the revised draft decision.

Change in energy use per residential user

F19   We then refined this starting point. Energy use per user may change over time. Most suppliers obtain a large share of line charge revenue from residential users based on the quantity of energy delivered. On average across the industry around two thirds of suppliers' line charge revenue comes from energy delivered.[224]

F20   Given the importance of energy quantities as a basis for billing, constant price revenue from billed energy may change over time because of changes in the size of households and changes in consumption patterns. We have allowed for this by modelling the impact on revenue from changes in average energy used per residential user.

F21   When assessing historic trends we found that average energy use per user has varied from year to year, but overall has been flat. This overall trend may have been due to increases in consumption from increases in income being offset by improvements in energy efficiency or substitution towards other energy sources, such as gas.

F22   Therefore, although in theory the change in energy per residential user may drive constant price revenue, we have adopted an industry wide assumption in change in energy use per residential user of zero.[225]

Information used for modelling residential users

F23   Table F1 overleaf summarises, for each component, the information we used to model the change in constant price revenue from residential users. As discussed in Chapter 4, we have used the most up-to-date forecast information because it is unlikely to penalise a supplier for efficiency gains since the start of the regulatory period. The data sources we have used are:

F23.1   territorial Local Authority population forecasts which we matched to suppliers' operational regions;

F23.2   regional GDP forecasts from NZIER which we matched to suppliers' operational regions;

F23.3   revenue shares are based on the latest available data for 2010/11 from an information gathering request; and

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[224]   See Attachments G and H in the revised draft decision.

F23.4 the change in electricity use per residential user is based on data from the Ministry of Business, Innovation and Employment.

Table F1: Information for modelling change in constant price revenue from residential users

Item	Information used	Source
Δ number of residential users	Supplier-specific population forecasts	Statistics NZ Information from s 53ZD request Commission calculations and assumptions to match data to each supplier's operational area
Δ electricity use per residential user	Industry wide historic trends	Ministry of Business, Innovation and Employment Commission calculations
Proportion of residential distribution line charge revenue from a charge based on energy delivered	Supplier-specific information on different categories of line charge revenue	Section 53ZD information request Commission calculations
Proportion line charge revenue from residential users	Supplier-specific information on different shares of line charge revenue	Section 53ZD information request Commission calculations

Note: For further discussion on the information we use refer to Attachments G and H in the draft decision reasons paper.

F24 The formula for calculating the change in revenue from industrial and commercial users is set out in Box F3 overleaf.[226]

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[226] Horizon and PwC suggested modelling industrial and commercial users separately to tailor the forecast further to individual suppliers. Horizon Energy, *Submission to Commerce Commission on Revised Draft Reset of the 2010-15 Default Price-Quailty Paths*, 1 October 2012 p 16; PWC, *Submission to the Commerce Commission on Revised Draft Reset of the 2010-15 Default Price-Quality Paths, Made on behalf of 20 Electricity Distribution Businesses*, 1 October 2012. We have not done this since not all suppliers were able to provide the split in revenue from commercial and industrial users in response to our information notice.

Box F3: Change in constant price revenue from industrial and commercial users

Δ constant price revenue due to industrial and commercial usage =

Δ real GDP
x
elasticity of constant price revenue to GDP

F25   Industrial and commercial users comprise a wide range of users in terms of their demand for energy and peak capacity. Their demand for electrical energy and capacity may vary from being similar to that of residential users (for example, small shops) to being significantly greater than that of residential users (for example, energy intensive industrial users).

F26   Between 2007/08 and 2010/11, on average across non-exempt suppliers of electricity distribution, around two thirds of line charge revenue was from charges based on maximum demand or capacity. One third of charges were based on energy delivered. For most suppliers this relationship changed very little over those four years.[227]

F27   We used regional GDP growth for modelling constant price revenue from industrial and commercial users. By using a single driver for different types of quantities charged, we assume that economic growth increases revenue from charges based on maximum assessed or actual capacity demanded and energy consumption in the same proportion.

F28   To translate the change in regional real GDP into constant price revenue for industrial and commercial users we need information on the relationship between changes in real GDP and constant price revenue.[228]

F29   We have used the same GDP elasticity of constant price revenue as for the draft decision, for which we undertook econometric modelling of revenue. Based on this

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[227]   See Attachments G and H in the revised draft decision.

[228]   Castalia on behalf of Vector submitted that some of the assumptions we have made regarding the mix of revenue and the relationship between GDP and revenue should be further tested. We note that the analysis suggested by Castalia would require information that is not available to us. In addition, to model these approaches would require behavioural assumptions on how electricity distributors may be expected change their tariff structure in response to incentives from the Electricity Authority and in light of a possible future change in electricity intensity. Castalia, *Review of Revised Draft Reset of the 2010-2015 Default Price-Quality Path*, September 2012, p12.

modelling, we determined that the elasticity of constant price revenue to GDP is 0.52, ie, a 1% change in real GDP is associated with a 0.52% change in industrial and commercial constant price revenue. For a discussion of our econometric modelling refer to Attachment G of the draft decision reasons paper.

Information used for modelling industrial and commercial users

F30   Table F2 below summarises the information we used to model the change in constant price revenue from industrial and commercial users.

F31   Similar to information for residential users, we have adopted a pragmatic approach and used actual data where it is available and used the latest available forecasts. As discussed in Chapter 4, we have used the most up-to-date information because it is unlikely to penalise a supplier for efficiency gains since the start of the regulatory period. The data sources we have used are:

F31.1   actual estimates and forecasts of regional GDP from NZIER, to calculate a supplier-specific forecast of GDP;

F31.2   revenue shares based on the latest available data for 2010/11 from an information gathering request; and

F31.3   revenue and regional GDP data up to 2010/11 for our econometric modelling.

Table F2: Information for modelling change in constant price revenue from industrial and commercial users

Item	Information used	Source
Δreal GDP	Supplier-specific forecast of regional GDP growth	NZIER
	Energy used by GXP	Electricity Authority
		Commission calculations and assumptions to match data to the area of each supplier's network
Elasticity of constant price revenue to GDP	Industry wide estimate	Section 53ZD information requests
		econometric modelling undertaken
	Historic information on real GDP and line charge revenue	by Commission
Proportion of line charge revenue from industrial and commercial users	Supplier-specific information on different shares of line charge revenue	Section 53ZD information request and Commission calculations

Note: For further discussion on the information we use refer to Attachments G and H in the draft decision reasons paper.

Attachment G: Timing assumptions

Purpose of this attachment

G1   This attachment explains the timing assumptions used to calculate present values when determining starting prices.

Our assumptions improve the accuracy of our modelling

G2   Timing assumptions are required to recognise that suppliers incur and receive cash flows continuously throughout the year. These assumptions are reflected in the 'timing factors' we have included in the formula used to calculate the revenue each supplier should be allowed to recover based on our estimate of their building block costs.

G3   To improve the accuracy of our modelling, we have assumed that:

G3.1   opex is incurred mid-year, on average. We have assumed that opex is spread throughout the year at regular intervals, so the same amount is paid in the first and second half of the year. This is equal in net present value terms to all costs being incurred mid-year;

G3.2   capex is commissioned mid-year, on average. This reflects an assumption that assets are commissioned evenly throughout the year. We have made this assumption because the seasonal trends cannot be reliably forecast;

G3.3   tax costs are incurred mid-year, on average. We have made this assumption for the purposes of simplicity. In reality tax should be able to be paid at the provisional tax dates, which average out to later than mid-year. Mid-year timing is, therefore, favourable to suppliers because they are able to make payments, on average, later than the mid-year assumption;[229]

G3.4   revenue is received on 3 November, on average. Revenues from lines charges are expected to be received on the 20th of the following month. Assuming that revenues are received in equal increments throughout the year is equivalent to assuming that all revenues are received slightly later

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[229]   Powerco submitted that there is a disjoint between the mid-year timing assumption for tax payable and the year end timing assumption for the increase in deferred taxation. Powerco, *Submission on the Revised Draft Reset of the 2010-15 Default Price-Quality Paths*, 1 October 2012 p15. However, we note that, unlike an estimate of the tax payable by a business, the increase in deferred taxation is not an estimate of a cash flow item. The important point is that we have implemented the deferred tax approach in a way that is NPV neutral to the business.

than mid-year on average, ie, on 3 November rather than 31 September; and

G3.5   other income is received mid-year, on average. This assumption is made for simplicity, because seasonality cannot be reliably forecast.

G4   Regulated suppliers have argued that the intra-year timing assumptions add an additional level of complexity.[230] We do not agree that the proposed timing assumptions are a barrier to implementing the approach at low cost, and any complexity does not outweigh the benefit of more accurate modelling.

G5   CEG (on behalf of Vector) have submitted that our timing assumptions result in an overestimation of the amount of interest deductions available for tax purposes, and therefore underestimates the amount of tax liabilities. They consider that this arises because we have assumed a year-end timing for interest paid on debt, but mid-year timing for tax payments.[231]

G6   However, the materiality of this change is relatively low, and is likely to be counterbalanced by other factors that weigh in suppliers favour at this reset. We therefore agree with the submission from Contact Energy, which argued that the low cost forecasting approaches that we have adopted will generally be conservative in favour of suppliers. For example, we have adopted each supplier's forecast of capital expenditure without applying any audit or verification processes.[232]

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[230] Electricity Networks Association, *Submission on the Revised Draft Reset of the 2010-15 Default Price-Quality Paths*, 1 October 2012 pp17-18; Horizon Energy, *Submission to Commerce Commission on Revised Draft Reset of the 2010-15 Default Price-Quality Paths*, 1 October 2012 p19; Wellington Electricity, *Submission on the Revised Draft Default Price-Quality Path Reset Decision*, 1 October 2012 p3; Powerco, *Submission on the Revised Draft Reset of the 2010-15 Default Price-Quality Paths*, 1 October 2012 p14-15; Vector, *Submissions to the Commerce Commission on Revised Draft Reset of the 2010-15 Default Price-Quality Paths for Electricity Distribution Businesses*, 1 October 2012 pp14-15.

[231] Competition Economists Group, *Default Price-Quality Path Reset*, October 2012 pp 2-3. In the same report CEG also raised an issue with depreciation. This was addressed in the input methodology amendment paper – Commerce Commission, *Specification and Amendment of Input Methodologies as Applicable to Default Price-Quality Paths*, 28 September 2012.

[232] Refer: Contact Energy, *The Commerce Commission's Revised Draft Reset of the 2010-15 Default Price-Quality Paths, Submission to Commerce Commission*, 1 October 2012, p. 5-6. We recognise, however, that it may be appropriate to adjust our timing assumption for interest tax deductions in future, depending on the approaches we adopt for forecasting at later resets.

G7   Castalia (on behalf of Vector) has raised a concern that the return on assets is assumed to occur at year-end, while interest on debt and dividends to shareholders are paid throughout the year.[233] We note that the present value calculations we have applied ensure that these two payments are equal in net present value terms.

Addressing inconsistencies with timing assumptions used elsewhere

G8   We have recently released our final decisions on timing assumptions for customised price-quality paths and information disclosure requirements.[234] Our decisions for customised price-quality paths adopt similar intra-year timing assumptions to those used in this paper for default price-quality paths.[235] This addresses submitters' concerns of inconsistencies between the two types of paths.

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[233]   Castalia, *Review of Revised Draft Reset of the 2010-2015 Default Price-quality Paths: Report to Vector Limited*, September 2012 p22; Vector, *Submissions to the Commerce Commission on Revised Draft Reset of the 2010-15 Default Price-Quality Paths for Electricity Distribution Businesses*, 1 October 2012 pp14-15.

[234]   Commerce Commission, *Electricity and Gas Input Methodologies Determination Amendments (No.2): Reasons Paper,* 15 November 2012; Commerce Commission, *Information Disclosure for Electricity Distribution Businesses and Gas Pipeline Businesses: Final Reasons paper*, 1 October 2012.

[235]   Under a customised price-quality path timing assumptions for commissioned and disposed assets are more accurately calculated to better meet supplier's individual circumstances.

Attachment H: Why we have not included any additional allowances

Purpose of this attachment

H1   This attachment provides further information about why we did not include any additional allowances for suppliers when we reset each default price-quality path.

How we calculate the potential additional allowance

H2   Before we explain why an additional allowance is unlikely to be appropriate for any suppliers for the proposed reset, we begin by setting out a framework in which an additional allowance could be calculated. This framework is based on assessing the two impacts introduced towards the end of Chapter 5.

H3   While the framework set out in this attachment relies on a number of simplifying assumptions, the analysis is robust to a significant sensitivity testing. We therefore do not agree with the submitters that have argued that the framework in this attachment is flawed due to the use of simplifying assumptions. The effect of relaxing our assumptions is demonstrated towards the end of this attachment.[236]

An additional allowance has two impacts on consumers

H4   As noted in Chapter 5, an additional allowance for suppliers would have two impacts on consumers:

   H4.1   an additional allowance for the supplier would reduce the probability that a customised price-quality path will be proposed, so the expected costs to consumers of a proposal would be reduced; and

   H4.2   if the supplier does not propose a customised price-quality path, then the additional allowance for the supplier would mean that consumers face higher prices under the default price-quality path.

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[236]   We also note that many of the submissions on our framework have argued that we should include an additional allowance to recognise perceived 'risks' of making customised price-quality path proposals. However, these 'risks' are not relevant for the reasons set out in Chapter 5 (paragraphs 5.10 to 5.14). In summary, a customised price-quality path is a valuable option for suppliers: all the rules, requirements and processes have been set out up-front; there is a form of 'merit' appeal against a customised price-quality path determination; and all supplier-specific information can be taken into account. By contrast, the default price-quality path is set in a relatively low cost way, using a simplified approach.

H5   Where the first impact is greater than the second impact, an upward adjustment to prices allowed under the default price-quality path is in principle cost-effective for both suppliers and consumers.

H6   To estimate what the appropriate adjustment would be, we have set up a simple mathematical model. This model measures the impacts with reference to:

H6.1   the expected costs of a customised price-quality path, which are adjusted to reflect the probability of a proposal; and

H6.2   the expected additional costs to consumers under the default price-quality path, if an additional allowance is included.

H7   By minimising the total cost to consumers in respect of an additional allowance for suppliers, we can find under what circumstances an adjustment is beneficial to consumers and what the optimal adjustment would be.

The impact on the probability of a proposal depends on the margin of error in our forecasts

H8   The margin of error in our forecasts determines the likely impact that introducing an additional allowance would have on the probability that the supplier will make a proposal. For example:

H8.1   if our forecast has a relatively large margin of error, then an additional allowance of $1m (say) would be unlikely to have much of an impact on the likelihood that a supplier will make a customised proposal; and

H8.2   if our forecast has a relatively small margin of error, then an additional allowance of $1m (say) might significantly reduce the likelihood that the supplier will make a customised proposal.

H9   An additional allowance would be unlikely to benefit consumers in the first of these two examples, whereas in the second, an additional allowance may be beneficial.

*Simplifications help to understand reality—the impact of relaxing them matters*

H10   Our model relies on some simplifying assumptions to help us understand the realities of when consumers will benefit from an additional allowance. However, as noted previously, we recognise that simplifying assumptions mean that the model will not reflect reality perfectly. We therefore consider the impact of relaxing our assumptions after setting out the simplified framework up front.

The probability of a supplier proposing a customised price-quality path

H11   We link the probability of suppliers proposing a customised price-quality path to the likelihood of them accepting or rejecting the total net revenue of a default price-quality path. In other words, where revenue is less than a particular amount, we expect that a supplier will propose a customised price-quality path.

H12   Revenue greater or less than the supplier requires before they propose a customised price-quality path can be analysed as a margin of error.[237] Our first simplification is that the margin of error is uniformly distributed. This means all possible actual outcomes are equally likely to occur.

H13   If the distribution of the error term is symmetric, then the margin of error will have an equal spread in either direction. This means that, on average, a supplier's default price-quality path would be accepted, and the probability any individual supplier will propose a customised price-quality path is 0.5, ie, half of suppliers will propose a customised price-quality path. Later, we consider the impact of relaxing this assumption with a more realistic view.

H14   These simplifying assumptions can be expressed in terms of a margin of error, R.

    H14.1   Where R is negative, a supplier will propose a customised price-quality path.

    H14.2   Where R is positive a supplier will not propose a customised price-quality path, and the supplier will be likely to be receiving revenue under the default price-quality path that exceeds their requirements.

H15   R is the spread from no error (the point at which revenue is just sufficient so that a supplier will accept the default price-quality path). These assumptions are illustrated in the probability density function overleaf.

Figure H1: Uniform probability density function for error

-R   0   -R

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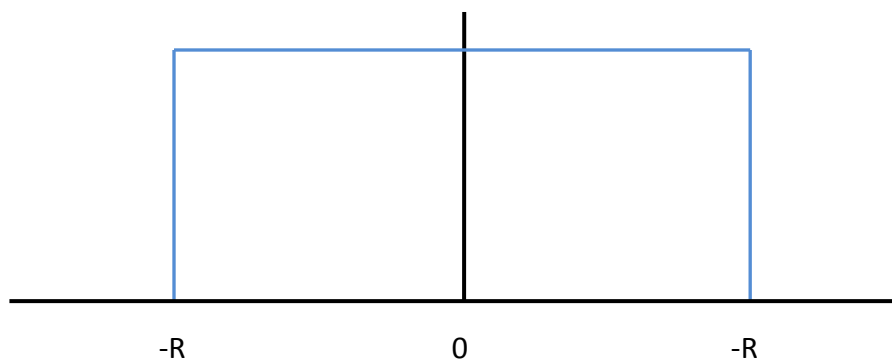
[237] We use the word error in its statistical sense.

Cumulative probability of a supplier proposing a customised price-quality path

H16   We can express the probability of a supplier proposing a customised price-quality path in terms of cumulative probability.[238] This tells us what the overall probability of a supplier proposing a customised price-quality path is, and how this overall probability may change if we include an additional allowance when we set the default price-quality path.

H17   The cumulative probability function for this uniform distribution is:[239]

Equation 1

$$F(x) = \frac{-x + R}{2.R}$$

H18   The additional allowance is the term 'x' and we can see that, where x is set at zero and R is symmetric, the probability of a customised price-quality path is 0.5. This relationship is illustrated in Figure H2 below.

Figure H2: Cumulative Probability of a supplier proposing a customised price-quality path with respect to an additional allowance 'x'

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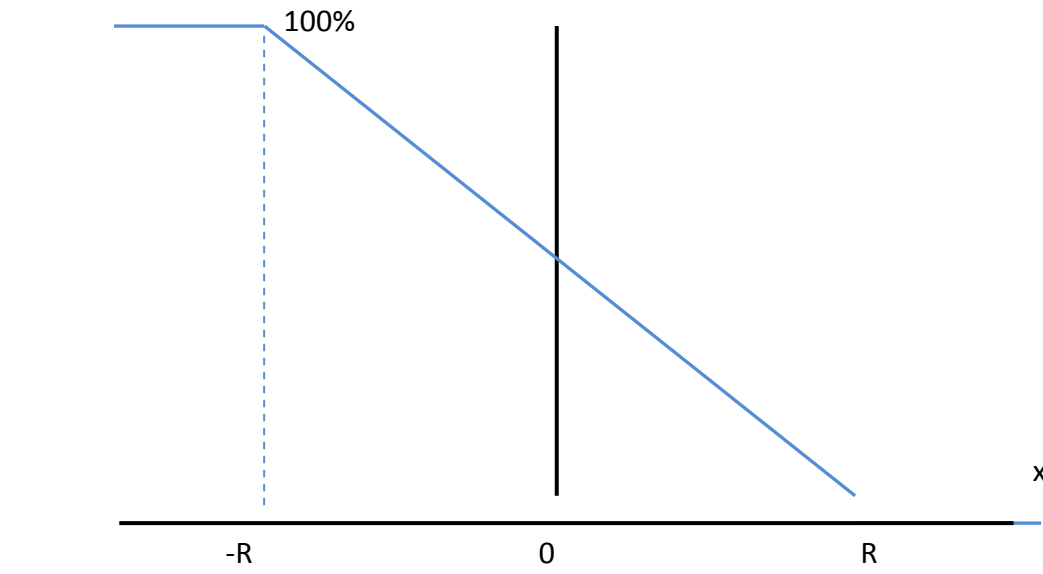
[238]   The difference between a probability and the cumulative probability is a probability gives the chances of a specific outcome occurring (for example that the default price-quality path is precisely correct). A cumulative probability gives the chances of an outcome at or less of a specific outcome occurring (for example that the default price-quality path is below the value which would prompt acceptance). For our purposes it is the cumulative probability that is important.

[239]   This is the cumulative probability function for a simplified uniform distribution given our expected value of zero and symmetry in the margin of error.

H19   If the additional allowance to the default price-quality path is set at the margin of error (R) then there is no possibility of a supplier proposing a customised price-quality path. Total revenue will always be at least sufficient, so at this point F(x) = 0. Equally, where x is set at minus R, there is no probability of the default price-quality path being accepted: total revenue will always be insufficient, so the probability of a customised price-quality path is 1, F(x) =1.[240]

H20   This observation has an immediate implication that any optimal additional allowance (x) cannot be greater than the margin of error (R).There will be no case in which providing firms more revenue than they need under all probabilities that will be beneficial to consumers.

Modelling an optimal adjustment which benefits consumers

H21   We need to calculate an optimal value for x which minimises the total of the following costs.

   H21.1   The expected cost of a customised price-quality path to consumers. If an additional allowance is included when we set the default price-quality path, but it fails to prevent the supplier from making a customised proposal, then the size of the additional allowance is irrelevant. This is because the cost of a customised price-quality path is incurred instead.

   H21.2   The expected cost of the additional allowance to consumers. The additional allowance would only affect consumers if the supplier accepts the default price-quality path.

H22   The expected cost of a customised price-quality path to consumers can be denoted by:

$$E(Cost\ of\ a\ CPP) = F(x).C$$

H23   Here C denotes the cost of a customised price-quality path and F(x) is the cumulative probability function shown in equation 1. It states that the expected cost of a proposal is the probability of a customised price-quality path being proposed times the cost of a proposal.

H24   The expected cost of the additional allowance to consumers can be denoted by:

$$E(Additional\ Cost\ of\ a\ DPP\ from\ an\ additional\ allowance) = (1 - F(x)).x$$

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[240]   Another implication of this is that the adjustment x enters the cumulative probability function as a negative value.

H25 As our cumulative probability function is in respect of a proposal occurring, one minus this value gives the probability of a default price-quality path being accepted. This probability times the value of the adjustment (x) is the expected additional cost of a default price-quality path to consumers from an additional allowance.

H26 We therefore want to minimise the expected cost:

Equation 2

$$MinE(\cos t) = F(x).C + (1 - F(x)).x$$

H27 Substituting Equation 1 into Equation 2 gives:

$$MinE(\cos t) = \frac{(-x+R)}{2.R}.C + \left(1 - \frac{(-x+R)}{2.R}\right).x$$

H28 $MinE(\cos t) = \frac{(-x+R)}{2.R}.C + \left(1 - \frac{(-x+R)}{2.R}\right).x$ We can expand the right hand terms to:

$$MinE(\cos t) = \frac{-x.C}{2.R} + \frac{C}{2} + x + \frac{x^2}{2.R} - \frac{x}{2}$$

H29 To find the value of x which minimises this equation we differentiate with respect to x and set the equation equal to zero to find the turning point.

$$\frac{\partial E(\cos t)}{\partial x} = -\frac{C}{2.R} + 1 + \frac{2x}{2.R} - \frac{1}{2}$$

H30 Setting this derivative to zero and simplifying gives:

$$-\frac{C}{2.R} + \frac{1}{2} + \frac{x}{R} = 0$$
$$\frac{x}{R} = \frac{C}{2.R} - \frac{1}{2}$$

Equation 3

$$x = \frac{C - R}{2}$$

H31 Equation 3 gives us the optimal value of an additional allowance when the default price-quality path is set, given the assumptions we laid out earlier, which is subject to the additional allowance always being smaller than R. This is because the additional allowance would never need to be larger than the margin of error in our forecasts.

The implications of the results

H32   Equation 3 has two main implications:

    H32.1   when the margin of error is less than the cost of a customised price-quality path proposal, an increase in the default price-quality path by an additional allowance is beneficial to consumers; or

    H32.2   when the margin of error is greater than the cost of a customised price-quality path proposal, a decrease in the default price-quality path would be beneficial to consumers.

H33   The intuition behind this is that we have essentially modelled costs and benefits to consumers of setting prices quite low, which risks a supplier making a customised price-quality path proposal, relative to setting prices quite high, which risks suppliers earning excessive profits. Importantly:

    H33.1   where prices are too low, suppliers have a fall-back position of a customised price-quality path; or

    H33.2   if prices are set too high, consumers have no such fall-back position.

H34   Therefore, on an intuitive level, if the potential for too much revenue is large relative to the cost of a proposal—that is, if the margin of error in our forecasts is quite large—then consumers would better off if the supplier proposed a customised price-quality path. This is because costs could then be assessed more accurately.

H35   Nevertheless, we do not propose to apply any negative allowances, and so have set the floor for our calculations at zero.

Applying this model to the suppliers under this reset

H36   We have applied this model to the data we have received from suppliers to calculate the potential additional allowance.

We have assessed the margin of error with reference to the supplier's own forecasts

H37   One way we can assess the margin of error in our forecasts is by cross-checking our results against the supplier's own forecast. In particular, we can compare:

    H37.1   the results of modelling each supplier's revenue requirement using our forecasts; and

    H37.2   the results of modelling each supplier's revenue requirement using the supplier's own information.

H38   The difference between these two figures, assessed in present value terms over a three year period, provides the margin of error referred to in the remainder of this attachment.[241] The three year period corresponds to the present value period used to assess reset the price path.

Our estimates of the margin of error for each supplier

H39   Table H1 below shows the indicative margin of error that we have estimated for each supplier.

Table H1: Estimated margin of error in forecasts

Supplier	Commission forecast ($m)	Supplier forecast ($m)	Margin of error ($m)
Powerco	654	674	20.2
Unison	253	265	12.2
Alpine Energy	98	104	6.1
Eastland	56	61	4.6
Vector	1,106	1,110	4.1
Centralines	26	30	3.8
Electricity Ashburton	79	83	3.5
OtagoNet	66	69	3.4
Network Tasman	77	80	3.2
Top Energy	91	94	2.9
The Lines Company	87	89	2.4
Horizon Energy	55	57	1.8
Electricity Invercargill	35	36	1.0
Nelson Electricity	19	18	-0.7
Wellington Electricity	290	288	-2.5
Aurora Energy	153	146	-6.2

H40   As we are unable to apply audit, verification or evaluation processes, we are unable to assess whether the margin of error for each supplier is the result of inaccuracies in our forecasts, or inaccuracies in the supplier's forecasts. Rather, the results indicate how far our forecasts could lie from the true value.

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[241]   In practice, this margin of error consists of the difference between our forecasts of opex and suppliers' forecasts of opex. As such, it is likely to underestimate the true margin of error.

The implications of a negative margin of error

H41   In the case of a negative margin of error, there is no argument to include an additional allowance. This is because the supplier's forecast indicates that the supplier is unlikely to propose a customised price-quality path, irrespective of the accuracy of our forecast.

The implications of large margins of error

H42   The arguments in favour of introducing an additional allowance are also weak in the case of a large margin of error. For example, even assuming that a relatively complex customised price-quality path proposal costs $2.5m for Powerco or Unison, the potential savings to consumers of $2.5 million need to be laid against the potential cost to consumers of avoiding a proposal. In these cases, the margin of error is over $10 million.[242]

H43   As noted above, our model indicates we should not expect consumers to benefit where the margin of error is greater than the costs of a proposal.

The implications of the smallest error margins

H44   In the case of the smallest margin of error, we have used the formula derived in paragraphs H24 to H35 above, and to find that an additional allowance of between $0 and $243k might be appropriate, ie, for Electricity Invercargill. The upper bound on the additional allowance is calculated by making the following simplifying assumptions.

H44.1   The upper bound on the cost of a complex customised price-quality path for Electricity Invercargill would be approximately $1.5m.

H44.2   The probability of Electricity Invercargill making a proposal for a customised price-quality path is 50%, when in practice the probability is likely to be far lower.

H45   We have not, however, applied the additional allowance in reaching our final decision for Electricity Invercargill because:

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[242] $2.5m is our current view on the upper bound on the costs of a customised price-quality path, and is based on a relatively complex customised price-quality path proposal being made. For example, a proposal that is made in response to a catastrophic event, like an earthquake, and which may involve a significant amount of consultancy work to identify appropriate quality standards. In practice, the costs of a customised price-quality path proposal are likely to be far lower if the proposal is motivated by revenue being too low under the default price-quality path.

H45.1　the numbers are quite small even when we use assumptions from the upper bound of the range, ie, equal to less than 1% of annual revenue for Electricity Invercargill;

H45.2　the additional allowance would be closer to zero, or eliminated entirely, if we made more realistic assumptions; for example, because we rely on the suppliers own forecast of capital expenditure, the probability of a customised price-quality path is lower than 50%; and

H45.3　submissions received to date indicate that we may be significantly under-estimating the margin of error for all suppliers, including for Electricity Invercargill.[243]

H46　As a consequence of these calculations, we do not intend to include any additional allowances.[244]

The impact of making more realistic assumptions about the probability of a proposal

H47　If we made a more realistic assumption about the probability of a customised price-quality path proposal, there is a greater constraint on the margin of error under which an additional allowance is beneficial to consumers. If instead of having a symmetric distribution around zero error, we could assume that probability of proposing a customised price-quality path is lower than 0.5.

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[243]　Submitters have previously argued that the margin of error is equivalent to around 0.84 percentage points returns for each supplier, ie, more than $3m for Electricity Invercargill when assessed over a three year time period. For the results of our previous analysis, refer: Commerce Commission, *2010-15 Default Price-Quality Path for Electricity Distribution: Draft Decisions* Paper, July 2011.

[244]　A banded approach was suggested by a number of suppliers, and remains the favoured option of some suppliers, including Powerco. We believe the analysis set out above is equally relevant to a banded approach. Hence, we do not propose to apply a banded approach for the reasons set out above, as well as the reasons set out in the July 2011 Draft Decision. Refer: Commerce Commission, *2010-15 Default Price-Quality Path for Electricity Distribution: Draft Decisions* Paper, July 2011.

H48   The mathematics for this is very similar. We can model the shift in probabilities by a value β, for example if we wanted to shift the probabilities by 25% we can move these by adding $\beta = \dfrac{R}{2}$. Then our 'optimal' equation (equation 3) becomes $x = \dfrac{C - R + \beta}{2}$. To make the expected probability of a supplier proposing a customised price-quality path 0.25, we set $\beta = \dfrac{R}{2}$. This also implies the additional allowance cannot be greater than $\dfrac{R}{2}$, as any value above this point cannot reduce the probability of a proposal any further.

The impact of including indirect costs in the analysis

H49   In response to our revised draft decision, one of the main arguments raised by regulated suppliers was that our analysis failed to take into account internal and external costs incurred by an applicant for a customised price-quality path. However, the sensitivity of our analysis can be easily checked by changing the assumed cost of a customised price-quality path.

H50   Our results indicate that doubling the assumed cost of a customised price-quality path proposal would result in three suppliers potentially qualifying for an additional allowance. In particular, with all other assumptions held constant, Horizon Energy ($580k) and Vector Limited ($457k) are the other two suppliers that would qualify for an additional allowance if the assumed cost of a customised price-quality path was increased.

H51   However, we do not consider that it would be appropriate to include an additional allowance on the basis of an inflated assumed cost of a customised price-quality path proposal. In our view, it would be wrong to classify most of the planning costs involved in preparing a customised proposal as incremental costs, given the effort that already goes into maintaining and operating an electricity distribution network.

H52   We have therefore only taken into account the costs of a proposal that can be passed onto consumers. These costs are determined by the input methodologies applying to customised price-quality path proposals.[245] Our analysis therefore captures the true costs and benefits of an additional allowance to consumers.

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[245]   Commerce Comission, *Input Methodologies (Electricity Distribution Businesses and Gas Pipeline Businesses) Reasons Paper,* 22 December 2010.

Varying the probability distribution

H53   Finally, we considered whether our results would change if we varied the assumed distribution of the margin of error. In the absence of any information about the shape of the probability distribution function, we assumed that a uniform distribution is appropriate. However, it could be that the probability of a large error is lower than the probability of a small error.

H54   A triangular distribution is an obvious choice in this context where the precise distribution is unknown. However, we do not believe this assumption would lead us to a different conclusion about the appropriate margin for error for each supplier. In our view, the accuracy of our modelling primarily relies on the margin of error, R, representing the true margin of error. And, in light of submissions, we consider our method of calculating the margin of error is more likely to underestimate the true margin of error than overestimate it.

Attachment I: Information gathered from suppliers

Purpose of this attachment

I1 In reaching our decision for the reset, we have relied on information provided by suppliers. This attachment sets out the information notices that we issued to suppliers and, where necessary, the changes that we made to certain information gathered from suppliers that we have used in our modelling.

Information we gathered from suppliers

I2 Throughout the reset process we issued several information notices requesting suppliers to provide us information.[246] Table I1 below sets out a summary of the information requested in those notices.[247]

Table I1: Summary of information requested from suppliers

Information notice	Summary of requested information
16 March 2011	Financial information for 2009/10 (consistent with input methodologies), including: • Income and expense information • Cost allocation information • Regulatory asset base information, including proposed asset value adjustments • Regulatory tax information • Term credit spread differential information
15 June 2011	Revenue information (2010-2011, percentage composition)
6 September 2011	Revenue information - revised (2010-2011, percentage composition)
18 April 2012	Revenue information (2008-2011, detailed composition)
22 June 2012	• Forecast operating expenditure (2012-2015) • Other regulated income (2008-2011) • Insurance information (2009-2015)

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[246] These information notices were issued under s 53ZD of the Act. Copies of the notices and corresponding issues registers are available at http://www.comcom.govt.nz/2010-2015-default-price-quality-path/.

[247] We also sent a letter to suppliers on 2 September 2011 requesting information about changes to insurance premiums in light of the Canterbury earthquakes.

Information notice	Summary of requested information
24 September 2012	• 2009/10 Regulatory asset base information – revised (consistent with related party transaction input methodologies)
	• Reconciliation of proposed asset value adjustments
	• Forecast capital expenditure (as at 2010, net of capital contributions)
	• 2012/13 allowable notional revenue information

Independent review of proposed asset value adjustments

I3   We engaged an independent engineer, Nel Consulting Limited, to review asset value adjustments that were proposed by 14 suppliers. Nel Consulting Limited's review are set out in three review reports, which are available on our website.[248]

I3.1   *The Review of the Independent Engineers' Reports on the Asset Adjustment Process of Electricity Distribution Businesses, Final Review Report, July 2011* – this report addresses adjustments initially proposed by 13 suppliers.

I3.2   *The Review of the Independent Engineers' Reports on the Asset Adjustment Process of Electricity Distribution Businesses, Final Addendum Report, November 2012* – this report addresses revised adjustments proposed by OtagoNet, Vector and Wellington Electricity.

I3.3   *The Review of the Independent Engineer's Report on the Asset Adjustment Process of Electricity Invercargill Limited, Final Report, November 2012* – this report addresses adjustments proposed by Electricity Invercargill.

I4   We have accepted Nel Consulting Limited's recommendation to allow the proposed adjustments, except a small proportion of adjustments proposed by OtagoNet and Vector:

I4.1   OtagoNet's proposed asset adjustments for changes to replacement costs for transformers and zone stations – $0.8 m (2004 dollars) has been disallowed on the basis that section 2.2.1 of the input methodologies does not provide for adjustments to replacement costs.

I4.2   Vector's proposed asset adjustments for internally generated intangible assets – $1.0 m (2009 dollars) has been disallowed on the basis that Vector was unable to supply independent sign-off in support of the specific proposed adjustment, and unable to confirm that the costs to create the

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[248]   These reports are available at are available at http://www.comcom.govt.nz/2010-2015-default-price-quality-path/.

internally generated intangibles have not already been disclosed as operational expenditure under information disclosure.

Changes made to suppliers' information

I5   This section sets out the changes we have made to information that we have used in our starting price modelling, which we have gathered from suppliers.

Changes made to information gathered since publishing our revised draft decision

I6   Table I2 below sets out the changes we made to information we received since publishing our August 2012 revised draft decision, including the reasons for making those changes. Updated information provided by suppliers since the revised draft decision that has been suitably certified and not been altered by the Commission is not included in the table (eg, information provided in response to our September 2012 information notice that supersedes previous disclosures).

Table I2: Commission changes to information disclosed since August 2012

Supplier and disclosed information that has been changed in our model	Reasons for change
Vector – capital expenditure forecasts	Vector requested that capital expenditure forecast information, including capital contribution information, it has provided be treated as confidential. Vector has stated this information is commercially sensitive, including that there is a risk that investors may be misled by that information resulting in inappropriate pricing of shares in the company and a transfer of wealth from some investors to others (noting that, for financial reporting purposes, capital contributions are treated as an income item and are material to profit).
	We have decided not to treat the information as confidential. The reason for this decision is to make the starting price modelling transparent to interested parties, and because this forecast information is required to be disclosed on an ongoing basis under information disclosure.
	However, interested parties should not rely on this information for purposes other than this reset.
Unison – related party transactions	Unison provided two different workbooks in response to our September 2012 information notice and its application of the input methodologies for related party transactions. We have used workbook B, which restates the value of Unison's RAB in 2009/10 as if Unison and UCSL (Unison's related party contractor) were part of a consolidated entity, albeit that the revised RAB value includes an allocation of indirect costs, on which the input methodologies are silent.

Supplier and disclosed information that has been changed in our model	Reasons for change
Powerco – capital expenditure and operating expenditure forecasts	Expenditure forecasts for Powerco have been adjusted to incorporate separate forecasts that Powerco has provided for its subsidiary 'Independent Transmission Services'.
Centralines and Eastland – sum of opening RAB values	We have used the opening RAB values used for our revised draft decision, due to inconsistencies in the allocated opening RAB values that were supplied in response to our September 2012 information notice.
The Lines Company – sum of opening RAB values	We have assumed that the allocated sum of opening RAB is equal to the unallocated sum of opening RAB less the adjustment to reinstate modified asset values, due to inconsistencies in the allocated opening RAB value that was supplied in response to our September 2012 information notice.
Nelson Electricity – sum of depreciation	Nelson Electricity's sum of depreciation value has been modified to correct for an error, which has been confirmed by Nelson Electricity.
The Lines Company – sum of depreciation	We have used The Lines Company's sum of depreciation used for our revised draft decision, due to inconsistencies in the value that was supplied in response to our September 2012 information notice.
Unison – sum of depreciation	Sum of depreciation has been treated as a positive rather than a negative value.
Nelson Electricity –allowable notional revenue	Nelson Electricity's allowable notional revenue value has been modified to correct for an error, which has been confirmed by Nelson Electricity.
Electricity Ashburton – capital expenditure forecasts	Electricity Ashburton's forecast has been modified to correct for an error, which has been confirmed by Electricity Ashburton.

Changes made prior to our revised

I7   Table I3 overleaf sets out the changes we made to information used in our modelling that were previously identified in our August 2012 revised draft decision, including the reasons for making those changes.

Table I3: Commission changes to information disclosed prior to August 2012

Supplier and disclosed information that has been changed in our model	Reasons for change
Changes made between our July 2011 Draft Decision and this revised draft decision	
Nelson Electricity – basis of estimate of proportion of line charge revenue from residential ICPs	Nelson Electricity told us that its ability to accurately identify revenue from residential users has reduced. We have used the average of the ratios for 2007/08 and 2008/09.
Electricity Invercargill – other regulated income	Electricity Invercargill had a particularly large amount of other income in 2008 which is unlikely to recur. Rather than using the arithmetic average for 2008-2011, our average is calculated excluding 2008.
Horizon Electricity – other regulated income	In 2008/09 a large proportion of Horizon's other regulatory income was from the proceeds of litigation in terms of its stated 'Committed Supply Agreements'. We have excluded this amount from the calculation as we do not expect such payments to regularly occur.
Wellington Electricity – other regulated income	We excluded the 2008 value for Wellington Electricity from the calculation as at that time it was still part of Vector.
Eastland – Insurance premiums	We excluded the captive insurance amount submitted by Eastland, as it does not meet the criteria for captive insurer.
Changes to information made prior to our July 2011 Draft Decision	
Aurora Energy – Positive permanent differences	Depreciation has been excluded as it does not meet the definition of positive permanent differences.
The Lines Company – Positive temporary differences and Negative permanent differences	Depreciation has been excluded as it does not meet the definition of Positive temporary differences or Negative permanent differences.
Vector – Negative temporary differences	Negative temporary differences have been treated as a positive rather than negative balance.

Attachment J: How we have implemented the price reset

Purpose of this attachment

J1   This attachment explains how we give effect to the reset price path in the determination (other than the matters discussed in Attachment K).[249] In particular, we discuss:

> J1.1   how the price paths have been reset;

> J1.2   what outputs from our modelling are reflected in the determination;

> J1.3   how we have set suppliers' prices for 2013/14 and 2014/15;

> J1.4   how we have set starting prices for each supplier;

> J1.5   the rates of change that apply to each supplier; and

> J1.6   how claw-back has been determined for each supplier.

How the price paths have been reset

J2   We have reset the price path for suppliers in the following ways.

> J2.1   The reset price path takes effect from 1 April 2013; at this time a supplier will be either allowed to increase or required to reduce its weighted average prices depending on whether the supplier is earning less than or more than the maximum allowable revenue that we have calculated for that supplier.

> J2.2   The price path will shift up or down depending on whether the supplier's starting prices are adjusted up or down.

> J2.3   For certain suppliers, it is necessary to set alternative rates of change (ie, alternative to the industry wide rate of change of CPI-0%) to minimise potential price shocks to consumers over the last two years of the regulatory period.

> J2.4   We have applied claw-back for all suppliers. The claw-back amounts for each supplier are based on the under- or over-recoveries of its revenue in 2012/13 against the maximum allowable revenue that we have calculated for that year. The amounts will be greater than the under-recoveries in 2012/13 for suppliers with capped alternative rates of change (ie, at

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[249]   Amendments to s 52P determinations may be made under s 52Q of the Act.

CPI+10% in each year). Claw-back will be included as a recoverable cost in 2014/15, except where it would exacerbate price shocks to consumers. If claw-back is not included as a recoverable cost in 2014/15 then the recovery will be smoothed over the next regulatory period.

J3   Table J1 below sets out the different components that we specify in the determination to give effect to the reset.

Table J1: Giving effect to the reset in the determination

Component specified in the determination	Our approach	Additional comments
The maximum weighted average prices that each supplier can charge in 2013/14	Suppliers can calculate their allowable notional revenue for 2013/14 using a formula that: • for most suppliers, uses a given maximum allowable revenue for 2013/14 and relevant constant price revenue forecasts; and • for suppliers with capped alternative rates of change, is consistent with the 2010 determination. Suppliers can derive their maximum weighted average prices from allowable notional revenue.	The reset price paths take effect from 1 April 2013. At that time, a supplier will be either allowed to increase or required to reduce its weighted average prices depending on whether the supplier receives an upward or downward adjustment to its starting prices Suppliers will only be required to demonstrate compliance with the reset price path for 2013/14 and 2014/15.
The maximum weighted average prices that each supplier can charge in 2014/15	Suppliers can calculate their allowable notional revenue using a formula that is consistent with the existing determination.	
The starting prices that would have applied to each supplier at the start of the regulatory period	We have specified starting prices as a maximum allowable revenue for 2010/11.	Adjustments to suppliers' starting prices change their price paths from the start of the regulatory period. This change has no practical effect, ie, suppliers will not be required to retrospectively demonstrate compliance.
The rates of change that apply to each supplier	For certain suppliers, we have set alternative rates of change that relate to 2013/14 and 2014/15.	Alternative rates of change that relate to 2013/14 are capped and will only be specified for certain suppliers.
How claw-back will be determined for each supplier	We have specified a formula so that specified suppliers can determine claw-back amounts to be included as recoverable costs in 2014/15	We have not included any reference in the determination to claw-back amounts that will be recovered in the next regulatory period.

Outputs from our modelling that are reflected in the determination

J4   The following outputs from our modelling are used, either directly or indirectly, in the determination:

    J4.1   maximum allowable revenues for 2010/11, 2012/13 and 2013/14;

    J4.2   where applicable, alternative rates of changes; and

    J4.3   constant price revenue forecasts for 2012/13 and 2013/14.

General formula for calculating maximum weighted average price for 2013/14

J5   This section explains the formula that suppliers will use to calculate maximum weighted price for 2013/14, unless we have set an alternative rate of change that has been capped.

J6   It is necessary to convert maximum allowable revenue to be consistent with the price paths in the determination. The price paths in the determination are represented by allowable notional revenue, which is specified consistent with the specification of price input methodology that applies to default price-quality paths.[250]

J7   Maximum allowable revenue and allowable notional revenue are not comparable because the quantities implied in the revenue values relate to different periods. Maximum allowable revenue can be converted into allowable notional revenue by adjusting for the difference in the two sets of quantities.

Determining allowable notional revenue for 2013/14

J8   Each supplier can determine what its permitted maximum weighted average prices are for 2013/14 by calculating its allowable notional revenue using the equation in Box J1.[251] Suppliers are compliant with the price path if their notional revenue (given by the equation in Box J2) does not exceed their allowable notional revenue.

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[250]   Revenue values that are 'notional' are a combination of the individual prices for different goods or services in a given period and the quantities corresponding to those prices from a different period, eg, two years prior.

[251]   For detail on how this equation is derived, see Appendix E of our July 2011 Draft Decision.

Box J1: Allowable notional revenue for 2013/14

$$R_{2013/14} = \frac{MAR_{2013/14} + (K_{2013/14} + V_{2013/14})}{\Delta D} - (K_{2013/14} + V_{2013/14})$$

where:

$R_{2013/14}$ is the allowable notional revenue for 2013/14.

$MAR_{2013/14}$ is the maximum allowable revenue for the year 2013/14, as specified in 0.

ΔD is the constant price revenue for 1 April 2012 to 31 March 2013 and 1 April 2013 to 31 March 2014, as specified in 0.[252]

$K_{2013/14} + V_{2013/14}$ is the sum of all pass-through costs and recoverable costs for the 2013/14 assessment period, which need to be forecasted by the supplier.[253]

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[252] Specifically, the constant price revenue rates for each of the years are multiplied together, ie, $\Delta D = (1 + \Delta CPR_{2012/13})(1 + \Delta CPR_{2013/14})$. The constant price revenue rates for 2012/1 3 and 2013/14 are as discussed in Attachment F. Dividing $MAR_{2013/14} + (K_{2013/14} + V_{2013/14})$ by the constant price revenue forecasts discounts the quantities implied in the maximum allowable revenue for 2013/14 by two years to be consistent with allowable notional revenue that uses quantities from two years before.

[253] Indirect transmission charges for 2013/14, which are approved by the Commission, are also included in this term. These charges are further discussed in Attachment K.

Table J2:Inputs for determining allowable notional revenue for 2013/14

Supplier	MAR$_{2013/14}$ ($000)[254]	ΔD
Aurora Energy Limited	57,536	1.013
Eastland Network Limited	21,200	0.996
Electricity Ashburton Limited	29,789	1.032
Electricity Invercargill Limited	13,320	0.998
Horizon Energy Distribution Limited	20,901	0.999
Nelson Electricity Limited	7,196	1.011
Network Tasman Limited	28,939	1.012
OtagoNet Joint Venture	24,759	1.006
Powerco Limited	246,378	1.010
Unison Networks Limited	91,594	1.001
Vector Limited	416,760	1.034
Wellington Electricity Lines Limited	109,404	1.016

Box J2: Notional revenue for 2013/14

$$NR_{2013/14} = \sum_i P_{i,2013/14}Q_{i,2011/12} - (K_{2013/14} + V_{2013/14})$$

where:

$P_{i,2013/14}$ is the ith price for the year 2013/14.

$Q_{i,2011/12}$ is the quantity corresponding to the ith price during 2011/12.

$K_{2013/14} + V_{2013/14}$ is the sum of all pass-through costs and recoverable costs for the 2013/14 assessment period.

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[254] These MAR values are as calculated in our starting price model, which are expressed in the model as 'Allowable Revenue before tax in revenue-date terms in each year'. We do not agree with Horizon's submission that the values should represent 'Allowable Revenue before tax in year-end terms in each year', as the compliance formula reflects the revenues received and costs incurred by the supplier during the year; refer: Horizon, *Submission to Commerce Commission on Revised Draft Reset of the 2010-15 Default Price-Quality Paths,* 1 October 2012, pp. 19-20. The MAR values have been rounded up to the nearest thousand dollars. This is in response to Powerco's submission on rounding; refer: Powerco, *Revised Draft Reset of the 2010-15 Default Price-Quality Paths* 1 October 2012, p 5.

Why we have not included the revenue differential term

J9   We do not consider it is necessary to include the revenue differential term
      ($R_{t-1} - NR_{t-1}$), the difference between a supplier's allowable notional revenue and
      notional revenue from the previous year, in the equation in Box J1 as the reset
      establishes a new price path.[255] The revenue differential term appears in clause 8.4
      of the existing determination when calculating allowable notional revenue for years
      after 2010/11.

J10   The revenue differential term:

      J10.1   is designed to ensure that the price path is set and remains independent of
               regulated suppliers' pricing behaviour within the regulatory period; and

      J10.2   is not designed to allow suppliers to recoup any under-recovery in a
               previous year.[256]

J11   The revenue differential term is, however, reinstated for 2014/15 ie, the year
      following the reset.

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[255]   Some submissions on our July 2011 Draft Decision suggested that the equation in Box J1 should
        incorporate the revenue differential adjustment term. Refer: ENA *Submission on 2010-15 Default Price-
        Quality Path for Electricity Distribution Businesses Draft Decisions Paper* 24 August 2011, pp. 23-27;
        Nelson Electricity, *Submission to the Commerce Commission on the 2010 -15 Default Price Quality Path
        Reset Draft Decisions Paper,* 24 August 2011, p. 6; PwC *Submission to the Commerce Commission on 2010-
        15 Default Price-Quality Path for Electricity Distribution Businesses Draft Decisions Paper* 24 August 2011,
        p. 13; Vector *Submission to Commerce Commission on Draft Decision on Starting Price Adjustments for
        Electricity Distribution Businesses* 24 August 2011, p. 36; Wellington Electricity *Submission on the 2010-15
        Default Price-Quality for Electricity Distribution Draft Decisions Paper* 24 August 2011, pp. 8-9; and
        Wellington Electricity Cross, *Submission on the submissions made on the '2010-15 Default Price-Quality
        for Electricity Distribution Draft Decisions Paper,* 5 September 2011, p. 7.

[256]   Commerce Commission *2010-2015 Electricity Distribution Default Price-Quality Path Revenue Differential
        Term Amendment, Reasons Paper* 30 November 2011.

Reasons for our implementation approach

J12   There are a number of alternative ways of deriving allowable notional revenue in 2013/14 from the maximum allowable revenue that we have determined for each supplier depending on what assumptions are made. We consider that the implementation approach uses a set of assumptions that provides the best combination of simplicity, accuracy and transparency.[257]

Formula for the weighted average prices for 2013/14 for CPI+10% limits

J13   Where we have limited price changes to CPI+10% for a supplier, allowable notional revenue for 2013/14 is calculated in line with clause 8.4 of the existing determination. In this instance, the alternative rate of change used to calculate allowable notional revenue for this period is specified for each supplier, as set out in Table J3.

How maximum weighted average prices for 2014/15 are calculated

J14   For the last year of the regulatory period (2014/15), allowable notional revenue is calculated in line with clause 8.4 of the existing determination. Any alternative rate of change that is determined for a supplier applies when calculating allowable notional revenue for 2014/15.

Actual growth rates may differ from our constant price revenue forecasts

J15   The allowable notional revenue calculation for 2014/15 does not include a 'wash-up' for over- or under-recovery of revenue resulting from actual quantity growth differing from forecast quantity growth prior to the date that the reset takes effect (ie, we have not included a wash-up for the 'ΔD' term). As a result, if suppliers are able to grow quantities faster than implied by our constant price revenue forecasts, suppliers will earn higher revenues than we projected (and vice-versa).

J16   Submissions have suggested using a wash-up to reduce the risk of under- or over-estimating constant price revenue.[258]

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[257] As is the case in the existing price path compliance formula, which requires pass-through and recoverable costs need to be forecast for the upcoming assessment period, this option requires pass-through and recoverable costs for 2013/14 to be forecast.

[258] Powerco, *Revised Draft Reset of the 2010-15 Default Price-Quality Paths*, 1 October 2012, p.18; and Vector, *Submission to the Commerce Commission on Revised Draft Reset of the 2010-15 Default Price-Quality Paths for Electricity Distribution Businesses*, 1 October 2012, p.17. Aurora, *Submission to the Commerce Commission on its Draft Decisions Paper (July 2011) on 2010-15 Default Price Quality Path for Electricity Distribution* 24 August 2011, p. 9; ENA *Submission on 2010-15 Default Price-Quality Path for Electricity Distribution Businesses Draft Decisions Paper* 24 August 2011, pp. 23-27; Horizon, *Submission to*

J17   The main reason for not including a wash-up is that the constant price revenue growth rates that are used to calculate the 'ΔD' term are the same rates that were used to calculate the maximum allowable revenue values in our starting price model. This means we have used a consistent set of assumptions to measure constant price revenue growth in our modelling and the allowable notional revenue calculations.

How starting prices have been set

J18   We have set starting prices in terms of maximum allowable revenue for 2010/11. Note that this maximum allowable revenue has no practical effect, ie, suppliers are not required to reassess compliance for 2010/11.

J19   We have used the equation in Box J3 to determine maximum allowable revenue for 2010/11. The equation in Box J3 establishes a relationship between maximum allowable revenue in consecutive years by adjusting for annual rate of change, including the CPI, and adjusting for the change in constant price revenue.

Commerce Commission on 2010-15 Default Price-Quality Path Reset of Starting Prices, CPI Adjustment and Other Amendments Draft Decisions Paper, 24 August 2011, pp. 22-23; PwC, *Submission to the Commerce Commission on 2010-15 Default Price-Quality Path for Electricity Distribution Businesses Draft Decisions Paper*, 24 August 2011, p. 13; Vector, *Submission to Commerce Commission on Draft Decision on Starting Price Adjustments for Electricity Distribution Businesses*, 24 August 2011, p. 37; Wellington Electricity *Submission on the 2010-15 Default Price-Quality for Electricity Distribution Draft Decisions Paper* 24 August 2011, pp. 3 and 10; and Wellington Electricity *Cross Submission on the submissions made on the '2010-15 Default Price-Quality for Electricity Distribution Draft Decisions Paper,* 5 September 2011, p. 7.

Box J3: Calculating allowable notional revenue for the previous year

$$MAR_{t-1} = \frac{MAR_t}{(1+\Delta CPI_t)(1-X_t)(1+\Delta CPR_t)}$$

where:

MAR_{t-1} is the maximum allowable revenue for the period t-1 consistent with the reset price path in 2013/14

MAR_t is the maximum allowable revenue for the period t consistent with the reset price path in 2013/14

ΔCPI_t is the derived change in the CPI to be applied during the period t

X_t is the X factor for the period t

ΔCPR_t is the change in constant price revenue corresponding to the period t

The rates of change that apply to each supplier

J20   The annual rate of change in prices, ie, CPI-X%, applying to suppliers is CPI-0% unless otherwise specified in Table 3.1. An alternative rate of change for 2013/14 is only specified for suppliers where we consider it is necessary to spread adjustments over more than one year.

Table J3: Supplier-specific rates of change

Supplier	Annual rate of change in price for 2013/14	Annual rate of change in price for 2014/15
Alpine Energy Limited	-10	-10
Centralines Limited	-10	-10
The Lines Company Limited	-10	-10
Top Energy Limited	-10	-10
Unison Networks Limited	n/a	-8

How claw-back is calculated and recovered

J21   As discussed in Chapter 7, we are applying some claw-back for previous under- and over- recoveries. Claw-back amounts are treated as a recoverable cost for 2014/15, unless this treatment would further exacerbate price shocks to consumers. Suppliers that will be required to treat claw-back as recoverable costs in 2014/15 are listed in Table J4.

J22   Suppliers that do not recover the claw-back amounts in 2014/15 will have the opportunity to recover claw back amounts after 1 April 2015. This is the case where we expect the application of the total claw-back would have resulted in price increases from 2013/14 to 2014/15 of more than CPI+10%. We do not consider how claw-back will be smoothed into the next regulatory period in this paper.

How claw-back for 2014/15 is calculated

J23   The total amount of claw-back associated with under- or over-recovery is calculated using the equation in Box J4. We have expressed the claw-back amount as recoverable costs for 2014/15 as the calculation relies on information that will not be available when suppliers set their prices for 2013/14.

Box J4: Claw-back in 2014/15

$$clawback_{2014/15} = (MAR_{2012/13} - \omega)(1+r)^2$$

where:

$clawback_{2014/15}$ is the claw-back amount to be treated as recoverable costs in 2014/15

$MAR_{2012/13}$ is the maximum allowable revenue for the year 2012/13, as specified in Table J4

ω is the line charge revenue for 2012/13 less actual pass-through costs and actual recoverable costs and indirect transmission charges for 2012/13

r   is the interest rate of 5.84% to be applied for under-and over-recovery.

Table J4: Suppliers required to apply claw-back in 2014/15

Supplier	MAR$_{2012/13}$ ($000)
Aurora Energy Limited	56,442
Eastland Limited	20,978
Electricity Ashburton Limited	28,949
Electricity Invercargill Limited	13,166
Horizon Energy Limited	20,650
Nelson Electricity Limited	7,067
Network Tasman Limited	28,403
OtagoNet Joint Venture	24,373
Powerco Limited	242,028
Vector Limited	404,718
Wellington Electricity Lines Limited	107,153

J24 A supplier's under- or over- recovery of revenue in 2012/13 underpins the calculation of claw-back. The under- or over-recovery is represented in the equation in Box J4 as $MAR_{2012/13} - \omega$. This is the difference between a supplier's maximum allowable revenue for 2012/13 (which we have calculated using the equation in Box J3), and its actual net revenue for 2012/13.[259] A positive value represents an under-recovery, and a negative value represents an over-recovery.

J25 A positive claw-back value is added to the recoverable costs used to calculate notional revenue in 2014/15 (ie, the amount of costs that the supplier may recover will increase), whereas a negative claw-back value is subtracted, ie, the amount of costs that the supplier may recover will decrease.[260]

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[259] For this calculation we have used the industry-wide X value of 0% and the change in constant price revenue is as given from our constant price revenue modelling.

[260] Wellington Electricity submitted that we should clarify how claw-back fits into the compliance formula for 2014/15 and state whether the 'r' term is real or nominal. Refer: Wellington Electricity, *Implementation of the Proposed Reset of the 2010-15 Default Price Quality Path*, 26 November 2012, pp. 1-2. The claw-back amount in 2012/13 is multiplied by two years of the specified interest rate. The resulting amount enters the notional revenue formula as a recoverable cost in 2014/15, which is not adjusted for CPI.

The appropriate interest rate—5.84%

J26   When calculating the present value of any claw-back amounts, suppliers will be
        required to apply an interest rate of 5.84%. This amount reflects:

        J26.1   a pre-tax cost of debt of 5.84%, for the three year period beginning
                  in April 2012, ie, for the present value period;[261] and

        J26.2   a two year fixed term mortgage rate of 5.80%, applying in April 2012.[262]

J27   These values provide an indication of the opportunity cost of funds to both suppliers
        and consumers.[263] The opportunity cost of funds is relevant because any over- or
        under-payment of charges is akin to a loan between suppliers and consumers.[264]

J28   Some submitters argued that the we are required by clause 4.1.9 of the
        re-determined input methodologies to use the 75th percentile estimate of WACC as
        the discount rate for claw-back. Clause 4.1.9 provides:

        Where the Commission takes into account the cost of capital in making a DPP determination,
        the Commission will use the 75th percentile estimate of WACC most recently published in
        accordance with clause 4.1.8.

J29   Clause 4.1.9 is relevant where we are required to, or chooses to take into account
        the cost of capital in making a default price-quality path determination. Our ability
        to apply claw-back is provided by s 54K(3), and does not specify how we must
        calculate the claw-back amount. Further, the re-determined input methodologies do
        not require us to apply a specific rate when calculating the claw-back amount. We
        are therefore able to set the discount rate as we see fit.

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[261]   Refer: Commerce Commission *Determination of the Cost of Capital for Suppliers of Electricity Distribution
        Services for a Customised Price-Quality Path Proposal under Part 4 of the Commerce Act 1986, Decision
        Number 732* 30 September 2011. We have adopted a pre-tax cost of debt as suppliers will pay tax on any
        additional revenue they receive.

[262]   Refer: Reserve Bank of New Zealand, http://www.rbnz.govt.nz/keygraphs/Fig3.html, updated 31 October
        2012 and accessed November 2012.

[263]   The opportunity cost to consumers and suppliers was suggested as lower and upper bounds by Vector in
        its submission.

[264]   This view was supported by both CEG and Contact Energy in their submissions; refer: Competition
        Economists Group *Default price quality path reset* 1 October 2012, p20; and Contact Energy, *The
        Commerce Commission's Revised Draft Reset of the 2010-15 Default Price-Quality Paths, Submission to
        Commerce Commission*, 1 October 2012, p. 7. We noted that the over- or under-recovery was akin to a
        loan between suppliers and consumers in our revised draft decision.

J30   We have decided that the cost of debt is a more appropriate discount rate than the cost of capital for the following reasons.[265] This is because the cost of capital reflects the cost of equity, which in turn reflects exposure to systematic risk. However, there is no systematic risk associated with the recovery of the claw-back amounts. Conversely, a risk free rate would also have been inappropriate as the amounts are not risk free, and a risk free rate does not reflect the opportunity cost of borrowing for suppliers and consumers.

Use of permitted values to calculate claw-back

J31   Under-or over-recoveries are not assessed using a supplier's permitted revenue (ie, the revenue implied from the supplier's maximum weighted average prices). In our revised draft decisions paper, this was presented as 'option (b)' in Box L.4. We have now removed this option.

J32   Some submissions we received expressed concern that claw-back of permitted revenues is inconsistent with the Act and recommended that option (b) is removed. For example, ENA, Powerco, and Vector submitted:[266]

J32.1   where claw-back is a positive amount, the supplier would be unable to recover this headroom in the claw-back amount, and would not be able to recover this amount as normally would be the case under the default price-quality path in subsequent years (as the proposed reset over-rides the operation of the differential factor in the default price-quality path); and

J32.2   where claw-back is a negative amount, the supplier would be required to disgorge under the claw-back calculation amounts it had never received in 2012/13 as revenue.

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[265]   Unison *Submission on Revised Draft Reset of the 2010-15 Default Price-Quality Paths* 1 October 2012, pp. 19-21.

[266]   Refer: ENA *Submission on the Revised Draft Reset of the 2010-15 Default Price-Quality Paths*, 1 October 2012; Powerco, *Revised Draft Reset of the 2010-15 Default Price-Quality Paths*, 1 October 2012, p18; and Vector, *Submission to the Commerce Commission on Revised Draft Reset of the 2010-15 Default Price-Quality Paths for Electricity Distribution Businesses*, 1 October 2012, p. 24-25.

J33   We are aware that some suppliers chose not to price up to their maximum allowed weighted average prices in 2012/13, on the basis that they have not taken advantage of the CPI change that is allowed under the 2010 determination. The CPI change in the 2010 determination includes the effects of the October 2010 GST change, but is not consistent with the input methodologies. Powerco, for example, has commented that it considers it would be disingenuous to take advantage of this larger CPI allowance due to the delay in the reset. We therefore have not penalised such suppliers.

Spreading of claw-back

J34   We consider that spreading claw-back over a 12 month period through changes to tariffs is consistent with the Act.

J35   Vector, however, submitted that the recovery of claw-back in 2014/15 is not consistent with the provisions in the Act to spread any under- or over-recoveries over time. Vector suggested that its claw-back for perceived over recoveries should be spread so that the annual effect of the claw-back is less than 2% of its revenue.[267]

J36   In its cross-submission, Unison commented that spreading claw-back over a 12 month period through changes to tariffs is consistent with spreading the claw-back amount over time, and is administratively practical compared to making or requiring lump-sum payments.[268] We agree with Unison's view on this matter.

How claw-back amounts carried over into the next regulatory period are calculated

J37   Next year we will consult on how the claw-back amount will be calculated for suppliers that do not recover fully recover claw-back in this regulatory period. It is, however, worth noting that:

J37.1   we consider that the appropriate discount rate for calculating the claw-back amounts through to the end of the regulatory period is also 5.84%; and

J37.2   the maximum allowable revenue values corresponding to each supplier for 2012/13 are as set out in Table J5.

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[267]   Vector, *Submission to the Commerce Commission on Revised Draft Reset of the 2010-15 Default Price-Quality Paths for Electricity Distribution Businesses*, 1 October 2012, p. 26.

[268]   Unison, *Cross Submission on Revised Draft Reset of the 2010-15 Default Price-Quality Paths* 12 October 2012, p. 4.

Table J5: Suppliers required to apply claw-back in the next regulatory period

Supplier	$MAR_{2012/13}$ ($000)
Alpine Energy Limited	36,271
Centralines Limited	9,631
The Lines Company Limited	32,405
Top Energy Limited	33,886
Unison Networks Limited	93,894

Attachment K: Other changes to the default price-quality paths

Purpose of this attachment

K1   This attachment explains the default price-quality path determinations applying to suppliers resulting from the reset. In particular, it sets changes to the reset default price quality paths—other than how prices are calculated—that are reflected in the new determination to apply the re-determined input methodologies.

K2   Changes to the reset default price quality paths that are reflected in the new determination regarding how prices are calculated are discussed Attachment J.

Default price-quality path determinations applying to suppliers

K3   To reset the default price-quality paths we have issued a new determination and amended the pre-existing determination.[269]

K4   The new Electricity Distribution Services Default Price-Quality Path Determination 2012 NZCC [35] sets out the default price-quality paths for the fourth and fifth assessment periods of the regulatory period for all suppliers except Orion New Zealand Limited.

K5   The Electricity Distribution Services Default Price-Quality Path Determination Amendment No. 4 NZCC [36] amends Decision 685 to make its application clear. As a result Decision 685 now sets out that:

K5.1   Orion New Zealand Limited is not subject to the reset, and remains subject to the default price-quality path set out in Decision 685 (including all amendments up to, and including, 30 November 2012); and

K5.2   Decision 685 still applies to all suppliers for the first, second, and third assessment periods of the regulatory period.[270]

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[269]   We note that section 53P(1) requires the Commission to 'amend the section 52P determination' by setting out the starting prices, rates of change and quality standards that apply. As Orion is the only non-exempt EDB whose default price-quality path is not being reset, we have decided that it makes practical sense to issue a new determination for the reset default price-quality paths (which is effectively an amended version of Decision 685), rather than amend Decision 685 to include the reset default price-quality paths. We have not received any objections from interested parties on this approach.

[270]   Suppliers will need to demonstrate compliance with the default price-quality path set out in Decision 685 for the Third Assessment Period (1 April 2012-31March 2013). This is because the new prices arising from the reset will only take effect from 1 April 2013.

Changes reflected in the new determination

K6   To reset the default price-quality paths we must apply all relevant input methodologies.[271] To do this we have used Decision 685 as a template for the *Electricity Distribution Services Default Price-Quality Path Determination 2012 NZCC [35]*, and made updates to reflect the re-determined input methodologies.[272] The key updates that suppliers should be aware of are discussed below.

Pass-through cost have changed with a new category recoverable costs introduced

K7   Suppliers have typically been allowed to pass some costs—called pass-through costs— through to prices during the regulatory period as these costs are outside the control of the supplier.

K8   Input methodologies change what costs can be passed through by providing a new definition of pass-through costs, and introducing 'recoverable costs' as a second category of costs that suppliers are able to pass through to consumers.[273]

K9   The new definition of pass-through costs has narrowed to include only levies outside the control of suppliers. Examples of these include local authority rates, Commerce Act levies, Electricity Industry Act levies, and Electricity and Gas Complaints Commission levies.[274]

K10   The new recoverable cost category includes transmission charges, and avoided transmission charges (previously defined as pass-through costs), and allows for certain costs associated with claw-back, customised price-quality path proposals, and the incremental rolling incentive scheme, to be recovered.

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[271]   It is appropriate to update the determination to reflect the input methodologies as part of the reset process under s 54K(3). Under s 52S, we are also required to apply all relevant input methodologies when making decisions under Part 4.

[272]   These input methodologies are set out in Parts 3 and 4 of Decision 710: Commerce Act (Electricity Distribution Services Input Methodologies) Determination 2010.

[273]   The main distinction between these two categories is the extent to which they are controllable by the regulated supplier. Pass-through costs are those costs that are outside the control of the supplier and can be passed through to consumers without the Commission needing to undertake any assessment of these costs. Recoverable costs are not completely outside the control of the supplier, and there may be judgement involved as to how much should be passed through. In some cases, an approval process is required before the costs can be recovered (see paragraphs K20 to K22 below regarding approval of charges in respect of new investment contract charges, and avoided transmission charges).

[274]   These levies are subject to meeting the requirements of clause 3.1.2(1), (3) & (4).

K11   To give effect to recoverable costs within the compliance assessment formula, we have included a 'V' term.

Avoided transmission charges have changed

K12   Suppliers have previously been able to recover 'avoided transmission charges' arising from activities that substitute for the use of the transmission system.

K13   Input methodologies change avoided transmission charges in three ways.

K13.1   The scope of 'activities' for which costs can be recovered has narrowed. Suppliers will now only be able to recover costs where they have purchased an asset from Transpower, ie, not where they have built their own assets substituting use of the transmission system. Previously, suppliers were able to recover costs where they had built their own assets that substituted for the use of the transmission system.[275]

K13.2   Avoided transmission charges are now a recoverable cost, not a pass-through cost. This means they are still able to be recovered, but are no categorised as a pass-through cost.[276]

K13.3   Suppliers are now required to meet an approval process. This is because the regulated supplier has a degree of control over the level of these particular costs. As a check on the appropriate level of costs to be passed through to consumers, it is appropriate to assess applications for approval of recoverable costs on a case-by case basis. Details of this process are included below in paragraphs K20 to K22.2.

Existing investments for avoided transmission charges

K14   ENA initially submitted that where suppliers had already made investments under the previous definition of avoided transmission charges, they should be able to recover these costs, as this is "consistent with the expectations of EDBs when investments were made and prices were set".[277]

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[275]   The reasons for this change are set out in J2.24 to J2.27 of the December 2010 input methodologies reasons paper.

[276]   The explicit definition of 'Avoided transmission charges' has also been removed as it is no longer explicitly used within the input methodologies determination. Instead the default price-quality path determination now refers back to the definition of recoverable costs under clause 3.1.3 of the input methodologies.

[277]   Electricity Networks Association, *Submission on the Revised Draft Reset of the 2010-15 Default Price-Quality Paths*, 1 October 2012, p.25.

K15   We have not made any specific provision for the existing avoided transmission charges. This is because existing investments are likely to have been included in capex forecasts covered by the 2010 asset management plans which were inputs into determining each supplier's starting price. ENA has subsequently recognised this position as reasonable in discussion with the Commission.

Transmission charges have changed

K16   Suppliers have traditionally been able to recover the cost of charges it pays to Transpower for use of the transmission system.

K17   Input methodologies change 'transmission charges' in two ways.

K17.1   The charges are now a recoverable cost, not a pass-through cost. This means they are still able to be recovered, but no longer meet the strict definition of pass-through costs.

K17.2   Suppliers can now only recover transmission charges where payments are made to Transpower instead of the previous payments made 'in respect of the Transmission System'.

Indirect transmission charges are a new category

K18   We have introduced a category of charges called 'Indirect transmission charges'. This category allows suppliers to recover payments made for the use of the transmission system where they can demonstrate these charges are on-charged, at cost, to the supplier via a third party from Transpower. Such charges are:

K18.1   not included in our maximum allowable revenue amounts;

K18.2   may be recovered through the supplier's prices, subject to Commission approval; and

K18.3   are treated the same as recoverable costs within the price path compliance formula.

K19   To demonstrate that the charges are on-charged at cost, the supplier must submit supporting information on the indirect transmission charges to the Commission. This information must be certified by at least one Director, and provided before each assessment period.[278]

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[278]   We have amended the definition of indirect transmission charges from our November 2012 draft determination to reflect Nelson Electricity's submission of 26 November.

Process for approving recoverable costs

K20   As discussed in paragraph K13.3, suppliers are required to meet an approval process for certain recoverable costs.

K21   To this effect, the default price-quality path now includes a process for the approval of avoided transmission charges and charges payable in respect of new investment contracts, to be assessed as part of annual compliance.

K22   For avoided transmission charges the proposed process requires suppliers to provide:

K22.1   evidence that a transaction took place with Transpower (suppliers can only recover cost as avoided transmission charges where the supplier has purchased assets from Transpower); and

K22.2   evidence that the amount of charge recovered is consistent with the asset purchased (in the first year this is to be derived from the prices specified in Transpower's pricing schedule for the asset, and in subsequent years, derived from prices consistent with the Transmission Pricing Methodology).

K23   For charges payable in respect of new investment contracts, the proposed process requires suppliers to provide proof of the amount of charge relating to the contract entered into.

Potential to approve avoided transmission charges in advance

K24   Powerco recommend that while they do not see the annual compliance process as being complex, they would like some type of pre-approval process for avoided transmission charges to reduce uncertainty for suppliers.[279]

K25   We have not provided a pre-approval process as we consider the current annual compliance process straight-forward and appropriate for the default price-quality paths. However future events, such as the upcoming changes to the Transpower pricing methodology for example, may change this position. In light of this, we will continue to assess whether an upfront approval process for avoided transmission charges is appropriate in consultation on the 2015 reset.

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[279]   Powerco, *Submission on the Revised Draft Reset of the 2010-15 Default Price-Quality Paths*, 1 October 2012, p.27.

Compliance process for transactions during the regulatory period

K26   We have included a 'Transactions involving Non-exempt EDBs' section which
        addresses similar issues to the previous 'Mergers and Acquisitions' section in
        Decision 685. The title has been updated to better reflect the content of the section
        which deals with both the amalgamations input methodology, and other
        transactions outside of this.[280]

Process for amalgamations

K27   To apply the amalgamations input methodology to the default price-quality paths we
        have reflected the amalgamations input methodology and other similar merger
        transactions in clause 10.1.

Process for transactions other than amalgamations

K28   We have specified how transactions other than amalgamations will be considered in
        clause 10.2. To this end, a supplier's price path and quality standards are adjusted if
        a supplier completes a transaction that involves the transfer of assets to or from the
        supplier, and which leads to consumers being supplied electricity lines services by a
        different provider. In particular:

        K28.1   suppliers are allowed to charge consumers for additional services that are
                 supplied due to an acquisition. Conversely, suppliers are not compensated
                 for services they no longer supply.

        K28.2   a supplier's allowable notional revenue is adjusted for the additional or
                 excluded services. The adjustment is calculated using the prices for services
                 that were charged by the supplier before the transaction and corresponding
                 lagged quantities, then adjusted by inflation.[281]

        K28.3   a supplier's allowable notional revenue will be adjusted to reflect any
                 transactions that have already been completed during the regulatory
                 period. (Such transactions are not reflected in the maximum allowable
                 revenue figures, given they are based on forecast costs and revenues
                 projected from 2009/10.)

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[280]   We note that the changes relating to transactions other than amalgamations do not result from any input
        methodologies. We have made these changes to provide further clarity to help suppliers comply with the
        default price-quality path.

[281]   For simplicity, we have assumed that allowable notional revenue should not be adjusted for any pass-
        through costs or recoverable costs that correspond to the additional or excluded services.

Notification of transactions

K29   Suppliers are also required to notify us within 30 days of the nature and effect of significant transactions, ie, those that involve 10% or more of a supplier's asset base or revenues. To provide context for clause 10.4, we intend to use the information provided to help understand the transactions suppliers are involved in. This will assist us to:

   K29.1   refine the compliance requirements for future assessment periods; and

   K29.2   understand differences between annual compliance statements provided by a supplier who has undertaken a transaction. For example, where there are significant differences between one year and the next, the information may help demonstrate the effect of the transactions on the supplier's compliance.

Changes to transactions during the regulatory period from November 2012 consultation

K30   We have made some minor changes to the transactions during the regulatory period section in response to submissions on the November 2012 draft determination.

   K30.1   Clause 10.4 is amended to refer back to the type of transactions set out in clauses 10.1-10.2. This is to clarify that clause 10.4 is only relevant where the supplier has been involved in a transaction where there has been a change in asset ownership, and as a result, end-users associated with the relevant asset(s) are being provided services by a different supplier.[282]

   K30.2   Clause 10.2 is amended so that only a single compliance statement is required demonstrating that notional revenue must not exceed allowable notional revenue at any time during the assessment period, including before and after the transaction is completed. Previously the supplier would have been required to submit a separate compliance for the newly acquired assets.[283]

   K30.3   Clause 10.2 is amended to refer back to clause 10.4 so that compliance following a transaction for reliability standards is only relevant where a

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[282]   This change has been made to reflect Alpine's submission of 26 November 2012. We have not dispensed with Clause 10.4 as suggested by Alpine, as we consider more timely information than that provided by annual disclosures will be useful to gain a better understanding of the transactions suppliers are undertaking. As stated above, we also consider Clause 10.4 will assist with annual compliance.

[283]   This change reflects Vector, *Implementation of the Proposed Reset of the 2010-15 Default Price-Quality Path*, 26 November 2012, p2

supplier has completed a large transaction. Where a supplier has completed a transaction that is not a large transaction, the acquired assets will not contribute towards compliance.[284]

K31   In relation to transactions, we have also amended Schedule 1F to clarify equation 6 to specify 'additional or excluded services' rather than 'electricity lines services'. This addresses Vector's submission stating that transactions may also involve network assets operated by unregulated entities such as Airports and shopping malls.[285]

No change to restructuring of prices

K32   Vector submitted that clause 8.5 should be changed to refer to a supplier's notional revenue to demonstrate compliance flowing a restructuring of prices.[286] The current requirement assesses the impact of the restructure on allowable notional revenue.

K33   We have not changed clause 8.5 as suppliers can use an alternative approach to compliance following a restructure of prices under clause 8.6. This allows suppliers to demonstrate (to the satisfaction of the Commission) that the substance of clause 8.5 has been met without requiring its exact provisions.

Summary of changes

K34   For quick reference, Table K1 overleaf summarises how we have specified the *Electricity Distribution Services Default Price-Quality Path Determination 2012 NZCC [35]* different to Decision 685.

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[284]   This change reflects Unison's 26 November 2012 submission.

[285]   Vector, *Implementation of the Proposed Reset of the 2010-15 Default Price-Quality Path*, 26 November 2012, p1

[286]   Vector, *Implementation of the Proposed Reset of the 2010-15 Default Price-Quality Path*, 26 November 2012, p3

Table K1: Summary of proposed changes

Topic	Description	Determination reference	
		Default price-quality path	**Input methodologies**
Recoverable costs added to the price path	Transmission charges avoided transmission charges New investment contracts Claw-back IRIS	Definition specified in clause 4.1 Approval process specified in clauses 11.3(d) and 11.4 'V" term added to represent recoverable costs in the compliance formula in clause 8.4	Clause 3.1.3(1)
Indirect transmission charges added to the price path	Added to allow transmission payments to be recovered where a supplier has an indirect relationship with Transpower	Definition specified in clause 4.1	n/a
Pass-through costs definition updated	Pass-through costs include: Local authority rates certain levies specified in the input methodologies	Definition specified in clause 4.1	Clause 3.1.2(2) & (4)
GST definition updated	Updated to reflect input methodologies	Definition specified in clause 4.1	Clause 1.1.4(2)
Director definition updated	Updated to reflect input methodologies	Definition specified in clause 4.1	Clause 1.1.4(2)
Price definition updated	Updated to reflect input methodologies	Definition specified in clause 4.1	Clause 1.1.4(2)
Posted Discount definition updated	Updated to reflect input methodologies	Definition specified in clause 4.1	Clause 1.1.4(2)
Electricity distribution service definition updated	Updated to reflect input methodologies	Definition specified in clause 4.1	Clause 1.1.4(2)
CPI definition updated	Updated to reflect input methodologies	Definition specified in clause 4.1	Clause 1.1.4(2)
Electricity Commission levy definition removed	Updated to reflect input methodologies	n/a	Clause 1.1.4(2)

Topic	Description	Determination reference	
		Default price-quality path	**Input methodologies**
Commerce Act levy definition removed	Updated to reflect input methodologies	n/a	Clause 1.1.4(2)
Transmission charges definition removed	Updated to reflect input methodologies	n/a	Clause 1.1.4(2)
Transactions involving Non-exempt suppliers	Gives effect to the amalgamations input methodologies and clarifies the process for compliance for transactions other than amalgamations	Process set out in Clause 10	Clause 1.1.4(2)

Attachment L: Summary of changes since our revised draft decision

Purpose of this attachment

L1   This attachment shows the key differences between the revised draft decision, and this final decision. It begins with an analysis of the outputs of our modelling before providing a breakdown of the changes in the key inputs.

Minor changes to the price path from our revised draft decision

L2   The changes implemented between the revised draft decision and the final decision have largely balanced each other out for most suppliers. This section sets out:

   L2.1   the changes in the amount suppliers are expected to earn in 2013/14;

   L2.2   the changes in the allowable rates of change; and

   L2.3   a like-for-like comparison of price adjustments.

L3   These comparisons demonstrate the similarities between our revised draft decision and our final decision.

The amount suppliers are expected to earn in 2013/14 is largely unchanged

L4   Figure L1 overleaf shows the difference in the amount we expect suppliers to earn in 2013/14 relative to the amount we expected in our revised draft decision. As can be seen, there is little difference between the final and revised draft decision. The only exception to this is for the suppliers subject to an alternative rate of change.[287]

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[287]   Details on the changes for suppliers subject to an alternative rate of change can be found in Chapter 6

Figure L1: Changes in maximum allowable revenue from our revised draft decision ($ 000s)
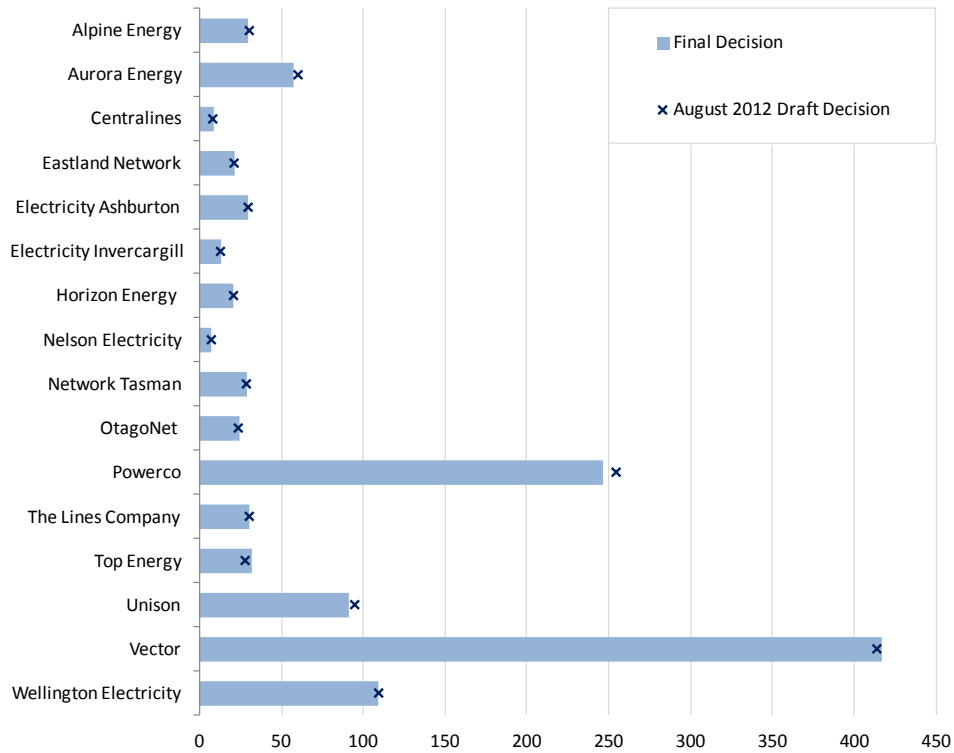
L5   The values in the figure above are important because they are one of the two key outputs from our modelling that are reflected in the determination. The other key output is the allowable rate of change in prices in from 2013/14 to 2014/15.

Allowable rates of change in price reflect our revised draft decision

L6   Table L1 below shows the difference in the rates of change in price that we have allowed between 2013/14 and 2014/15, relative to the amount we proposed to allow in our revised draft decision. Chapter 6 provides more detail on the rates of change we have set.

Table L1: Changes in the allowable rate of change from our revised draft decision

Supplier	Final Decision	Revised Draft Decision
Alpine Energy	CPI+10%	CPI+15%
Aurora Energy	CPI +0%	CPI +0%
Centralines	CPI+10%	CPI+15%
Eastland Network	CPI +0%	CPI +0%
Electricity Ashburton	CPI +0%	CPI +0%
Electricity Invercargill	CPI +0%	CPI +0%
Horizon Energy	CPI +0%	CPI +0%
Nelson Electricity	CPI +0%	CPI +0%
Network Tasman	CPI +0%	CPI +0%
OtagoNet	CPI+0%	CPI+11%
Powerco	CPI +0%	CPI +0%
The Lines Company	CPI+10%	CPI+15%
Top Energy	CPI+10%	CPI+15%
Unison	CPI +8%	CPI +0%
Vector	CPI +0%	CPI +0%
Wellington Electricity	CPI +0%	CPI +0%

Like-for-like comparison of price adjustments

L7   Figure L2 overleaf shows the percentage changes in prices in 2013/14 as a result of the reset for both the draft and final decision. It uses the methodology from our revised draft decision where we based the percentage change calculation on an estimate of the actual revenue suppliers would have earned without the reset.

Figure L2: Like-for-like comparison of price adjustments – proposed and final decision[288]
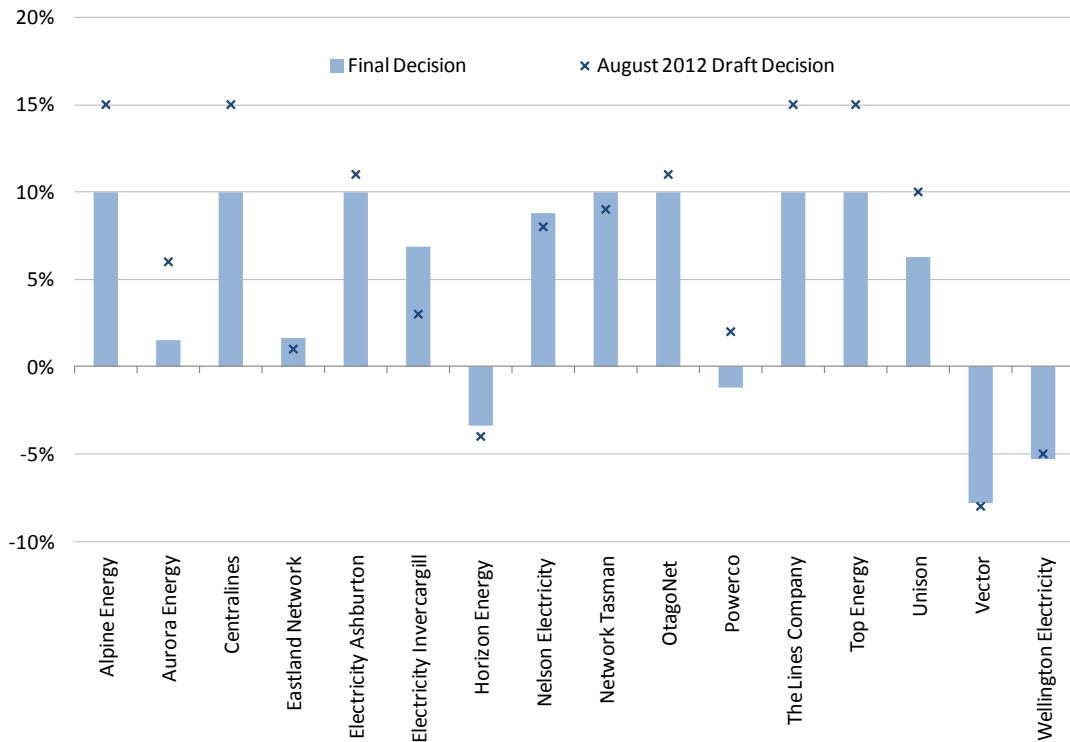
L8   This methodology was used in our revised draft decision because at the time we did not have up to date information on each suppliers current price cap.[289] This approach used suppliers 2009/10 actual revenue, and assumptions were made to get an estimate of 2013/14 revenue, which was used to estimate the price changes.

L9   For our final decision we have updated our calculation of the percentage changes to better reflect the impact on consumers. Between the revised draft and final decision we requested information from suppliers' on the price caps they faced in 2012/13. We used this information to estimate the 2013/14 price caps if there were no reset, which was used to calculate the price changes. This is the calculation used throughout the body of this paper.

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[288]   The price changes in Figure L2 are calculated on a different basis than those presented in the main body of this paper. This change is discussed in paragraphs L8 and L9.

[289]   Price caps are calculated by suppliers as they have the most up to date information on quantities supplied, and on particular costs that they are allowed to pass through to consumers.

Changes to key inputs since our revised draft decision

L10   This section looks at changes to the key inputs, consisting of:

   L10.1   changes to our forecast for capex;

   L10.2   changes to our forecast for opex;

   L10.3   changes to our forecast for constant price revenue; and

   L10.4   changes to other inputs.

L11   While there are some large changes to the inputs in this section, as shown above, these largely cancel each other out, and only have a minimal impact on the price path as proposed in the revised draft decision.

Changes to our capital expenditure allowances

L12   Figure L3 overleaf compares the increases in our allowance in nominal terms for capex between the revised draft decision and the final decision. The changes have resulted from:

   L12.1   using a more up to date source of input price data, both for forecast and actual movements in input prices; and

   L12.2   re-submission of information previously provided by suppliers, to ensure it is all prepared on a consistent basis.[290]

L13   However, we have not made any changes to our overall approach for modelling capex since our revised draft decision was published.[291] This is because the overall approach was generally supported by submitters.

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[290] We have also updated Powerco's forecasts to include its Independent Transmission Services, which were incorrectly excluded from the forecast contained in its 2009/10 Asset Management Plan. We have also corrected an error in the model to include 2009/10 commissioned asset value that was previously provided by suppliers in response to an information gathering request. This replaced the value we took from the supplier's Asset Management Plan that was included in the model for our revised draft decision.

[291] Electricity Networks Association, *Submission on the Revised Draft Reset of the 2010-15 Default Price-Quality Paths*, 1 October 2012 pp13-14; Otagonet, Submission on the Revised Draft Reset of the 2012/15 Default Price-Quality Paths, 1 October 2012 p3; Powerco, *Submission on the Revised Draft Reset of the 2010-15 Default Price-Quality Paths*, 1 October 2012 p11; Unison Networks Limited, *Submission on Revised Draft Reset of the 2010-15 Default Price-Quality Paths*, 1 October 2012 p16.

Figure L3: Changes in our allowances for nominal capital expenditure (2009/10 to 2014/15) – draft to final
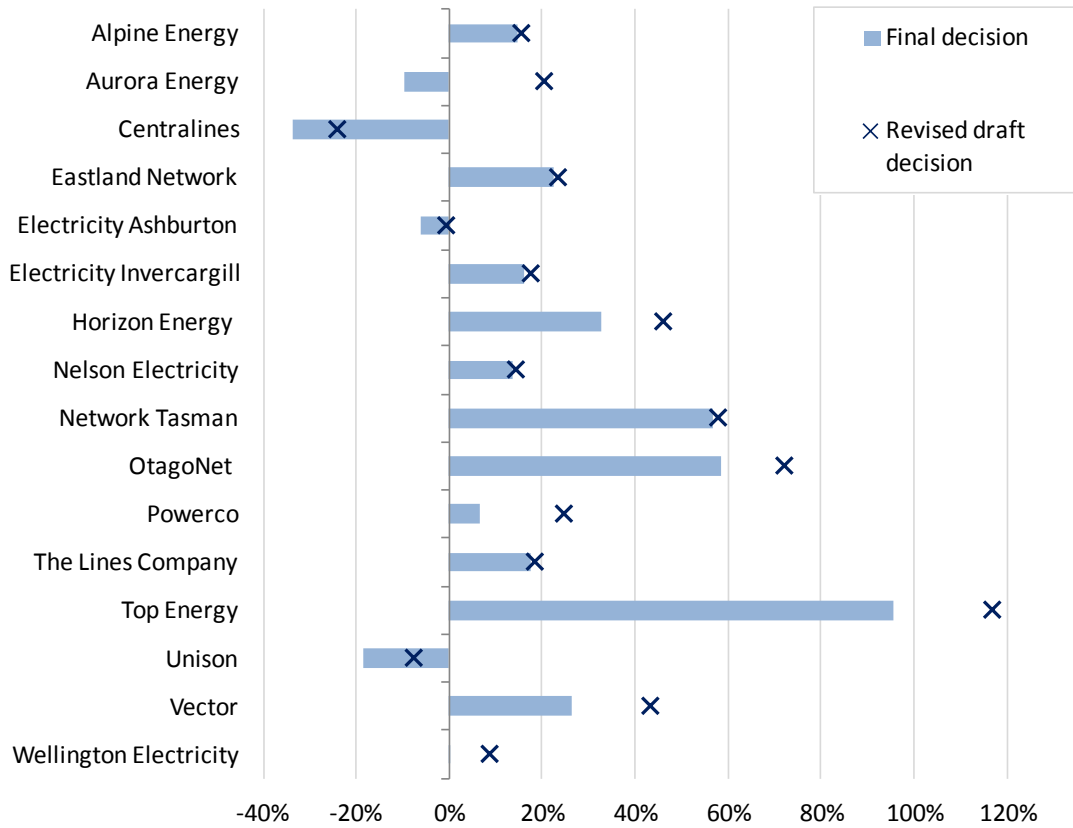

Changes to our operational expenditure allowances

L14   Figure L4 overleaf compares the increases in our allowance for nominal opex between the revised draft decision and the final decision. The changes have resulted from a revised econometric model of the effect of scale on opex and updated input data.[292]

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[292]   We have also updated the initial level of operational expenditure for Powerco's to include its Independent Transmission Services, which were incorrectly excluded from the forecast contained in its 2009/10 Asset Management Plan.

Figure L4: Changes in our allowances for operational expenditure in nominal terms (2009/10 to 2014/15) – draft to final
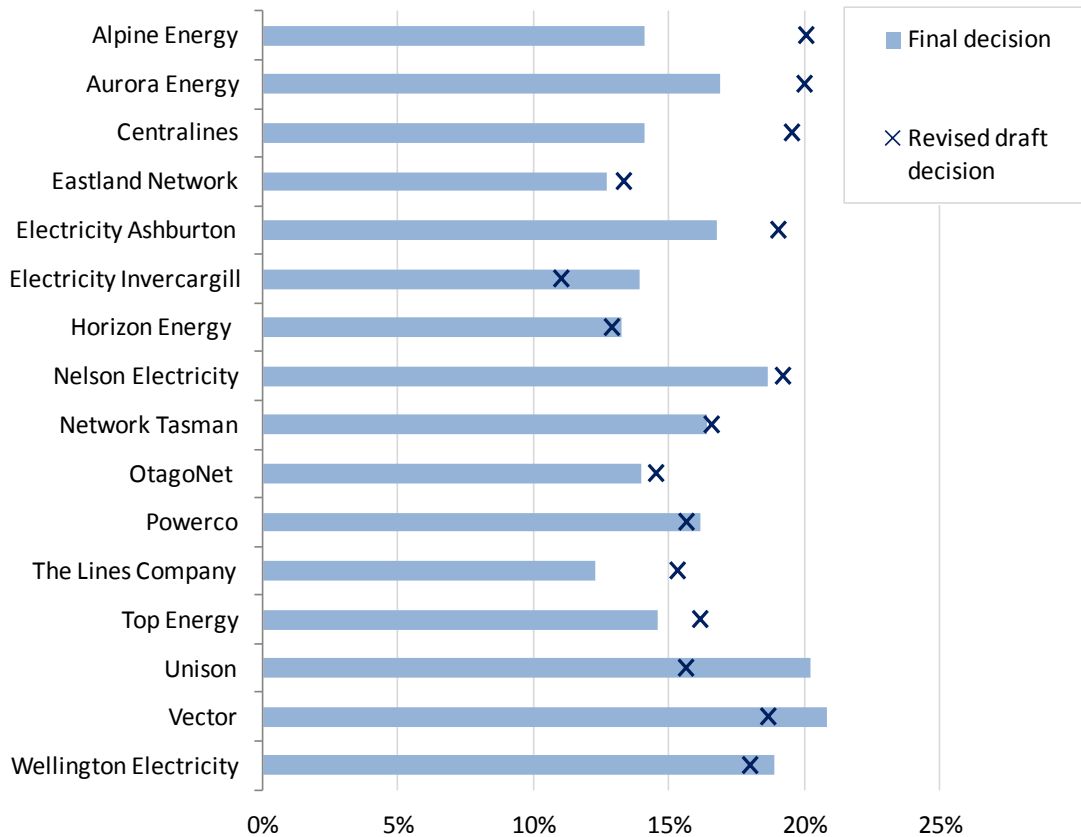
*Changes to our constant price revenue growth forecasts*

L15   Figure L5 overleaf compares our forecasts of constant price revenue growth between the revised draft decision and the final decision. The overall approach was supported by submissions, and therefore remains the same as in the revised draft decision.[293]

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[293]   Refer, for example Electricity Networks Association, *Submission on the Revised Draft Reset of the 2010-15 Default Price-Quality Paths*, 1 October 2012, pp14-15. However, Vector submitted that we should consider extrapolating historic trends in national GDP. Vector, *Submissions to the Commerce Commission on Revised Draft Reset of the 2010-15 Default Price-Quality Paths for Electricity Distribution Businesses*, 1 October 2012, paragraph 119. We note that submissions generally have suggested making our forecasts more rather than less supplier specific.

L16   We have, however, changed the application of the regional GDP forecasts. Based on advice from NZIER we have now calculated the regional GDP growth rate over the five year period, rather than using the forecasts for each individual year.[294] The impact of this change is reflected in the chart below.

Figure L5: Changes in our constant price revenue growth forecasts between our revised draft and final decision

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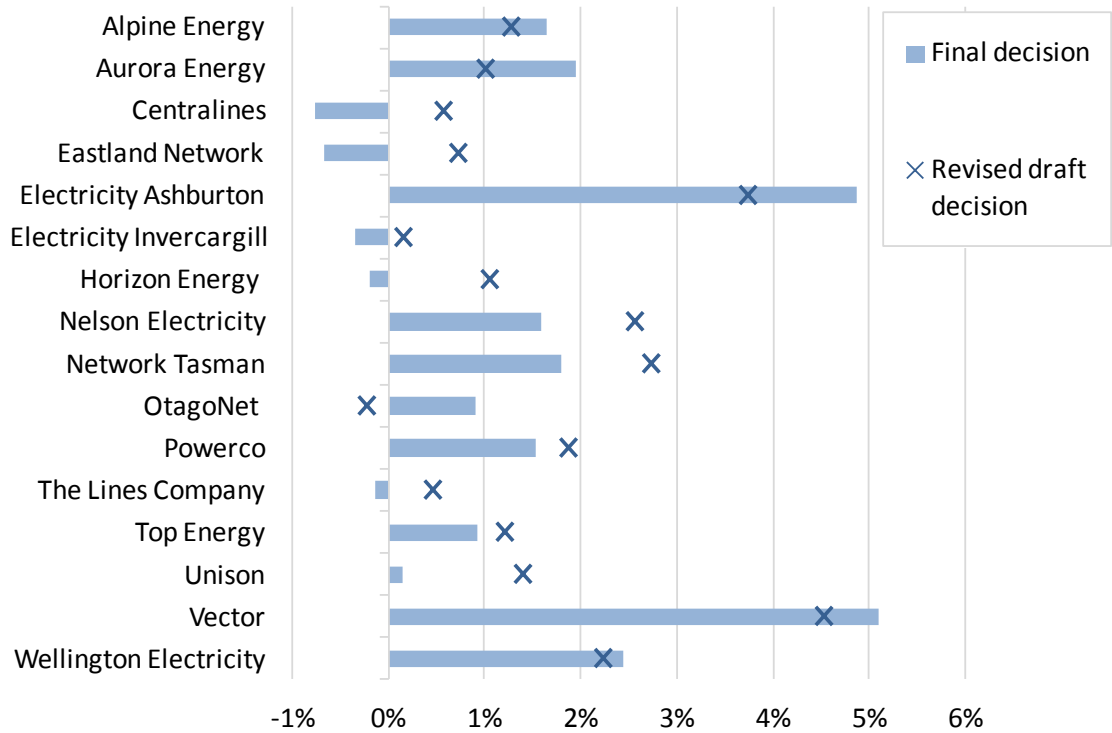
294   NZIER have also provided a commentary on its forecasts, which we have published alongside this reasons paper.

Updates to other inputs

L17   The changes that we have made to other line items include:

L17.1   updates to our financial model with the most recently available CPI figures from September 2012.

L17.2   updates to other regulatory income to include resubmitted values from Vector.

L17.3   taking into account lost and found assets in the 2009/10 closing RAB.

L17.4   applying the input methodology requiring the opening RAB to be multiplied by 0.999 before being used to determine the revaluation of existing assets.[295]

L17.5   setting disposed assets in each year of the regulatory period equal in real terms to the value of disposed assets in 2009/10, which has tended to reduce the revenue the affected suppliers will be allowed to charge in 2013/14.[296]

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[295]   EDB IM 4.2.3(2)(a).

[296]   This change has the largest impact on Powerco, followed by Vector.