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Revised Draft Decision on the Initial Default Price-Quality Paths for Gas Pipeline Services

Date: 24 October 2012

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Contents

Executive Summary

X1 This paper provides an overview of, and reasons for, the initial default price-quality paths that we have proposed for the gas transmission businesses owned by Vector Limited, and Maui Development Limited; and the gas distribution businesses owned by Vector Limited, Powerco Limited, and GasNet Limited.

X2 You are invited to provide your views on this paper.

X2.1 Submissions are due by 7 December 2012.

X2.2 Cross-submissions are due by 21 December 2012.

X3 We expect to finalise our decisions on the initial paths by 28 February 2013. We propose that the paths would then apply for a four years and three months regulatory period, from 1 July 2013 to 31 September 2017.

There are three main components of the initial paths that we have to set

X4 We are required under Part 4 of the Commerce Act 1986 to set the initial default price-quality paths for certain suppliers of gas pipeline services. Each supplier must comply with its path. Three key components of each path are:

X4.1 the prices or revenue the supplier is allowed to charge or earn at the start of the regulatory period;

X4.2 the annual rate of change in price or revenue that is allowed in subsequent years of the regulatory period; and

X4.3 the quality standards that it must meet.

X5 We provide an overview of our draft decisions for these three components in the following sections. We have considered these components separately for distribution and transmission services, this includes setting a price path for distribution businesses and a revenue path for transmission businesses.

Starting prices for the first regulatory period

X6 Our preference is to set prices based on current and projected profitability, and in doing so apply the Commission's input methodologies – rules, requirements and processes set in advance under Subpart 3 of Part 4.[1] These were specifically developed to promote the outcomes in the purpose of Part 4, and provide the basis for a simplified building block costs assessment from which a path can be set that allows suppliers to earn a normal return over the regulatory period.

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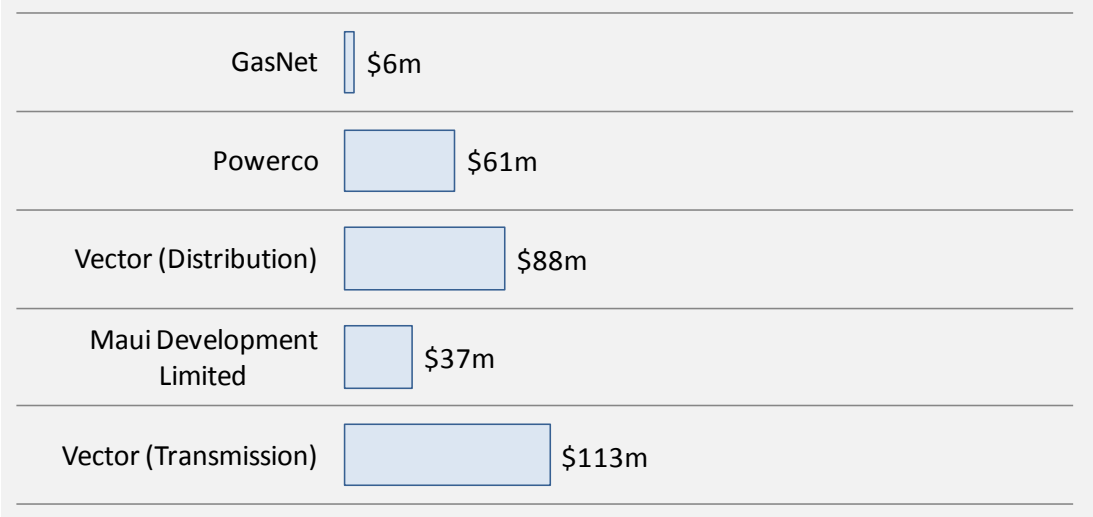
1 The other option for setting starting prices is to 'roll-over' the prices that applied at the end of a preceding period.

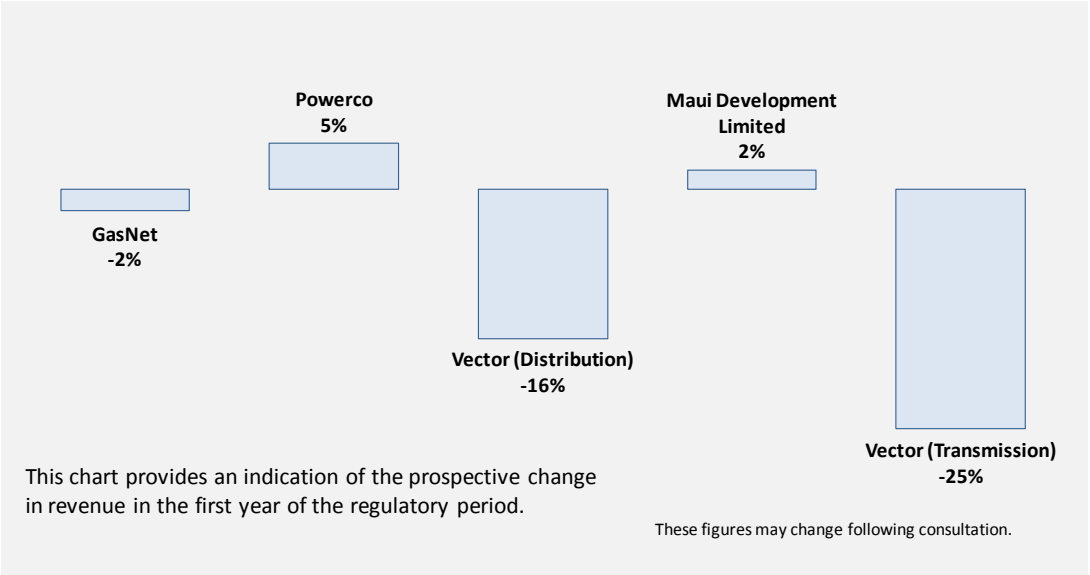
X7 Figure X1 shows the amount of revenue that we expect each supplier would recover in the first 15 months of the regulatory period, other than Maui Development Limited which is only for 12 months, if our draft decision was implemented.[2]

Figure X1: Allowed revenue in first assessment period



X8 We have estimated the average adjustment to each supplier's current revenues that would be required for them to earn the proposed allowed revenue in the first assessment period. This is shown in Figure X2.

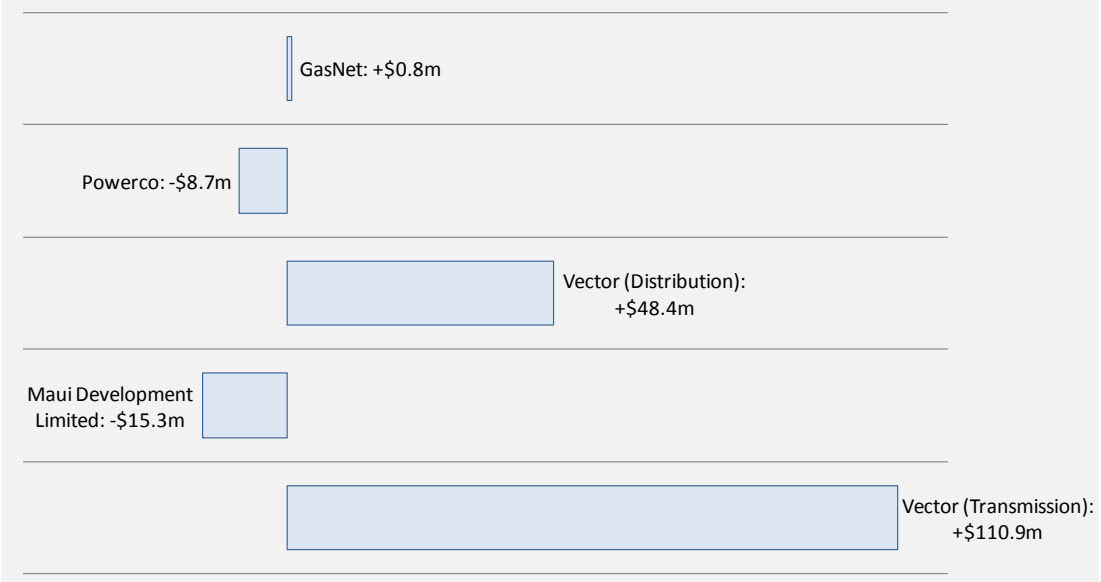
Figure X2: Adjustments for the first full pricing year of the regulatory period



[2] The revenue amount shown in Figure X1 are net of any pass-through and recoverable costs. Discussion of assessment periods for the initial default price-quality paths is set out in Attachment L.

X9 Our choice to set profitability-based starting prices, instead of rolling over existing prices, is supported by Figure X3. The Figure shows the difference between forecast revenues and forecast costs, including cost of capital, if current pricing for each supplier were to continue.[3] For example, we estimate that Vector Limited may earn $110.9m more than the projected costs, including cost of capital, of supplying its transmission services if we did not adjust prices.

Figure X3: Forecast revenues minus forecast costs – 1 July 2013 to 1 October 2017



Allowable rate of change during the first regulatory period

X10 We propose that the annual rate of change in price or revenue, as applicable, is CPI-0%, which will affect:

X10.1 changes in the maximum price charged by gas distribution businesses; and

X10.2 changes in the maximum revenue that gas transmission businesses can recover.

X11 This 'industry-wide X factor' of 0% p.a. is based on a study of the long run average productivity improvement rate in the sector.[4]

X12 At this point we have not proposed any supplier-specific alternative rates of change, but we invite submissions on this matter.

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3 The estimates shown are present values as at 1 July 2013.

4 Refer: Economic Insights Pty Limited, *Regulation of Suppliers of Gas Pipeline Services – Gas Sector Productivity*, 10 February 2011.

Quality standards that must be met during the first regulatory period

X13 We propose that the quality standards will consist of targets for response times to emergencies, which will supplement existing contractual arrangements, and safety-focussed regulations. Due to problems with the availability and robustness of existing data, it has not been possible to establish more meaningful reliability standards for the initial paths. Our expectation is that these quality standards will need to further evolve over time.

X14 We will monitor each supplier's reliability of supply for the purposes of publishing summary and analysis of information disclosed by suppliers under Part 4.

What we have been guided by in reaching our draft decisions

X15 Our overall aim when setting the initial default price-quality paths is to promote the purpose of Part 4. We must promote the long-term benefit of consumers, by promoting outcomes that are consistent with outcomes produced in competitive markets.

X16 There are a range of processes and constraints for setting and resetting default price-quality paths in Part 4. We have also applied the relevant input methodologies for gas distribution services and gas transmission services, which were recently re-determined in September 2012.

X17 We must also consider the purpose of default/customised price-quality regulation. To meet the purpose of this type of regulation, any approach we use to set the initial default price-quality paths must be relatively low cost. Given the design of the regulation and the constraints on setting default price-quality paths, the initial paths may not meet all the circumstances which suppliers might face. Suppliers can propose an alternative customised price-quality path that would better meet their particular circumstances.

X18 Although our proposed approach for setting the initial paths is relatively low cost, we are satisfied that it is consistent with suppliers generally expecting to earn a normal return over the regulatory period on a business as usual basis. This is because:

X18.1 our modelling of operating expenditure and revenue relies on independent forecasts that are free of systematic bias, in either direction;

X18.2 our modelling of network capital expenditure relies on supplier forecasts, capped at 20% relative to historic levels, in addition to an uplift for changes in the price of inputs;

X18.3 the rate of return that we allow is above the central estimate of the cost of capital for the industry;[5] and

X18.4 we propose an additional allowance for GasNet of $398k to reduce the probability that a customised price-quality path will be necessary, and reduce the expected costs to consumers of a proposal.

X19 Nevertheless, because we rely on some information that is different to the supplier's own forecasts, one or more suppliers may expect to earn less than a normal return because of their particular circumstances. For example, we note that both transmission businesses have included a small number of major investments in the forecasts that they have provided, which means that the 20% cap on capital expenditure increases applies to them.[6] Given the generic way in which default price-quality paths are set, they are unable to adequately address a certain level of step change in investment. A customised price-quality path, which envisages a more detailed assessment and greater scrutiny of proposed expenditure than the default, may therefore be necessary for both transmission businesses if they wish to proceed with the major investments that we have not allowed for.

Claw-back applying to GasNet

X20 We propose to claw-back revenue that was over-recovered by GasNet Limited prior to the first regulatory period. Claw-back has been proposed due to GasNet's prices exceeding the annual increase in inflation from January 2008 to September 2012.

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5 The difference between the 75th percentile estimate of the cost of capital and 50th percentile is equivalent to about 0.8 based on cost of capital estimates for information disclosure as at 30 July 2012.

6 Approximately equivalent to an additional $49.9m for MDL and $53.2m for Vector Transmission (2011 prices) over the regulatory period.

1. Introduction

Purpose of this paper

1.1 This paper provides an overview of, and reasons for, the initial default price-quality paths that we have proposed for certain suppliers of gas pipeline services. You are invited to provide your views.

1.1.1 Submissions are due by 7 December 2012.

1.1.2 Cross-submissions are due by 21 December 2012.

1.2 We expect to reach a final decision on these matters by 28 February 2013. However, the path would not be in place until on or after 1 July 2013.

Initial default price-quality paths for gas pipeline services

1.3 Our task is to determine the initial default price-quality paths for suppliers of gas pipeline services, as listed in Table 1.1. Each of these paths specifies the maximum price, and quality standards, that a supplier must comply with during the regulatory period.

Table 1.1: Suppliers of gas pipeline services subject to Part 4

Gas distribution businesses	Gas transmission businesses
GasNet Limited Powerco Limited Vector Limited	Maui Development Limited (MDL) Vector Limited

1.4 In this chapter we set out:

1.4.1 the process for setting the initial default price-quality paths;

1.4.2 what components make up the initial default price-quality path, and how Part 4 guides us in setting them; and

1.4.3 the consultation process, including our treatment of previous consultation.

The process for setting the initial default price-quality paths

1.5 Default/customised price-quality regulation was put in place for suppliers of gas pipeline services under Subpart 10 of Part 4 of the Commerce Act 1986.[7] Subpart 10

[7] Gas pipeline services are subject to default price-quality regulation under s 55D of the Commerce Act 1986. For the remainder of the paper, all statutory references are to the Commerce Act 1986, unless otherwise stated.

states we must set the initial default price-quality paths as soon as practicable after 1 July 2010.[8]

1.6 Prior to this, gas pipeline services were not subject to price-quality path regulation. MDL and GasNet were not subject to any regulation by the Commission, while certain services of Vector and Powerco were subject to the Gas Authorisations we determined in 2008.[9] These authorisations were the result of the 2003 Gas Control Inquiry and placed constraints on the prices that Vector and Powerco could charge.

Components of the default price-quality path

1.7 Price-quality paths are set under Subpart 6 of Part 4. Default price-quality paths comprise a number of components. In particular, they must set out the start and end dates of the regulatory period, as well as:[10]

1.7.1 the maximum price (or revenue) that will be allowed in the first year of the regulatory period (based on the 'starting price');[11]

1.7.2 the rate of change in price (or revenue) that will be allowed in subsequent years of the regulatory period ('rate of change');[12] and

1.7.3 the quality standards that the supplier must meet.[13]

1.8 There are a range of processes and constraints for setting and resetting default price-quality paths in Subpart 6 of Part 4. [14]

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8 We note that we are unable to set the initial gas default price-quality path to apply retrospectively back to that date. Refer: s 53M(7).

9 Commerce Commission, Decision 656: *Authorisation – Powerco – Control of Supply of Natural Gas Distribution Services, 30 October 2008*; and Commerce Commission, Decision 657: *Authorisation – Vector – Control of Supply of Natural Gas Distribution Services*, 30 October 2008.

10 The content and timing requirements for price-quality paths are set out in s 53M and the requirements for what price-quality path determinations must set out are contained in s 53O.

11 The supplier's starting price anchors the price changes that are allowed until the end of the regulatory period.

12 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. The rate of change applying to a supplier will generally be the industry-wide rate of change, which is based on the long-run average productivity improvement rate in the industry. However, alternative rates of change may apply to particular suppliers, as an alternative to a starting price adjustment, if this is necessary or desirable to minimise any undue financial hardship to the supplier, or to minimise price shock to consumers. Refer: ss 53P(6) and 53P(8)(a) of the Act.

13 Quality standards may be prescribed in any way the Commission considers appropriate (such as targets, bands, or formulae), and may include responsiveness to consumers. Refer: s 53M(3) of the Act.

14 More specifically, these processes and constraints are set out in s 53P under the provisions for resetting starting prices, rates of change, and quality standards.

1.9 One of the most significant constraints relates to starting prices: these may either be the prices that applied at the end of a preceding period; or prices, determined by the Commission, that are based on the current and projected profitability of each supplier.[15]

1.10 Our preference is to set prices based on current and projected profitability, and in doing so apply the Commission's input methodologies – rules, requirements and processes set in advance.[16] These were specifically developed to promote the outcomes in the Part 4 Purpose, and provide the basis for a detailed building block costs assessment from which a path can be set that generally allows suppliers to earn a normal return over the regulatory period.[17]

1.11 Suppliers must comply with their default price-quality path once it has been set. They can, however, apply for a customised price-quality path if an alternative price-quality path would better meet their particular circumstances. A customised price-quality path would apply in place of the default price-quality path, for a term of between three and five years.

Guidance from Part 4 in setting the initial default price-quality paths

1.12 We must set the initial default price-quality paths so that our decisions are consistent with:

1.12.1 The purpose of Part 4; [18] and

1.12.2 The purpose of default/customised price-quality regulation. [19]

Applying the purpose statements

1.13 Our overall aim when setting the initial default price-quality paths is to promote the purpose of Part 4. We must therefore promote the long-term benefit of consumers,

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15 Refer: ss 53P(3)(a) and 53P(3)(b) of the Act.

16 Refer: Parts 3 and 4 of each of the relevant input methodologies determinations for gas distribution and gas transmission services.

17 By contrast we would expect that the prices currently charged by suppliers, including those that were previously subject to the Gas Authorisation, would be less likely to provide suppliers with a normal return ie, they could either allow for excess profits, or may not be allowing suppliers to earn a reasonable return on their assets.

18 Refer: s 52A(1) of the Act. We note that s 55I also directs us to give regard to the impact of certain decisions made under Gas Act 1992.

19 Refer: s 53K.

by promoting outcomes that are consistent with outcomes produced in competitive markets.[20]

1.14 Capping each supplier's price (or revenue) helps to produce pressures that are similar to those produced in competitive markets. During a regulatory period, profits will fall if costs are not controlled. Profits will rise if costs are reduced.[21] This means that suppliers have a direct financial incentive to improve their efficiency.

1.15 Quality standards are also important. In particular, they mitigate the risk that suppliers will cut their costs by compromising quality. Therefore, when appropriate quality standards are in place:

1.15.1 suppliers are more likely to invest in their network in order to meet the quality standards; and

1.15.2 service quality will better reflect consumer demands.

1.16 We must also consider the purpose of default/customised price-quality regulation. To meet the purpose of this type of regulation, any approach we use to reset prices must be relatively low cost.

1.17 Consistent with the purpose of default/customised price-quality regulation, the initial default price-quality paths are not required to meet all the circumstances which suppliers might face. As discussed above, a customised price-quality path is available for any supplier that considers that an alternative price-quality path would better meet their particular circumstances. In Chapter 6, we explain this proposal process in greater detail, as well as the role it plays in promoting the Part 4 Purpose.

Claw-back for over-recovery of revenues since January 2008

1.18 Part 4 also provides for a level of pricing constraint on suppliers of gas pipeline services in the transition period prior to price-quality paths being set. Where suppliers have increased their weighted average prices at a rate greater than CPI between 1 January 2008 and the date the initial default price-quality paths is

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[20] Section 52A(1) states we must "promote the long-term benefit of consumers in markets referred to in section 52 by promoting outcomes that are consistent with outcomes produced in competitive markets such that suppliers of regulated goods or services—

(a) have incentives to innovate and to invest, including in replacement, upgraded, and new assets; and

(b) have incentives to improve efficiency and provide services at a quality that reflects consumer demands; and

(c) share with consumers the benefits of efficiency gains in the supply of the regulated goods or services, including through lower prices; and

(d) are limited in their ability to extract excessive profits."

[21] In the medium- to long-term, the benefits of any efficiency gains will be shared with consumers when prices are reset, thereby limiting the ability of suppliers to extract 'excessive profits'.

determined, the Commission is able to claw-back that over-recovery of revenues. Claw-back is discussed further in Chapter 2.

Treatment of previous consultation and how you can provide your views on this paper

1.19 In November 2011 we published draft default price-quality paths for gas pipeline services that proposed prices be set based on those that applied prior to the current Part 4 being enacted. This draft decision was in response to a successful judicial review of our input methodologies, which prevented us from setting a path based on current and projected profitability.[22]

1.20 However, we deferred making a final decision on the initial gas default price-quality paths, until we had complied with the Court's orders (which we did in September 2012). This decision was supported by all interested parties who submitted, and allowed prices to be set using either of the options provided for under s 53P(3) of the Act.

1.21 This draft decision revises our November 2011 draft decision, and takes account of material received during consultation on that process. We have also considered other materials including specific information that we requested from suppliers, and submissions and cross-submissions on our:

1.21.1 August 2011 Initial Gas Default Price-Quality Path Discussion Paper, which included discussion of starting prices based on current and projected profitability;[23] and

1.21.2 December 2011 Additional Input Methodologies Process and Issues Paper.[24]

1.22 We have not considered any responses received outside of our consultation timeframes.[25] Material received outside of our consultation timeframes has been

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22 We were required to conduct a re-determination of the input methodologies that we published in December 2010 so that the input methodologies for cost allocation, asset valuation, and the treatment of taxation are 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.

23 Refer: Commerce Commission, *Setting of Starting Prices for Gas Pipeline Businesses under the Initial Default Price-Quality Path, Discussion Paper*, 22 August 2011.

24 A number of the points raised in submissions on our December 2011 Process and Issues Paper related to a stand-alone starting price adjustment input methodology (and the respecified input methodologies for asset valuation, cost allocation and the treatment of tax), which we are no longer required to determine. However, some of the points raised in those submissions were relevant to the approach we have proposed in this paper. Refer: Commerce Commission, Additional Input Methodologies for Default Price-Quality Paths, 9 December 2011.

25 We will take into account any relevant information contained in that material as part of the consultation on this revised draft decision. For example: Letter from Allan Carvell (Group General Manager Regulation and Pricing), 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/.

published on our website, and will be considered alongside submissions and cross-submissions on this paper.

1.23 We also note that while we are consulting on the potential reset of the default price-quality paths for electricity distribution businesses and setting the initial gas default price-quality paths in parallel, these two processes are separate. We therefore have not considered the latest round of submissions on the electricity distribution reset in making this revised draft decision. If you wish to have specific aspects of a submission on the electricity distribution reset considered for the initial gas default price-quality paths, please specifically refer to those aspects in submissions on this paper.

Material released alongside this paper

1.24 The following material will be released for interested parties to consider alongside this paper:

1.24.1 The draft determination that sets out our revised draft decision;

1.24.2 The Excel models that we relied on in reaching our revised draft decision; and

1.24.3 An independent review undertaken by Nel Consulting Limited of supplier-proposed adjustments to initial regulatory asset values.

1.25 We also intend to present an overview of our Excel models to interested parties.[26] A copy of the external review of our Excel models will be made available on request.

Providing your views

1.26 You are invited to provide your views on any aspect of this paper, in the timeframes set out in the table below. We do not intend to take into account any material that is provided outside of the timeframes shown.

Table 1.2: Dates for responses and process from here

Date	Event
7 December 2012	Submissions due on this paper
21 December 2012	Cross-submissions due on this paper
28 February 2013	Final decision on the initial default price-quality paths

1.27 As shown in the table, we intend to reach a final decision on the initial default price-quality paths by 28 February 2013.

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[26] This presentation is likely to be held at the Commission's Wellington office in November 2012. We will announce the specific date shortly.

1.28 We will soon issue further information gathering requests, consistent with the approach we are consulting on in this paper, to obtain information that would allow us to implement our revised draft decision. The additional information we require is limited.[27]

Address for responses

1.29 You should address your responses to:

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

1.30 Responses should be provided in a file format suitable for word processing, rather than the PDF file format.

Requests for confidentiality

1.31 While we discourage requests for non-disclosure of submissions, we recognise that there may be cases where parties that make submissions wish to provide information in confidence. We offer the following guidance.[28]

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

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

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

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

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27 For example, we intend to ask suppliers for information on their pricing in the period immediately prior to the determination of the initial default price-quality path to assess claw-back. To date the information we have received only covers the period 1 January 2008 to 30 September 2012.

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

2. Overview of the proposed default price-quality paths

Purpose of this chapter

2.1 This chapter provides an overview of the key components of the initial default price-quality path for each supplier.

The nature of the charging constraint for each supplier

2.2 Consistent with the input methodologies that apply to each type of service, we have proposed different charging constraints for gas distributors and transmission businesses. Under the proposed paths:

2.2.1 gas distributors would be subject to a constraint on the maximum price that they can charge ('price cap'); whereas

2.2.2 gas transmission businesses would be subject to a constraint on the maximum revenue that they can recover ('revenue cap').

2.3 Although we are required by the input methodologies to apply a price cap to gas distributors, we are required to choose between a price cap and a revenue cap for gas transmission businesses. Our reasons for choosing a revenue cap for these suppliers are set out in Attachment E.

The main components of the initial default price-quality paths

2.4 We have proposed that the first regulatory period would start on 1 July 2013, and would end four years and three months later, on 30 September 2017.[29] Consequently, the end of the regulatory period will align with the pricing year of four out of five suppliers.[30]

Maximum price or revenue allowed at the start of the first regulatory period

2.5 Figure 2.1 below shows the amount of revenue that we expect each supplier would recover in the first assessment period, if our draft decision was implemented.[31] Notably, for all suppliers except MDL, the first assessment period would be 15

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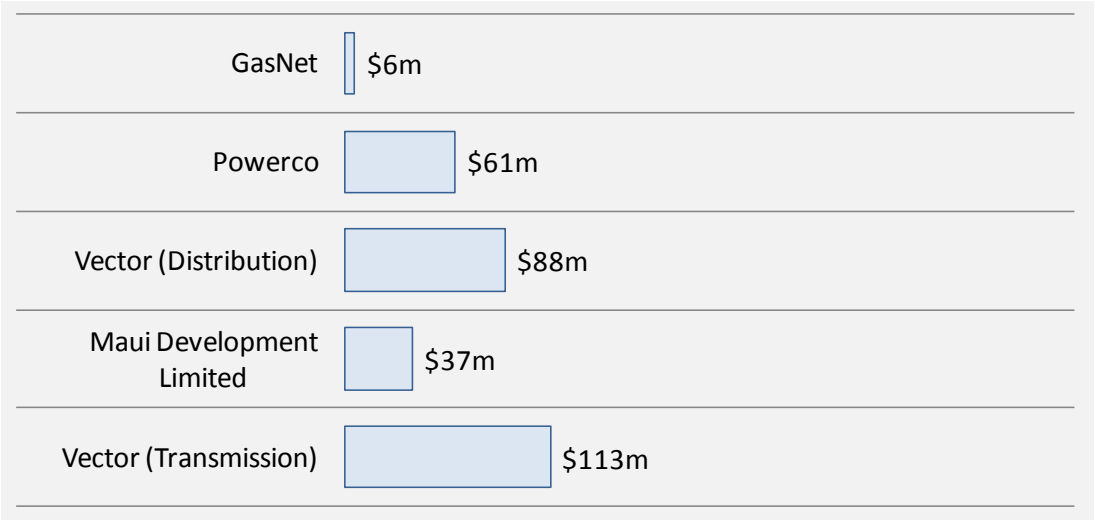
29 Refer: s 55E(3) of the Act.

30 Usually, a regulatory period would be five years in length, but a shorter period may be set if it would better promote the Part 4 Purpose. Refer: ss 53M(4) and (5). In this case, the alignment of the regulatory period to most suppliers' pricing year would reduce complexity in assessing compliance, and in assessing supplier performance.

31 The revenue amount shown in Figure 2.1 are net of any pass-through and recoverable costs. Discussion of assessment periods for the initial default price-quality paths is set out in Attachment L.

months long. This longer assessment period gives suppliers the option not to adjust their prices twice in three months.[32]

Figure 2.1: Expected revenue in the first assessment period[33]



2.6 Importantly, actual revenue in the first assessment period may differ from the amounts shown above.[34] For example, suppliers that are subject to a price cap may be able to grow their quantities faster than our assumptions.

Allowable rate of change in subsequent years of the first regulatory period

2.7 The allowable rate of change in price or revenue, as applicable, is CPI-0% which will affect:[35]

2.7.1 changes in the maximum price charged by gas distributors; and

2.7.2 changes in the maximum revenue that gas transmission businesses can recover.

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32 As discussed further in Attachment L, the alternative would be to assess compliance with the default price-quality path in the opening three months of the regulatory period, and then again in the next 12 months of the regulatory period. However, this approach would require suppliers to make two price changes within three months. First, suppliers would have to adjust prices at the start of the regulatory period; secondly, they would have to adjust prices at the start of the 2013 pricing year.

33 As discussed in the text, the figures shown refer to a 15 month assessment period for all suppliers other than MDL (which has a 12 month assessment period at the start of the regulatory period). The figures shown are nominal values.

34 In the determination, we refer to the revenue figures shown in the Figure above as 'maximum allowable revenue', or 'MAR'.

35 Section 53P(6) of the Act requires the X factor for the rate of change to be based on the long-run average productivity improvement rate achieved by suppliers in New Zealand. Based on the available evidence, we propose the X factor be set at zero. Refer: Commerce Commission, *Initial Default Price-Quality Paths for Gas Pipeline Businesses Draft Reasons Paper*, pp. 24-26.

2.8 This rate of change applies to changes in price net of pass through costs and recoverable costs; however, it is unlikely to reflect the net change from the start of the 2013 pricing year to the start of the 2014 pricing year. This is because the first assessment period will be 15 months long for all suppliers except MDL. As such, we consider:

2.8.1 suppliers are unlikely to adjust prices at the start of the regulatory period, ie, on 1 July 2013;

2.8.2 the price change made at the start of the 2013 pricing year, ie, on 1 October 2013, will likely be bigger than it would have been otherwise;[36] and

2.8.3 the price change made at the start of the 2014 pricing year, ie, on 1 October 2014, will likely also not be equal to 2013 prices changed by CPI-X.[37]

2.9 The reasons why we have not proposed any alternative rates of change for individual suppliers are explained in Chapter 4.

Quality standards that must be met during the first regulatory period

2.10 We propose quality standards comprise a target for response times to emergencies, which will supplement existing contractual arrangements, and safety regulations.[38] We will also monitor each supplier's reliability of supply, for the purposes of providing summary and analysis of information disclosed by suppliers under Part 4.

2.11 As discussed further in Chapter 5, our intention over time is to include quality standards that provide an appropriate level of reliability. However, it has not been possible to establish meaningful reliability standards for the initial default price-quality path. The standards we have put in place instead were set independently of historical time series data, and based on industry knowledge about appropriate response times.

Claw-back applying to GasNet

2.12 For the initial default price-quality paths, we may also apply 'claw back' if the price of certain services has been increased since 1 January 2008 by more than the rate of

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36 By contrast, if suppliers were required to adjust prices on 1 July 2013, then the price change allowed on 1 October 2013 would have been broadly equivalent to the rate of change of CPI-0%. Instead, suppliers will be likely to keep prices unchanged, before making a compensating adjustment on 1 October 2013 to ensure compliance over the 15 month assessment period.

37 This is a function of the 2013 prices being set in a way to reflect the 15 month assessment period.

38 The specific targets are discussed further in Chapter 5.

inflation.[39] An affected supplier would then have to lower its prices to compensate consumers for some or all of any over-recovery of revenues that occurred under the prices previously charged.[40]

2.13 Our previous draft decision was that the application of claw-back under s 55F(2) should not be applied to gas pipeline businesses for the initial default price-quality paths. This is because we understood that MDL's tariff model included annual adjustments for CPI, and that GasNet had not increased prices by more than CPI since the introduction of Part 4 in 2008. Services supplied by Powerco and Vector that are controlled by the Gas Authorisations should not have to demonstrate that prices had increased in line with CPI, as this would duplicate their reporting requirements under the authorisations.

2.14 However on 31 August 2013 GasNet provided information that indicates that their price increases exceeded the annual increase in CPI in 2012. In accordance with s 55F(2) we propose to claw-back for the over-recovery of revenues that occurred prior to the regulatory period due to GasNet's prices exceeding the annual increase in inflation. Our proposals for claw-back are further discussed in Attachment L.

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39 Specifically, we may apply claw-back if a supplier has increased its weighted average price by more than the movement, or forecast movement, in the all groups index numbers of the New Zealand Consumer Price Index in the period beginning 1 January 2008 and ending with the date the determination is made. Refer: s 55F(2) of the Act. In our view the statutory language clearly signals that s 55F(2) is intended to be applied retrospectively.

40 Refer: s 52D of the Act.

3. Maximum price or revenue at the start of the regulatory period

Purpose of this chapter

3.1 This chapter provides an indication of the proposed adjustments to each supplier's price or revenue, and explains the relationship with each supplier's profitability.[41]

Some adjustments are more significant than others

3.2 The adjustments proposed in this revised draft decision are more significant for some suppliers than they are for others, ranging from -25% for Vector Transmission to +5% for Powerco. The weighted industry average adjustment, assessed over the entire regulatory period, would be approximately:

3.2.1 -8% for gas distributors; and

3.2.2 -19% for gas transmission businesses.

3.3 Figure 3.1 overleaf provides an indication of the average adjustment to the distribution or transmission component of consumer bills for each supplier.[42] These values have been calculated by comparing our forecasts of each supplier's revenue, over the regulatory period, before and after the proposed adjustment to their price or revenue cap.

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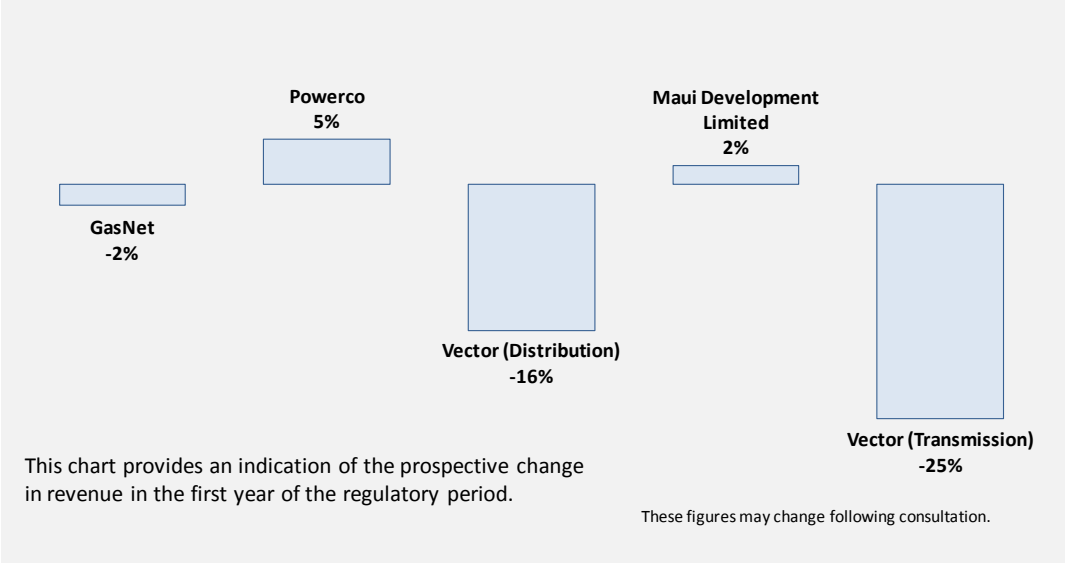
41 We are proposing to adjust supplier's starting prices consistent with s 53P(3)(b) of the Act, which requires prices set under this section to be based on the current and projected profitability of each supplier.

42 Guidance on how to interpret these figures is provided in paragraphs 3.5 to 3.8 of this chapter. Notably, the figures may change following consultation, and do not reflect the likely impact on retail prices (which reflect changes in all parts of the supply chain, including changes in the cost of natural gas). 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 their price or revenue cap, which they may choose not to do.

Figure 3.1: Adjustments for first full pricing year of the regulatory period



3.4 The figures shown in Figure 3.1 are equivalent to the adjustment that would be required if suppliers adjusted their prices at the start of the regulatory period, ie, on 1 July 2013. In practice, however, suppliers will not be required to change their prices on this date, because we will assess compliance over a 15 month period. The adjustments will therefore occur at some point during the regulatory period (and most likely at the start of the first pricing year).

Guidance to help interpret our results

3.5 This section provides some guidance about how to interpret the results shown above. The figures shown simply give an indication of the likely impact that implementing our revised draft decision would have on the average price charged by each regulated gas distributor, or gas transmission business, net of other price components.

3.6 These figures must therefore be interpreted with caution, not least because all figures in this chapter are indicative only, and may change following consultation. In addition, the indicative adjustments do not reflect:

3.6.1 The actual impact on retail prices.[43] All else being equal, a given percentage change in gas distribution and transmission charges would translate into around one third of that change in the bill of a typical residential customer. The other two thirds of the bill include the cost of natural gas and retail costs.

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43 In 2011 gas transmission and distribution charges in New Zealand on average made up around 34% of the cost of gas paid by residential customers connected to the GasNet, Vector Distribution and Powerco networks. (Source: Commission calculations using information provided by gas distributors and transmission businesses, and information from the Energy Data File published by the Ministry of Business, Innovation and Employment).

3.6.2 The likely impact on any particular consumer, or group of consumers. The impact on different consumer groups will depend on whether gas distributors, or transmission businesses, choose to rebalance their pricing structure when price changes are notified, eg, price changes may be different for residential, industrial, and commercial users.[44]

3.7 The exact magnitude of any adjustment would depend on the prices that gas distributors, or transmission businesses, choose to set, relative to their existing prices, given the constraint imposed by the compliance formula.

3.8 In addition, a number of assumptions are required to estimate what the price or revenue would be if they remained unadjusted. For example, we have assumed that all suppliers have maintained weighted average prices constant in real terms over the period. In the case of MDL, if it was assumed revenue moved consistent with a revenue cap the change would be -7%.[45]

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

3.9 The maximum price or revenue proposed for the start of the regulatory period is based on the current and projected profitability of each supplier. The alternative available to us under the Act is to simply 'roll over' the supplier's price (or revenue) from an earlier date.

3.10 Setting prices based on current and projected profitability under s 53P(3)(b) applies input methodologies and also requires us to make other decisions that are informed by the purpose of Part 4.

3.11 In contrast, rolling over a supplier's prices under s 53P(3)(a) in the present circumstances would be applying starting prices that have no direct relationship with the current regime or purpose of Part 4.

3.12 In principle, we would therefore only roll over prices in the current circumstances if they happened to produce a price very similar to what would have been produced by setting prices based on current and projected profitability.

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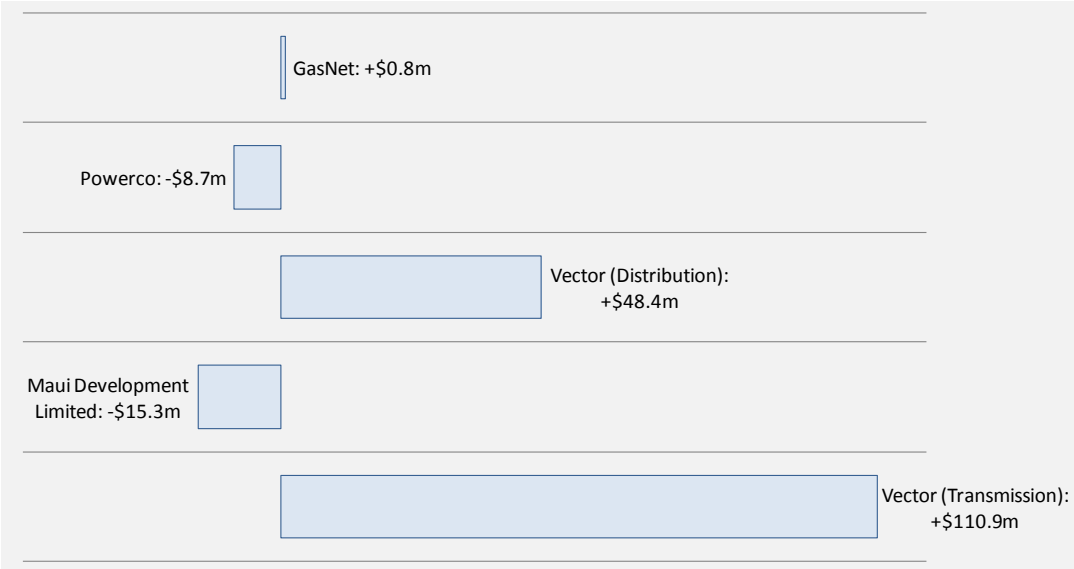
44 The new prices charged to individual consumers will be determined by the pricing methodologies that each supplier applies when it determines prices and retail pricing (where the supplier does not bill end-use consumers of electricity directly).

45 For Vector (transmission) the corresponding value is -25%. The reason why this value is less than MDL is due to our assumptions for constant price-revenue growth.

3.13 Figure 3.2 below shows the difference between forecast revenues and forecast costs if current pricing were to continue, and illustrates why we have proposed adjustments that are based on the current and projected profitability of each supplier.[46]

Figure 3.2: Forecast revenues minus forecast costs 1 July 2013 to 1 October 2017



3.14 We are therefore satisfied that adjustments should be based on the current and projected profitability of each supplier, as this will:

3.14.1 make it more likely any efficiency gains made prior to the regulatory period will be shared with consumers;

3.14.2 ensure that forecast revenues better reflect forecast costs, such that expected returns will be more consistent with the outcomes produced in competitive markets; and

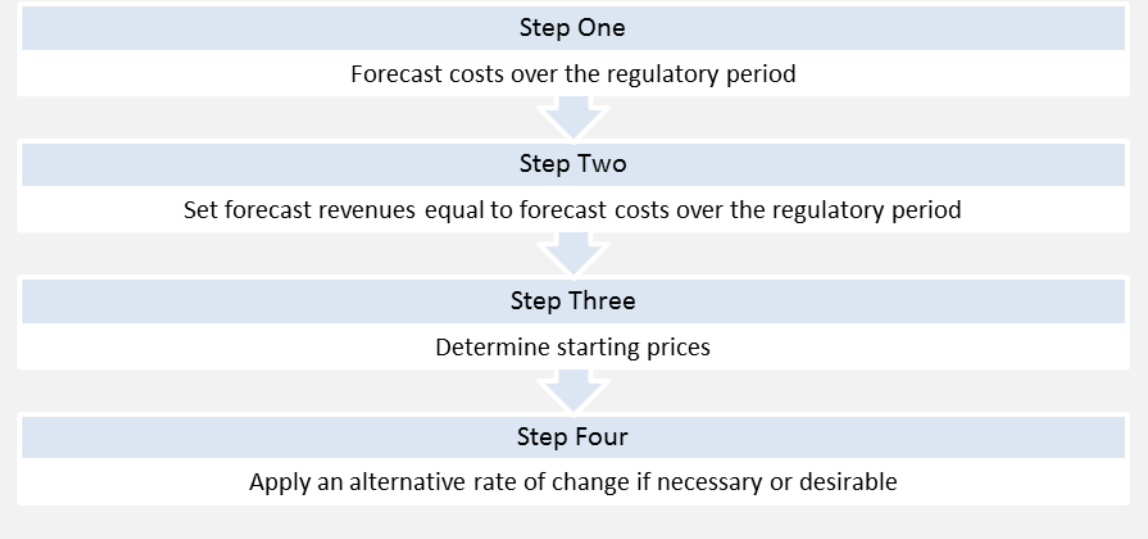
3.14.3 ensure that suppliers have incentives to invest in their networks.

46 The estimates shown are present values as at 1 July 2013.

Summary of the approach that we propose to use to calculate the required adjustments

3.15 The approach that we propose to use to calculate the required adjustments for each supplier has four main steps. These steps are shown in Figure 3.3.

Figure 3.3: Overview of the approach we propose to use to adjust prices



3.16 Each of the steps in the approach is explained in the sections that follow. We begin by setting out how input methodologies applied to our decision making for this revised draft decision, 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

3.17 Consistent with input methodologies, we have proposed a 'building block' based approach to forecast each supplier's costs. The main building block cost categories are:[47]

3.17.1 The return on capital, net of any revaluations of the Regulatory Asset Base (RAB);[48]

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47 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.

48 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. For this draft decision, we have relied on an estimate of the cost of capital that was produced for assessing returns under information disclosure regulation. Refer: *Cost of Capital determination for information disclosure year 2013 for Transpower, gas pipeline businesses and specified airport services (with a June year-end) [2012] NCC20*, 30 June 2012. In reaching a final decision, we intend to update the estimate of the cost of capital by applying the input methodologies for the cost of capital that are applicable to default price-quality paths. These

3.17.2 The return of capital, to allow recovery of depreciation;

3.17.3 Operating expenditure (excluding pass through costs and recoverable costs); and

3.17.4 Tax costs.

3.18 To calculate each of these cost categories, we applied input methodologies, which set out how:[49]

3.18.1 Forecast and existing investments are valued;

3.18.2 Depreciation and revaluations are calculated;

3.18.3 Tax costs are calculated;

3.18.4 Costs are allocated; and

3.18.5 The cost of capital is estimated.

3.19 These calculations are generally informed by our expectations for capex, opex, and other line items under the default price-quality path. We therefore 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 setting default price-quality paths.

3.20 More detail on the approaches we propose to use to forecast each supplier's capex, opex, and other line items can be found in:

3.20.1 Attachment B: The allowance we have set for capex;

3.20.2 Attachment C: How we forecast opex; and

3.20.3 Attachment D: How we forecast other line items.

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input methodologies set out the timeframe in which an estimate must be produced—ie, seven months prior to the start of the regulatory period.

49 Because the length of the proposed regulatory period is four years and three months, we assessed building block costs on a part-year basis at either the start or the end of the proposed period. In each case, we divided amounts such as operating expenditure, capital expenditure, depreciation and revaluation by the proportion of a full year that the part-year comprises.

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

3.21 Once we have calculated each supplier's building block costs in a particular year (or part-year) of the regulatory period, we add the various components together to determine 'building blocks allowable revenue'. Building block allowable revenue is the amount of revenue that a supplier should be allowed to recover their costs.[50]

3.22 Notably, building blocks allowable revenue will vary from year to year during the regulatory period. This is because of factors such as the age profile of the asset base, annual movements in opex, and the assessment of tax costs.

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

3.24 Finally, we determine the path of revenue that would mean that the supplier is able to recover the present value of the building blocks allowable revenue over the regulatory period. This 'smoothed' path of revenue assumes that suppliers will adjust prices at the start of the regulatory period, and then again at the start of each subsequent pricing year.[51]

3.25 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:

3.25.1 In the case of a revenue cap, the rate of change in revenue that is allowed; and

3.25.2 In the case of a price cap, the rate of change in price that the supplier is allowed, and changes in the quantities billed (the latter of which result in 'constant price revenue growth').

3.26 Our approach to assessing constant price revenue growth is explained in Attachment F.

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

51 In practice, as discussed in Attachment L, suppliers will not have to adjust their prices until the start of the first full pricing year in the regulatory period. This is because, for all suppliers other than MDL, we intend to assess compliance over a 15 month period at the start of the regulatory period.

Step Three—How we determined starting prices

3.27 The starting price for each supplier is the revenue we determine at the start of the smoothed path. This starting price is used to calculate allowable notional revenue, which allows suppliers to derive their maximum weighted average prices, or maximum revenue. For details of how allowable notional revenue is calculated refer to Attachment L.

Step Four—How an alternative rate of change may apply if necessary or desirable

3.28 As discussed further in Chapter 4, we do not propose to apply alternative rates of change for the initial default price-quality path.

4. Allowable rate of change in subsequent years of the regulatory period

Purpose of this chapter

4.1 This chapter explains how we propose to set the X factors for the rate of change, which affects the rate at which suppliers are allowed to increase prices (or revenue) during the regulatory period.

Industry-wide rate of change

4.2 We propose that the industry-wide X factor is 0%.[52] This is consistent with our position in our November 2011 Draft Decision, which was supported by suppliers.[53] This constraint would affect the maximum price that gas distributors can charge, and the maximum revenue that gas transmission can recover.[54]

4.3 The 'industry-wide X factor' is based on the long run average productivity improvement rate in the sector. We have taken this to mean the difference between the long run productivity improvement rate in the sector compared to the rest of the economy.[55]

4.4 To determine the long-run productivity we commissioned a study by Economics Insight. They concluded that based on the information available, over both the long term and the short term, there was no robustly identifiable productivity differential between the overall economy and gas distribution and transmission businesses.[56]

4.5 We note that even if we set the X factor different to zero in a future reset it would be unlikely to further affect the present value of the revenue expected by suppliers within the regulatory period. This is because the X factor is simply used to set the trajectory of the price-path over the regulatory period.[57] We are interested in views

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52 That is, the rate of change would be CPI-0%.

53 Gasnet, *Submission on Initial Default Price-Quality Paths for Gas Pipeline Businesses, Draft Reasons Paper*, 19 December 2011, para 33; MDL, *Submission on Gas DPP Draft Reasons and Determination*, 19 December 2011, para 2; Powerco, *Submission on Initial Default Price-Quality Paths for Gas Pipelines Businesses: Draft Determination and Reasons Paper*, 19 December 2011, p. 3; Vector, *Submission to the Commerce Commission on Initial DPP for GPBs Draft Reasons Paper*, 19 December 2011, para 27

54 Note that gross prices will not necessarily change by the rate of change for the reasons given in Chapter 2.

55 For further discussion on how we have arrived at this view, refer: Commerce Commission, *Initial Reset of the Default Price-Quality Path for Electricity Distribution Businesses Decision Paper*, 30 November 2009, Chapter 5.

56 We relied on the findings of an independent productivity study by Economic Insights. Refer: *Economic Insights Pty Limited, Regulation of suppliers of Gas Pipeline Services – Gas Sector Productivity*, 10 February 2011.

57 More specifically, the X factor affects the profile of revenue to be recovered over time, but it does not impact on the calculation of the present value of the required revenue based on an assessment of current

on the role of the industry-wide rate of change X-factor under a default price-quality path in relation to both the price path and productivity assumptions used in forecasting expenditure.

No alternative rates of change have been proposed for individual suppliers

4.6 We have not proposed alternative rates of change for individual suppliers to address potential price shocks to consumers, or undue financial hardship for suppliers. We hold this view because:

4.6.1 the proposed increases are below any of the thresholds we have previously considered for price shocks;[58] and

4.6.2 we do not currently have sufficient information to determine whether the price reductions would result in undue financial hardship to any of the suppliers.

Criteria for identifying undue financial hardship

4.7 Any supplier that believes the proposed price adjustments will cause undue financial hardship must provide evidence in response to this paper that:

4.7.1 the proposed revenue adjustment will, or is likely to, limit the supplier's ability to finance its reasonable investment needs and meet its debt repayments as they fall due;[59] and

4.7.2 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.[60]

4.8 We would expect that any alternative rates of change that we set would result in an NPV-equivalent outcome for the supplier. Suppliers are invited to indicate in their submission if there is an NPV-equivalent alternative rate (or rates) of change that they would prefer, and provide reasons for that choice.

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and future profitability. It is also worth noting, that any productivity adjustment within the period contained in the X factor has already been applied through the starting price calculation.

58 Refer: Commerce Commission, *Revised Draft Reset of the 2010-15 Default Price-Quality Paths*, 21 August 2012, paras 125 and 129 for discussion of price-shocks.

59 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.

60 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.

Why we have not relied on a 10% threshold for financial hardship

4.9 In previous submissions PWC and Vector suggested a 10% threshold as the size of a price decrease that would justify an alternative rate of change.[61] We have not adopted this approach however, as not having a set threshold allows greater flexibility to work with suppliers in determining where undue financial hardship may occur.

61 PwC, *Submission to the Commerce Commission on 2010-15 Default Price-Quality Path Starting Price Adjustments and Other Amendment*, 16 May 2011, p. 9; Vector, *Submission to Commerce Commission on Additional DPP IMs Process and Issues Paper*, 27 January 2012.

5. The proposed quality standards

Purpose of this chapter

5.1 This chapter explains the service quality standards we have proposed for the initial default price-quality path.[62]

Quality standards for the initial gas default price-quality path

5.2 The development of robust quality standards is critical to a successful regulatory regime. Without quality standards, the price-path might provide suppliers with an incentive to cut costs by compromising quality.

5.3 For the initial default price-quality paths, we propose quality standards be based on an annual target of 'response times to emergencies' which will supplement existing contractual arrangements and safety regulations.[63] The specific quality standards proposed are:[64]

5.3.1 suppliers of gas pipeline services must take 180 minutes or less to respond to any emergency; and

5.3.2 gas distributors must take 60 minutes or less to respond to 80% of emergencies.

5.4 We will also monitor each supplier's reliability of supply, for the purposes of providing summary and analysis of information disclosed by suppliers under Part 4.

Putting in place reliability based quality standards over time

5.5 Our preferred option is to also establish quality standards based on the appropriate level of reliability for each individual supplier.[65] This is because we consider reliability as the most important measure of the level of service that suppliers should be providing to meet the quality demanded by their consumers.[66]

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62 Under s53M(3) quality standards may be prescribed in any way the Commission considers appropriate.

63 In setting quality standards we have sought to supplement any quality regimes that are already operating effectively. Section 55I directs us to consider any gas governance regulations or rules that relate to or affect the quality standards or pricing methodologies applicable to a pipeline owner when applying regulation under Part 4.

64 'Response Time' means the time elapsed from when an emergency is reported to a gas distribution business representative until a gas distribution business' personnel arrive at the location of the emergency. Compliance with the quality standards will be assessed on an annual basis and suppliers must demonstrate that they did not exceed their target in each year of the regulatory period.

65 SAIDI and SAIFI measures of reliability, for example, are likely to be considered in greater detail in future.

66 Refer: s 52A(1)(b).

5.6 However, we currently have very little data to establish robust reliability targets. If we were to set these targets in the absence of robust data, we would risk placing perverse incentives on suppliers.[67]

5.7 By contrast response times to emergencies targets can be set independently of historical time series data, and are based on industry knowledge.[68]

Why we consider response times to emergencies is appropriate for the initial default price-quality path

5.8 Despite our intention to move towards reliability based quality standards, we consider response times to emergencies appropriate for the initial default price-quality paths. The standards will provide an incentive for suppliers to promptly respond to emergencies, and are also the most effective measure we can set with the current data available for this initial default price-quality path.[69]

5.9 Response time for emergencies was also supported by submitters.[70] However, we also recognise that there might be some circumstances in which suppliers are unable to meet the proposed standards through no fault of their own. These circumstances are discussed below.

Exemptions will be allowed in circumstances outside of the supplier's control

5.10 Exemptions will be granted to the proposed quality standards if we are satisfied that it was not practicable for the supplier to respond in the required timeframe. For example, 'acts of God' may damage access routes, and make access difficult or even impossible. To be eligible for an exemption, suppliers must place a request with the

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67 For example, the target could either become meaningless if set too low, or it could force suppliers to either breach their quality standards, or make investments in their networks that are not in the long-term benefit of consumers if set too high.

68 Looking further ahead, it is possible that performance against the quality standards could be linked to revenue, as provided for under s 53M(2). However, this will only be possible once we have confidence in the targets themselves. In particular, in more mature regimes, financial rewards and penalties are imposed when a supplier provides services at a quality that differs from the target.

69 We consider that responding to emergencies promptly is likely to reflect the demands of consumers. This is commensurate with providing services at a quality that reflects consumer demands as one of the aims of Part 4 regulation, as set out in s 52A(1)(b).

70 GasNet Limited, *Submission on Initial Default Price-Quality Paths for Gas Pipelines Businesses, Draft Reasons Paper,* 19 December 2011, p. 10; Powerco, *Submission on Initial Default Price-Quality Paths for Gas Pipelines Businesses: Draft Determination and Reasons Paper*, 19 December 2011, p. 5; Vector, *Submission to the Commerce Commission on Initial DPP for GPBs Draft Reasons Paper*, 19 December 2011, p. 9; MDL, *Submission on Initial Default Price-Quality Path for Gas Pipeline Businesses: Discussion Paper*, 27 May 2011 p. 1.

Commission within 30 days of the emergency.[71] If granted, the relevant event will be deemed not to be a breach of the quality standards.

How we have defined emergencies

5.11 We propose that separate definitions of emergencies are applied to gas distribution and transmission businesses.

5.11.1 For gas distributors, 'emergency' means an unplanned escape and/or ignition of gas that requires the active involvement of any emergencies service (i.e., fire service, ambulance); or an unplanned disruption in the supply of gas that affects more than five ICPs; or the need to evacuate premises as the result of escape or ignition of gas.

5.11.2 For transmission businesses 'emergency' means an incident reported under the 'Guidelines for a Certificate of Fitness for High-Pressure Gas and Liquids Transmission Pipelines' that requires a representative of the gas transmission businesses to attend the site of the incident.[72]

5.12 The proposed definition of emergencies for gas distribution is consistent with the definition used for information disclosure. Transmission businesses face fewer callouts from emergency services and we, therefore, consider that the proposed definition better captures their day to day responsiveness.

Other safety mechanisms

5.13 Suppliers will also be subject to a number of other mechanisms that contribute to the provision of a safe and reliable supply of gas in New Zealand. While none of these mechanisms directly enforce reliability standards, there is a close link between reliability and safety in gas networks. Any incident on the network has the potential to cause safety concerns. In effect, increasing safety may also have an effect on network reliability. Examples of existing mechanisms include:

5.13.1 safety regulations, including The Gas Governance (Critical Contingency Management) Regulations 2008; The Gas (Safety and Measurement)

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71 Powerco and Vector requested such an exception in their submissions to the November 2011 Draft Decision. Powerco, *Submission on Initial Default Price-Quality Paths for Gas Pipelines Businesses: Draft Determination and Reasons Paper*, 19 December 2011; Vector, *Submission to the Commerce Commission on Initial DPP for GPBs Draft Reasons Paper*, 19 December 2011.

72 Department of Labour, *Guidelines for a Certificate of Fitness for High-Pressure Gas and Liquids Transmission Pipelines*, 2002. See 4.9 incident investigation/reporting.

Regulations 2010; and The Health and Safety in Employment (Pipelines) Regulations 1999;[73] and

5.13.2 contractual arrangements, including the Maui Pipeline Operating Code (MPOC); the Vector Transmission Code (VTC);[74] the Gas Distribution Contracts Oversight Scheme.[75]

Responses to specific submissions

5.14 Three main issues have been raised previously during consultation:

5.14.1 compliance should be assessed across a number of years;

5.14.2 compliance should be against average response times; and

5.14.3 the definition of emergency should not be too broad.

Response times to emergencies will be assessed in individual years

5.15 Vector and Powerco submitted that a breach should be defined as a failure to meet the standard in two out of three years, in the same manner as quality measures are treated in the electricity distribution default price-quality path.[76]

5.16 We do not consider this applicable to gas pipeline businesses. The quality measures for electricity distributors (reliability and continuity of supply) have a high degree of variability, which can be smoothed out by using an average. The quality measure used for gas pipeline businesses (response times to emergencies) are more reliant on staff resources and process, and therefore should not be subject to the same level of variability.

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73 A useful guide to the Gas Governance (Critical Contingency Management) Regulations 2008 can be found on GIC's website at: http://gasindustry.co.nz/sites/default/files/publications/ccm_faq_for_website_-_oct_2011_175363.1.pdf.

74 The MPOC can be found at: http://www.mauipipeline.co.nz/uploads/docs/board/MPOC%20as%20at%2001%20February%202010.pdf ; the VTC can be found at: https://www.oatis.co.nz/Ngc.Oatis.UI.Web.Internet/Common/Publications.aspx; and GIC's current work programme on developing model standard contract terms for GDBs can be found at: http://gasindustry.co.nz/sites/default/files/consultations/12/Options_for_the_Governance_of_Retail_Contract_Terms_and_Conditions_151323.5_1.pdf.

75 See http://gasindustry.co.nz/work-programme/distribution-access for details on the Gas Distribution Contracts Oversight Scheme.

76 Vector, *Submission on Initial Default Price-Quality Path for Gas Pipeline Businesses: Discussion Paper*, 27 May 2011, paragraph 55, p. 13 and Powerco, *Submission on Initial Default Price-Quality Path for Gas Pipeline Businesses: Discussion Paper*, 27 May 2011, paragraph 20, p. 6.

We will not assess compliance against an average response time

5.17 Vector and Powerco submitted that we collect data on average response times, as this may be a better measure of performance over time.[77]

5.18 We also note that average response times to emergencies for both gas transmission and distribution businesses will be captured under information disclosure. We are not in favour of using average response times to emergencies for the default price-quality path because:

5.18.1 averages may hide some neglected areas; and

5.18.2 we do not yet have historical response times to emergencies, and would therefore be unable to identify an adequate average response time.[78]

5.19 We note that averages are used for quality measures for electricity distribution. However, as above we do not consider that an average is necessary for gas pipeline businesses as response times to emergencies do not suffer from the same level of variability as the reliability measures used for electricity distribution.

We do not consider the definition of emergency to be too broad

5.20 Submissions recommended that we ensure the definition of an 'emergency' was not too broad.

5.20.1 Powerco recommended that the definition of an 'emergency' be amended to allow for instances when the emergency services are in attendance, but the presence of an engineer from the gas supplier is not required.[79] For example where they were contacted by emergency personal but there was no gas leak;[80] and

5.20.2 Maui was of the opinion that the definition of emergency should not cover situations where emergency services are called as a precautionary strategy

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77 Vector, *Submission on Initial Default Price-Quality Path for Gas Pipeline Businesses: Discussion Paper*, 27 May 2011, paragraph 56, p. 13 and Powerco, *Submission on Initial Default Price-Quality Path for Gas Pipeline Businesses: Discussion Paper*, 27 May 2011, paragraph 21, p. 6.

78 We are, however, confident in the basis for the targets we have set for the absolute times for the response time for emergencies we have included in the quality standards. These targets were arrived at after consultation with submitters. Refer for example: Vector, *Submission on the Commerce Commission's Initial Default Price-Quality Path for Gas Pipeline Businesses: Discussion Paper*, 27 May 2011.

79 Powerco, *Submission on Initial Default Price-Quality Path for Gas Pipeline Businesses: Discussion Paper, 27 May 2011*, paragraph 23, p. 7.

80 Vector, *Submission on Initial Default Price-Quality Path for Gas Pipeline Businesses: Discussion Paper*, 27 May 2011, and Powerco, *Submission on Initial Default Price-Quality Path for Gas Pipeline Businesses: Discussion Paper*, 27 May 2011.

rather than because they were needed.[81] They later submitted that the emergency definition should not cover gas leaks from non-network sources.[82]

5.21 We have aligned our definition of emergencies for gas distributors to information disclosure requirements. We believe that this is the best approach because:

5.21.1 it will reduce reporting costs; and

5.21.2 there should be no difference in response time when an emergency is reported to a gas supplier, if it is found upon arrival that there was no need to attend.

5.22 For gas transmission, the definition of emergencies we have proposed should not cover the situations that Maui was contemplating.

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81 MDL, *Submission on Initial Default Price-Quality Path for Gas Pipeline Businesses: Discussion Paper*, 27 May 2011, paragraph 8.3.5, p.9.

82 MDL, *Submission on Initial Default Price-Quality Path for Gas Pipeline Businesses: Discussion Paper*, 27 May 2011 p 1.

6. The role of a customised price-quality path

Purpose of this chapter

6.1 This chapter explains why we expect that our proposed approach will be appropriate for most suppliers most of the time, and why, for individual suppliers, the ability to propose an alternative price-quality path may be important.

Our approach will be appropriate for most suppliers

6.2 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 below.[83]

> 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

6.3 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 proposed instead.

Suppliers will generally expect to earn a normal return under the default price-quality path

6.4 Although our proposed approach is relatively low cost, we are satisfied that it is consistent with suppliers generally expecting to earn a normal return under the default price-quality path. This is because:

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

6.4.2 our modelling of network capital expenditure relies on supplier forecasts, capped at 20% relative to historic levels, in addition to an uplift for changes in the price of inputs; and

6.4.3 the rate of return that we allow is above the central estimate of the cost of capital for the industry.[84]

6.5 Nevertheless, because we rely on some information that is different to the supplier's own forecasts, one or more suppliers may expect to earn less than a normal return

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

84 The difference between the 75th percentile estimate of the cost of capital and 50th percentile is equivalent to about 0.8 based on cost of capital estimates for information disclosure as at 30 July 2012.

because of their particular circumstances.[85] For example, we note that both Vector Transmission and MDL have included a small number of major investments in the forecasts that they have provided (in response to an information gathering request).[86]

Suppliers can apply for a customised price-quality path

6.6 Customised price-quality paths provide an alternative option for these suppliers as they can seek to have all of their information taken into account after testing through audit, verification and evaluation processes. As shown in Figure 6.1 below, the process for proposing customised price-quality paths is a fundamental feature of default/customised price-quality regulation.

Figure 6.1: Overview of default/customised price-quality regulation

6.7 Because customised price-quality paths are available to suppliers that intend to make large scale investments, we do not propose to provide headroom for large

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85 Electricity Networks Association, *Submission on Additional Input Methodologies for Default Price-Quality Paths*, 27 January 2012, pp. 15-16; PwC, *Submission to the Commission on Additional Input Methodologies for Default Price-Quality Paths - Process and Issues Paper, Made on behalf of 19 Electricity Distribution Businesses*, 27 January 2012; Vector Limited, *Submission to Commerce Commission on Additional DPP IMs Process and Issues Paper*, 27 January 2012, pp. 14-15; and Wellington Electricity Lines Limited, *Additional Input Methodologies: Process and Issues Paper*, 27 January 2012, pp. 5-6.

86 Approximately equivalent to an additional $49.9m for MDL and $53.2m for Vector Transmission (2011 prices) over the regulatory period.

scale investments under the default price-quality path.[87] Doing so would lead to almost all suppliers being able to earn significant excessive profits.

6.8 Similarly, a form of 'gas investment test' would be unlikely to be appropriate under the default price-quality path. Subpart 6 of the Act establishes a low cost 'generic' default price-quality path for suppliers, with a customised price-quality path available to accommodate particular circumstances of suppliers, such as material capital investments. The large scale investments that some suppliers are contemplating are best suited to the full audit, verification, and evaluation processes of the customised price-quality path.

The costs and risks of customised proposals have been overstated

6.9 In response to our December 2011 Process and Issues Paper, regulated suppliers argued that customised price-quality paths would be a 'high risk' and 'costly' error correction mechanism if starting prices were set too low. In their view, suppliers should be able to earn an appropriate return without having to either:

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

6.9.2 propose a customised price-quality path.[88]

6.10 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.[89]

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

6.11 An additional allowance for suppliers would be unlikely to benefit consumers in the long-term, even after accounting for the cost of a customised price-quality path

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87 Refer, for example: MDL, *Commerce Commission Submission: Initial Default Price-Quality Path for Gas Pipeline Businesses*, 27 May 2011, section 6, p. 4; Vector Limited, *Submission to the Commerce Commission on Gas Transmission Form of Control and Investment*, 27 May 2011; and MDL, *Submission on Gas DPP Draft Reasons and Determination*, 19 December 2011, p. 3.

88 Refer, for example: Vector, *Submission to Commerce Commission on Draft Decision on Starting Price Adjustments for Electricity Distribution Businesses, Public Version*, 24 August 2011, pp. 9-13.

89 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 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.

proposal.[90] Such an allowance would generally be expected to cost consumers more than they would expect to benefit.

6.12 An additional allowance for suppliers would impact consumers in two ways.

6.12.1 An additional allowance for the supplier would reduce the probability that a customised price-quality path will be proposed, so the expected cost to consumers of a proposal would be reduced.[91]

6.12.2 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.[92]

6.13 Our analysis of these two impacts is set out in Attachment I. In summary, 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 specific outcomes set out in the Part 4 Purpose.

6.14 However, the exception to this is GasNet, where we are satisfied that an additional allowance of $398k may be a cost-effective outcome. This is because:

6.14.1 the cost of a customised price-quality path is likely to be relatively high compared to GasNet's annual revenues; and

6.14.2 if our draft decision was implemented, the risk of GasNet proposing a customised price-quality path can be significantly reduced by including an additional allowance.

6.15 Further explanation of how we propose GasNet qualifies for an additional allowance can be found in Attachment I. We would expect to use a similar approach for our final decision to calculate whether the additional allowance for GasNet is still

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90 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.

91 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. We would be interested in receiving submissions on whether we should explore this proposal to potentially take effect in time for the next regulatory period.

92 For example, if the additional allowance is $1m then consumers will pay $1m more through regulated prices.

applicable. The final calculations will clearly depend on the opex, capex, and revenue growth forecasts that we rely for our final decision.

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

6.16 Having considered submissions over a number of rounds of consultation, we have not been convinced that an additional allowance would better promote the Part 4 Purpose in the majority of cases. As noted above, our proposed approach is appropriate, and consistent with the intent of Subpart 6 of Part 4 of the Act:

6.16.1 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 s 52A – in our view suppliers can generally expect to earn at least a normal return under the default price-quality path, while limiting excessive profits;

6.16.2 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.

6.17 In our view, regulated suppliers have over-stated the risks associated with a customised price-quality path proposal.[93] All the rules, requirements and processes for a proposal have been determined up-front, following more than two years of consultation, and can only be varied with the agreement of the supplier.[94] In addition, each supplier also has a form of 'merit' appeal to the High Court for:

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

6.17.2 a customised price-quality path determination.

6.18 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.[95]

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93 The fact that we can set a customised price-quality path lower than a default price-quality path does not imply that a customised price-quality path is a high risk option for suppliers. For example, it would be appropriate for a customised price-quality path to be lower than a default price-quality path if the supplier would otherwise expect to over-recover its costs. Section 53V simply provides protection against the risk that customised price-quality path proposals are seen as a 'one-way' bet by suppliers, which would result in a significant number of proposals for us to consider each year.

94 Refer: s 53V(2)(c).

95 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. We also note that due to the number of suppliers of gas transmission and

7. Responses to submissions about incentive mechanisms

Purpose of this chapter

7.1 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

7.2 A supplier's incentive to maintain or achieve efficiency gains tends to diminish towards the end of the regulatory period. This is because gains made by the supplier during the regulatory period are shared with consumers when prices are adjusted based on current and projected profitability to better align the supplier's revenues with its costs.

7.3 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.[96]

7.4 Submitters have requested that we put an IRIS in place for the default price-quality path. 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. As in the case of the electricity sector, we will consider requests for an IRIS further after receiving submissions on this draft decision.

Staggered sharing proposed by Vector

7.5 Vector has proposed a staggered sharing mechanism.[97] 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.

7.6 We do not propose to apply a staggered sharing mechanism in future. This is due to the adverse incentives that may be created; in particular, suppliers may have an

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gas distribution services no prioritisation issues will arise under s 53Z. All gas customised price-quality path proposals will be considered at the time they are submitted.

96 Refer: Commerce Commission, *Input Methodologies (Electricity Distribution and Gas Pipeline Services) Reasons Paper*, 22 December 2010, p. 625.

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

incentive to artificially inflate their returns in the year prior to the adjustment.[98] Starting prices would consequently be higher than they would be otherwise.

7.7 Further, 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.[99] 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.[100]

7.8 It is worth noting, that even if a staggered mechanism was appropriate in general, it would not work for the initial default price-quality path. This is 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 the regulatory period.

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98 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.

99 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.

100 We also considered whether it would be possible to implement a low cost approach to assess whether above normal profits 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.

Attachment A: Summary of key inputs used in our financial model

Purpose of this attachment

A1 This attachment summarises the key inputs into our financial model for the proposed adjustments for each supplier of gas pipeline services. The key inputs are:

A1.1 capex forecasts allowance;

A1.2 opex forecasts;

A1.3 other regulatory income; and

A1.4 constant price revenue.

Timing assumptions for modelling capex and opex

A2 Different suppliers have provided information relating to different time periods. This means that we have had to adjust information shown in the figures in this chapter (as well as in our modelling) to present information in a comparable form.

A3 In particular, in our modelling of capex and opex we have had to extend our analysis out to the year ending 2018 for all suppliers except MDL. Our modelling uses data provided under information requests for a July to June year, except for MDL which uses a January to December year (referred to as Information years). However, this does not align with the building block model which requires opex and capex projections for the regulatory period 1 July 2013 to 30 September 2017. We therefore need to calculate an additional 3 months from 30 Jun 2017 to 30 September 2017. Because our approach is based on forecasting full years we have extended our projections to 30 Jun 2018 (for all suppliers except MDL). As MDL's information year ends 30 December projections are only required to 2017, ie, the MDL information year ending 31 December 2017.

Capex

A4 Our proposed allowance of capex is based on allowances of network and non-network capex.

A4.1 Network capex is expenditure on assets that form part of the distribution or transmission network. We propose to rely on each supplier's forecast, but limit the increase over the years 2012 to 2017 to 20% over their average historic expenditure for the year 2007 to 2011 (both in constant prices).

A4.2 Non-network capex is expenditure on assets employed in supplying regulated services that do not form part of the distribution or transmission network. We have modelled non-network capex based on each supplier's historical average level of expenditure.

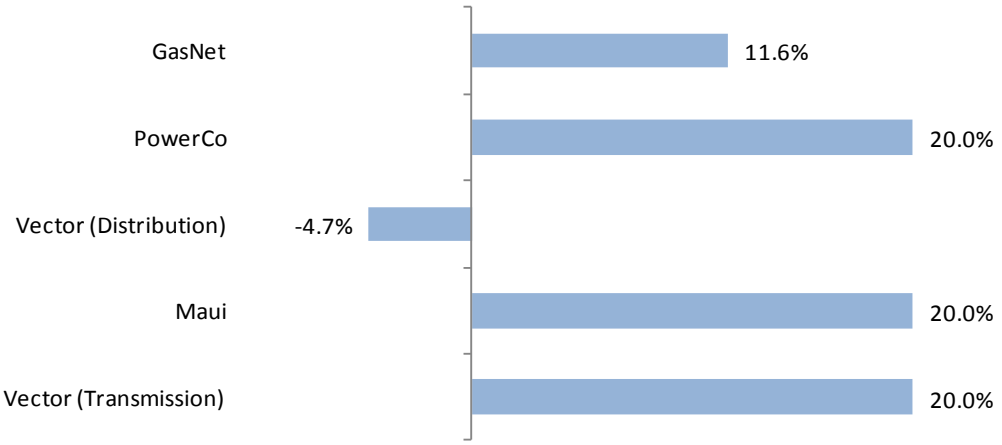
A5 Table A1 shows the amount of nominal capex our allowance for each supplier of gas pipeline services each year.

Table A1: Capex allowance 2012 to 2018 ($m nominal)[101]

Year ending	GasNet	Powerco	Vector (Distribution)	MDL	Vector (Transmission)
2012	0.7	11.1	22.1	0.1	11.7
2013	0.7	11.0	24.5	0.3	13.8
2014	0.7	11.3	28.9	2.8	23.4
2015	0.7	12.7	20.4	0.2	13.4
2016	0.8	13.1	16.7	0.2	12.2
2017	0.8	13.5	17.1	0.2	12.4
2018[102]	0.8	13.8	17.4		12.6

A6 Figure A1 below compares average network capex allowances for each supplier to their historic average level of expenditure.

Figure A1: Difference between network capex allowance (2012 to 2017) and the historical average (2008 to 2011) network capex (in constant prices)[103]



101 Note that the regulatory year ends in June for GasNet, Powerco, Vector Distribution and Vector Transmission, and in December for MDL.

102 Note that the figures for the year ending 2018 are for a full year. Projections for 2018 are required by the model to calculate the present value of building blocks costs up to September 2018, ie, for the three-month period July to September 2018 (except for MDL which is only calculated up to December 2017).

103 Note that for presentational purposes (consistency with MDL and to avoid distortion caused by part years) we have calculated the average annual allowance up to the year ending 2017. The model also includes a further three months from June to September 2018 (except for MDL).

A7 Table A2 shows the total constant price capex forecast for each supplier compared to our allowance of the total constant price capex. Our allowances of network capex are broadly similar to those forecast by gas distributors, but is significantly lower than those forecast by transmission businesses. This is because the proposed 20% cap does not fully accommodate the major capex projects they propose.

Table A2: Comparison between suppliers' capex forecasts and our allowances 2012 to 2017 ($m in 2011 prices)[104]

		GasNet	Powerco	Vector (Distribution)	MDL	Vector (Transmission)
Allowance	Network	3,603	61,890	104,068	3,576	56,693
	Non-network	555	7,102	19,763	42	26,198
	Total	4,158	68,991	123,831	3,618	82,891
Suppliers' forecasts	Network	3,603	62,207	104,068	53,446	109,811
	Non-network	741	8,089	13,585	50	26,311
	Total	4,344	70,296	117,653	53,496	136,122
Difference ($)	Network	-	(318)	-	(49,870)	(53,118)
	Non-network	-186	-987	6,178	-8	-113
	Total	-186	-1,305	6,178	-49,878	-53,231
Difference (%)	Network	0.0%	-0.5%	0.0%	-93.3%	-48.4%
	Non-Network	-25.2%	-12.2%	45.5%	-16.0%	-0.4%
	Total	-4.3%	-1.9%	5.3%	-93.2%	-39.1%

Opex

A8 Our proposed opex forecasts are based on our calculations of the likely trends for each supplier of gas pipeline services, with an adjustment to reflect the increase in insurance costs following a number of natural disasters including the Canterbury earthquakes. We consider that the trends in opex are influenced by the following three factors:

[104] Note that the regulatory year ends in June for GasNet, Powerco, Vector Distribution and Vector Transmission, but ends in December for MDL.

A8.1 Network scale – all other things being equal, the scale of the network would be expected to affect opex because the volume of service provided will change.[105]

A8.2 Input prices – changes in input prices will affect the annual cost of providing a given level of service.

A8.3 Partial productivity – improvements in opex partial productivity will reduce the amount of opex needed to provide a given level of service.

A9 Table A3 below shows the nominal opex we have allowed for each supplier of gas pipeline services each year.

Table A3: Opex forecasts 2012 to 2018 ($m nominal)[106]

Year ending	GasNet	Powerco	Vector (Distribution)	MDL	Vector (Transmission)
2012	1.4	15.9	20.1	8.9	32.0
2013	1.5	16.3	20.7	9.6	32.8
2014	1.6	16.8	21.5	9.9	33.8
2015	1.6	17.4	22.3	10.3	34.9
2016	1.7	18.0	23.2	10.6	36.0
2017	1.7	18.5	24.0	10.8	36.9
2018[107]	1.8	19.0	24.8		37.7

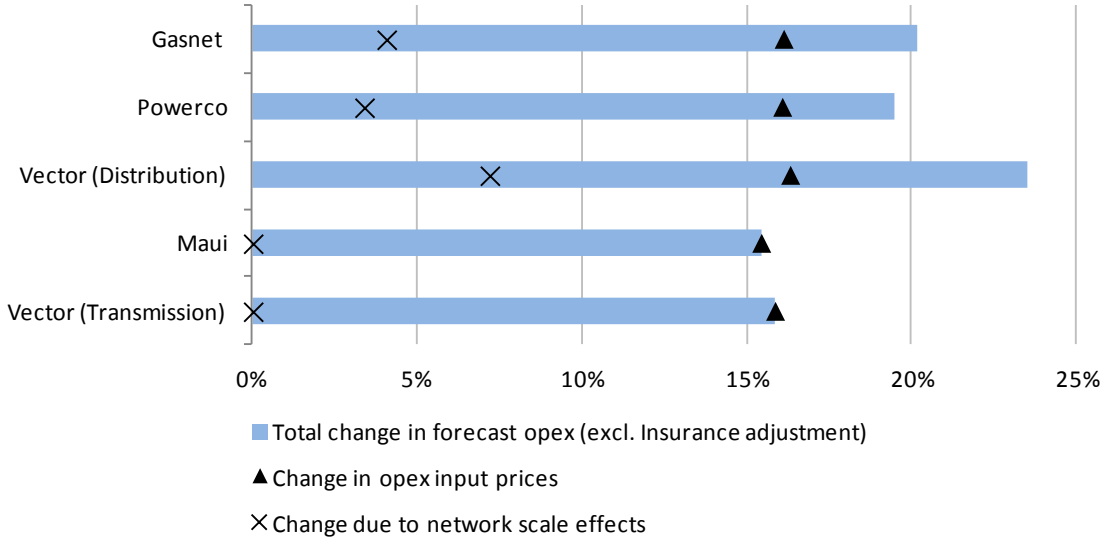
A10 Figure A2 overleaf shows projected growth in opex for each supplier.

105 For example, every additional kilometre of gas line constructed may require maintenance, thereby increasing maintenance opex.

106 Note that the regulatory year ends in June for GasNet, Powerco, Vector Distribution and Vector Transmission, but ends in December for MDL.

107 Note that the figures for the year ending 2018 are for a full year. Projections for 2018 are required by the model to calculate the present value of building blocks costs up to September 2018 i.e for the 3 month period July to Sept 2018 (except for MDL which is only calculated up to December 2017).

Figure A2: Projected growth in operational expenditure from 2012 to 2017



A11 Table A4 shows the total constant price opex forecast by suppliers compared to our forecast of the total constant price opex. Our forecasts are broadly similar for GasNet and Powerco, but are significantly lower for all other suppliers.

Table A4: Difference between suppliers' forecasts and our forecasts of opex 2012 to 2017 ($m in 2011 prices)[108]

	GasNet	Powerco	Vector (Distribution)	MDL	Vector (Transmission)
Our forecast	8,741	94,547	121,006	55,324	189,661
Suppliers' forecast	9,473	97,389	139,647	83,990	244,047
Difference ($)	-732	-2,842	-18,641	-28,666	-54,386
Difference (%)	-7.7%	-2.9%	-13.3%	-34.1%	-22.3%

Other regulated Income

A12 Other regulated income is income from the provision of regulated services that is recovered in a different manner from line charges. For example, Powerco and GasNet received insurance payments and GasNet reported proceeds of the sale of scrap metal.

A13 We propose to estimate each supplier's other income by using an average of their actual figures from the year ending 2008 to the year ending 2011. We have excluded

108 Note that the regulatory year ends in June for GasNet, Powerco, Vector Distribution and Vector Transmission, but ends in December for MDL.

the one-off payment Vector Transmission received in 2011 from suppliers and consumers as this is unlikely to reoccur.

A14 The estimates of other regulatory income we have used in our modelling are zero for all suppliers except a base value, rolled forward for inflation, for:

A14.1 Powerco - $146,000; and

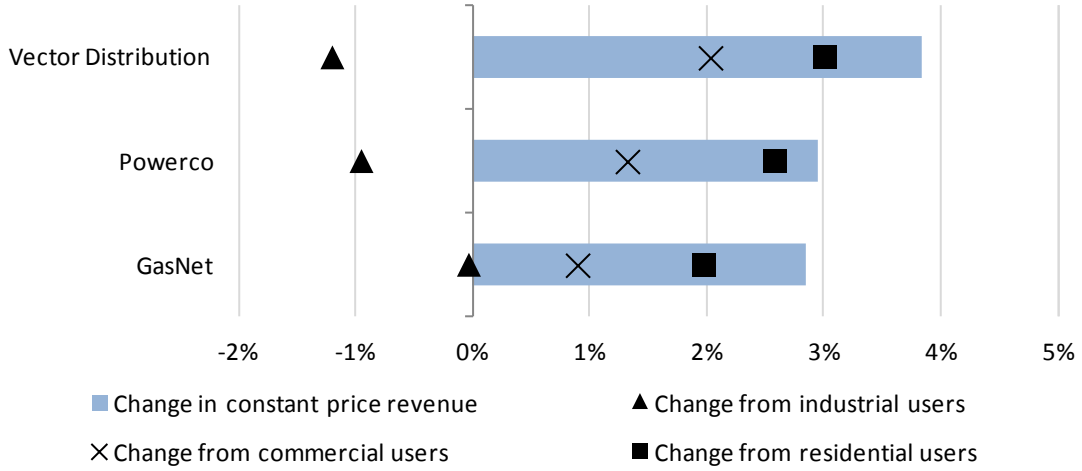
A14.2 GasNet - $13,000.

Constant price revenue growth

A15 Constant price revenue growth is the revenue growth that occurs as a result of changes in quantities billed. We have developed two models, one for gas distributors and the other for gas transmission businesses.

A16 Figure A3 presents the constant price revenue growth forecasts for gas distributors we have used in our modelling, broken down by user type.

Figure A3: Constant price revenue growth forecasts for gas distributors by user type (2012 to 2017 cumulative)



A17 We have not presented constant price revenue forecasts for transmission businesses as they are not required for calculating starting prices under a revenue cap.[109]

[109] However, constant price revenue forecasts are required for calculating 'ΔD' used when suppliers set prices. Refer: Attachment L.

Attachment B: The allowance we have set for capex

Purpose of this attachment

B1 This attachment provides an overview of, and reasons for, our proposed approach to each supplier's capex allowance.

We propose to model two categories of capex separately

B2 We propose to model network and non-network capex in constant prices in separate ways. We treat each category separately because there are differences in:

B2.1 the relative impact on starting prices; and

B2.2 the nature and drivers of expenditure.

B3 We then propose to combine the allowances for each year and then make an adjustment to reflect the impact of future changes in input prices.

How we model network capex

B4 Within certain limits, we propose to rely on each supplier's forecast to model their network capex in constant prices. Each supplier's forecast provides a good starting point because:

B4.1 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;

B4.2 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; and

B4.3 submissions strongly supported using each supplier's own forecasts.[110]

B5 However, we limit suppliers' forecast average expenditure for the years 2012 to 2017 to a 20% increase over their average historic expenditure for the year 2007 to 2011 (both in constant prices).

Why do we propose a limit?

B6 We propose to apply a limit to each supplier's forecast because:

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[110] Powerco, *Powerco Submission on Additional Input Methodologies for Default Price-Quality Paths: Process and Issues Paper,* 27 January 2012, p. 11, Vector *Submission to Commerce Commission on Additional DPP IMs Process and Issues Paper,* 27 January 2012, para 95.

B6.1 by relying on each supplier's forecast, we provide suppliers with an incentive to systematically bias their forecast to increase their starting price, eg, by adopting low risk forecasting assumptions

B6.2 applying a limit is consistent with the overall regime where customised price-quality paths are the mechanism to address material step changes in capex.[111]

B7 The limit constrains the effect that the incentive for a supplier to systematically bias its forecast might have on consumers. Any supplier that faces a change above our limit may consider a customised price-quality path proposal.

Why the limit is a 20% increase relative to historical levels

B8 We propose a limit of 20% because, while variations in network capex are to be expected:[112]

B8.1 the application of a cap would limit the maximum impact on customers of a supplier providing a systematically biased forecast; and

B8.2 if capex is potentially going to increase by more than this limit, then a customised price-quality path proposal will be more appropriate.

Calculating the limit on each suppliers forecast

B9 To determine whether the limit has been reached, we have assessed the forecast change in network capex relative to the average in the last four years. This entailed:

B9.1 assessing the average level of network expenditure (in constant prices). This was based on data supplied in an information request for the years ending 2008 to 2011;[113] and

B9.2 comparing this to the average forecast level of network expenditure (in constant prices) for 2012 to 2017.

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111 The option of using the supplier's forecast (with no limit) was rejected for a number of reasons.

First, it creates a strong incentive for the supplier to incorporate low risk assumptions or use approaches that result in systematically biased modelling only countered by the incentives created by ID.

Second, it may reduce the incentives to achieve capex efficiencies (a supplier can earn an acceptable return without achieving efficiencies). Third, it may allow the supplier to undertake more capex than is required and valued by customers.

112 Variations in the level of capex relative to the past are to be expected. Fluctuations in the order of 5% will be common, certainly too frequent to justify a customised price-quality path every time, and should be accommodated within the default price-quality path.

113 Commerce Commission, *Notice to Supply Information to the Commerce Commission under section 53ZD of the Commerce Act 1986*, 22 June 2012.

Scaling if the limit is exceeded

B10 Where a supplier's forecast exceeded the limit, the forecast was scaled back until it no longer exceeded the limit. We used the formula set out below.

Box B1: Formula for the scaling factor

$$\text{Network capex}(t) = \text{Supplier forecast of network capex}(t) \times \text{Network capex scale factor}$$

$$\text{Network capex scale factor} = \frac{\text{Average past level of network expenditure} \times (1 + \text{limit})}{\text{Average forecast level of network expenditure}}$$

B11 The formula in Box B1 allows us to retain the time profile of the supplier's forecasts. This means we use as much information in the suppliers' forecasts as possible while also minimising the risk to consumers of biased forecasts.

We invite submissions on our approach

B12 We invite submissions on whether a 20% cap is too high or if capping is the best approach. Alternatively, we could remove major projects from suppliers' forecasts where we consider they would be more appropriately considered under a customised price quality path.

B13 The cap is intended to allow business as usual increases in capex, but to exclude large step-changes as these are more appropriately catered for under a customised price-quality path. It may therefore be more appropriate for us to exclude major projects when setting a cap.

B14 MDL and Vector have included significant projects in their forecasts. If we cap network capex at a 20% increase on their historical average they may either:

B14.1 apply for a customised price-quality path to undertake these projects;

B14.2 undertake these projects within the default price-quality path revenue cap; or

B14.3 defer these projects.

B15 If, as a result of the 20% cap, MDL and Vector choose to not proceed with their significant projects they may no longer require all of the allowed 20% increase on their historical average network capex. It may therefore be more appropriate to set a cap at a lower rate than 20%, or remove these projects from their forecasts for the purpose of calculating and applying the cap.

How we model non-network capex

B16 To model non-network capex in constant prices for each year we relied on suppliers' historical average level of expenditure. We consider that this approach will be simple but effective because:

B16.1 the size of this type of expenditure is relatively minor;[114]

B16.2 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;[115] and

B16.3 we do not consider that changes in scale would have a significant impact on the overall level of required capex.[116]

B17 We used the formula set out in Box B2 below.

Box B2: Non-network capex formula

non-network capex(t) = average past level of non-network expenditure

B18 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 flat profile in constant prices; ie, there is no year-on-year change. On balance, we have no reason to believe that another profile is more appropriate.

Calculating the historical average

B19 The average of actual expenditure (in constant prices) was calculated as the average for the four most recently available years, ie, the year ending 2008 to the year ending 2011. We have collected this data through an information request.[117]

Changes in input prices

B20 To arrive at a nominal estimate of each supplier's capex, we have:

B21 modelled network and non-network capex in constant prices (as described above);

B21.1 calculated each annual total; and

B21.2 applied an input price index to the overall amount.

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[114] We estimate that the average spend on network capex is approximately 5 to 10 times larger than non-network capex.

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

[116] 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.

[117] Commerce Commission, *Notice to Supply Information to the Commerce Commission under section 53ZD of the Commerce Act 1986*, 22 June 2012.

B22 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.

B23 We have used the latest available forecast from NZIER to project input prices for the period 2012 to 2018.[118]

Summary of the information sources for modelling capex

B24 Table B1 below sets out the information source for all information used to model capex.

Table B1: Information for modelling capex

Item	Information used (all supplier specific unless indicated)	Source
Suppliers' actual expenditure on capex	Annual nominal network capex (nominal) Annual nominal non network capex (nominal)	53ZD information request
Suppliers' forecast expenditure on capex	Forecast network capex base year constant prices)	53ZD information request
Change in input prices	Capital Goods Price Index (industry value)	NZIER

[118] We have used actual forecasts for 2012 to 2015. Forecasts beyond this point were unavailable, so we have used the long-run average for 2016 to 2018, as recommended by NZIER. 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.

Attachment C: How we forecast opex

Purpose of this attachment

C1 This attachment provides an overview of, and reasons for, our approach to forecasting each supplier's opex.

Approach for forecasting opex

C2 We propose to forecast the trend in each supplier's opex, and make an adjustment to this trend to reflect the increased insurance costs to suppliers resulting from a number of natural disasters including the Canterbury earthquakes. This adjustment is appropriate as the increase in insurance costs:

C2.1 is likely to affect each supplier's opex;

C2.2 has the potential to affect all suppliers; and

C2.3 is a factor over which suppliers have limited or no control.

Forecasting likely trends in opex

C3 In our view trends in supplier opex are primarily influenced by the following three key factors.

C3.1 Network scale – all other things being equal, change in the scale of the network would be expected to affect opex because the volume of service provided will change.[119]

C3.2 Partial productivity – improvements in opex partial productivity[120] will reduce the amount of opex needed to provide a given level of service, eg, due to changes in technology.

C3.3 Input prices – changes in input prices will affect the annual cost of providing a given level of service.

C4 It is appropriate to forecast trends in opex because most 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.

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[119] For example, every additional kilometre of gas line constructed may require maintenance, thereby increasing maintenance opex.

[120] Opex partial productivity measures changes in the ratio of opex inputs to opex-related outputs.

Why we do not propose to rely on each supplier's forecast

C5 We consider that there are good grounds for modelling each supplier's opex ourselves, rather than relying on suppliers' own forecasts, as:

C5.1 the low cost nature of default price-quality paths, and limits on the use of comparative benchmarking, mean we cannot subject supplier opex forecasts to the same level of scrutiny as for a customised price-quality path;[121] and

C5.2 opex in these industries can be modelled because it is typically recurring and has a reasonably stable trend.

Trends in each supplier's opex

C6 The trend in each supplier's opex has been modelled using the formula set out in Box C1. This formula results in an adjustment to the opex base year based on cumulative changes in the scale of the network, opex partial productivity and changes in the cost of inputs used in opex-related activities.

Box C1: Formula for calculating recurring opex in each year

opex in base year

×

(1+ Δ due to network scale effects + Δ opex partial productivity + Δ input prices)[122]

C7 We explain below how we propose to model each of these factors.

Base year opex

C8 The base year for the opex modelling comes from the most recent information we have available from an information request for the year ending 2011. Based on the information available to us, we have no reason to consider that opex in the year ending 2011 was atypical.[123]

C9 We have not accepted the submission from MDL that we use the average of the most recent three years as the base year.[124] We consider that using a single recent opex figure would:

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121 As outlined in Attachment B, if we were to use suppliers forecasts they would have an incentive to provide biased forecasts in their favour.

122 In practice this has been implemented as an indexed approach applied to base year opex.

123 Except for an issue on compressor fuel for MDL, as discussed below.

124 Maui Development Limited, *Submission on Additional Input Methodologies for DPP Process and Issues Paper,* 27 January 2012, para 35.

C9.1 increase prices for suppliers who have recently experienced unavoidable and enduring increases in opex;

C9.2 decrease prices for customers of suppliers that have recently achieved enduring reductions in opex; and

C9.3 better reflect future opex.

C10 We seek submissions on whether we should use the year ending 2012 for the base year if this information is available in time for the final decision.

Compressor fuel

C11 MDL needs to purchase compressor fuel to operate its pipeline. It has advised us that due to the way compressor fuel was previously provided that these costs were zero in 2011. However, it estimates that future average expenditure on compressor fuel will be $1.87 million per year.

C12 For this draft we have not adjusted base year opex to account for the costs of compressor fuel. We note that compressor fuel costs are not pass-through or recoverable costs under the input methodologies. We seek submissions on whether an adjustment for compressor fuel should be included in MDL's base year opex, and if $1.87m is appropriate.

Changes due to network scale effects

C13 Our proposed approach allows for future changes in opex which relate to changes in the scale of the network. Potential measures of scale we have considered are:

C13.1 trends in network length for each supplier;

C13.2 trends in energy throughput for each supplier; and

C13.3 trends in the number of consumers.[125]

C14 We have considered distribution and transmission businesses separately in considering how the scale measures should be applied.

C15 For transmission businesses, we propose that the elasticities on all network scale factors are set to zero.

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[125] Although this is unlikely to be a relevant measure of scale for transmission businesses. We have collected data on each of these measures from the Gas Information Disclosure Requirements, over the five information years ending in 2007 to 2011.

C15.1 We consider that, for transmission businesses, changes in network length and the number of customers will not have a material impact on opex over the regulatory period.

C15.2 Energy throughput may have an impact on opex for transmission businesses, particularly given its impact on compressor fuel. However, we have not been able to do any regression analysis because of data quality issues, as discussed below. We have therefore set the elasticity to zero as a place holder, but invite submissions on what the appropriate number should be.

C16 For distribution businesses, we propose that the elasticities are based on international evidence. The UK regulator Ofgem has previously estimated a 10% increase in scale will lead to a 7% increase in total opex. Its measure of scale is a weighted average of network length and the number of customers.[126] This equates to an elasticity of approximately 0.35 for each of the two factors.[127]

C17 We have been unable to develop an econometric model, as developed for the electricity distribution default price quality path. This is because we have only two years of data that are compliant with the input methodologies (years ending 2010 and 2011), and other historical opex data has unexpected variability (possibly due to changes in definitions). We invite submissions providing evidence of the effect changes in network scale have on opex.

Changes in partial productivity

C18 We propose to assume a 0% change in opex partial productivity for the initial default price-quality path. This assumption is informed by analysis provided by Economic Insights on historical opex partial productivity changes for New Zealand and overseas suppliers of gas pipeline services.[128]

Changes in input prices

C19 Opex will be adjusted for forecast changes in the cost of inputs using the weighted average forecasts of the changes in the all industries labour cost index (LCI) and the

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126 Ofgem, *Gas Distribution Price Control Review, Final Proposals Document – Supplementary Appendices*, December 2007, p. 42.

127 In order to apply this elasticity in our model, the exact elasticities vary between suppliers based on the relative size of each of these two factors. This provides the same result as applying an elasticity of 0.7 to the weighted average of historical network length and customer numbers as calculated by ofgem.

128 Economic Insights, *Regulation for Suppliers of Gas Pipeline Services – Gas Sector Productivity*, Report prepared for the Commerce Commission, 10 February 2011.

all industries producer price index (PPI). We propose to use forecasts provided by NZIER.[129]

C20 We do not agree with submissions that have suggested using more sector-specific price indices.[130] Using an all industries forecast is appropriate as it is likely to provide a good proxy for sector-specific indices, which are hard to predict individually.[131]

C21 We propose to weight the forecast LCI by 60% and the forecast PPI by 40% for the proposed reset. In the absence of labour expenditure data from New Zealand suppliers, these weights are based on analysis of labour expenditure by Australian suppliers.[132]

Adjustment for insurance costs

C22 We propose to include an adjustment for increased insurance costs resulting from a number of natural disasters including the Canterbury earthquakes. We consider that these costs are largely outside the control of suppliers and cannot be captured in our model of the trends in each supplier's opex. We also consider that the inclusion of these insurance costs is appropriate for a default price-quality path as it results from an industry-wide event.

C23 We propose to include the nominal insurance forecasts provided by suppliers in response to the 53ZD information request. To give us assurance that the forecast increases are reasonable, suppliers have been required to have any changes in the level of risk, their insurance premiums and any self-insurance allowance

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129 We have used actual forecasts for 2012 to 2017. Forecasts beyond this point were unavailable, so we have used the long run average for 2018. 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.

130 Powerco, *Powerco submission on additional input methodologies for default price-quality paths: process and issues paper,* 27 January 2012 p. 35, MDL *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.

131 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).

132 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.

independently verified and the associated analysis and documentation certified by a Director.[133]

C24 MDL has only been able to provide forecasts of total insurance expenditure from the year ending 2013 onwards. We therefore have estimated their increase in insurance costs due to natural disasters based on the percentage increase faced by Vector Transmission.[134]

C25 For all other suppliers we have included their forecasts as they were provided to us. This included reviewing the supporting information suppliers provided to us and, where necessary, asking for further clarification.

Summary of information sources for opex forecasts

C26 Table C1 below provides a summary of the information sources we have relied on for each aspect of our forecasting of operating expenditure.

Table C1: Information for forecasting opex

Item	Information used	Source
Insurance adjustment	Suppliers forecasts	Section 53ZD information request
Initial level of opex	Suppliers actual opex for the year ending 2011	Section 53ZD information request
Changes in scale	Historical trends in network length for each supplier Future trends in gas supplied to users Historical trend in customer numbers	Information disclosed under the Gas Industry Disclosure Requirements
Impact of changes in scale on opex	Trends of opex and scale across the industry	Ofgem/Commission analysis
Changes in opex partial productivity	Historical trends of opex and associated inputs and outputs across the industry	Commission analysis (by Economic Insights and by Pacific Economics Group (PEG))
Changes in input prices	All industries PPI and LCI	NZIER

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

[134] MDL's 2012 actual insurance amount excluding natural disasters has been recalculated by applying Vector Transmission's percentage increase between 2012 and 2013. This calculated insurance amount excluding natural disasters has been held constant in the following years. We have categorised any increase on this amount as an increase due to natural disasters.

Attachment D: How we forecast other line items

Purpose of this attachment

D1 This attachment explains our proposed approach to calculating other regulated income, and disposed assets.

Other regulated income

D2 Our modelling assumes a value of other regulated income from the year ending 2011 to the year ending 2018. Other regulated income is income from the provision of regulated services that is recovered differently from line charges. For example, it includes lease or rental income from regulated assets.

D3 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 gas distribution and transmission charges, other income they receive is also relevant to determining each supplier's revenue requirement.

D4 We propose to use the arithmetic average of each business' past other income as a forecast, scaled up for the effects of inflation each year.[135] We have excluded the one-off payment Vector Transmission received in 2011 from suppliers and consumers, as this is unlikely to reoccur.

D5 Only Powerco and GasNet had regular other regulated income payments. Other regulated income for Vector Distribution, Vector Transmission and MDL is set to zero.

Disposed assets

D6 We must have consistent assumptions for the value of disposed assets and treatment of costs on disposals. We have assumed zero for both because any loss on disposal not included in our opex forecast will be offset by the return suppliers receive on the assets as they will remain in the RAB. This aligns with the low cost nature of a default price-quality path.

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[135] We asked for other regulated income for the years ending 2008 to 2011 in – Commerce Commission, *Notice to Supply Information to the Commerce Commission under section 53ZD of the Commerce Act 1986*, 22 June 2012.

Attachment E: Reasons for applying a revenue cap to transmission services

Purpose of this attachment

E1 This attachment explains our reasons for applying a revenue cap to regulated gas transmission services.

Factors that we took into account in reaching our draft decision

E2 In reaching our draft decision to apply a revenue cap to gas transmission services, we have taken into account the factors that are set out in the input methodologies. In deciding whether to specify price by a weighted average price cap or a revenue cap for gas transmission the Commission has to take into account the extent to which, in supplying regulated services, a gas transmission business

E2.1 manages capacity through contract carriage arrangements; and

E2.2 supplies services on the basis of non-standard pricing arrangements.[136]

E3 As explained in the input methodology reasons paper, the decision on the form of control is a matter of judgment for the Commission after considering these factors.[137]

E4 In terms of Vector Transmission, we concentrated on the above factors and also considered relevant factors raised during the consultation process to date.

Why MDL is subject to a revenue cap

E5 We propose that MDL is subject to a revenue cap, after taking account of the factors in the input methodologies. As explained in the input methodologies reasons paper, we consider that a transmission business is better suited to a revenue cap if the business:

E5.1 operates under capacity reservation arrangements managed through common carriage rather than contract carriage; and

E5.2 lacks contractual flexibility to tailor non-standard pricing arrangements for individual customers.[138]

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136 Commerce Commission, *Gas Transmission Services Input Methodologies Determination* 2012, para3.1.1(2).

137 Commerce Commission *Input Methodologies (EDBs & GPBs) Reasons Paper,* 22 December 2010, para 8.3.18.

138 Commerce Commission *Input Methodologies (EDBs & GPBs) Reasons Paper*, 22 December 2010, para8.3.15.

E6 MDL agreed that a revenue cap should apply to it.[139]

Why Vector Transmission is subject to a revenue cap

We propose to set a revenue cap as we consider it promotes the Part 4 Purpose

E7 Vector Transmission is operated through contract carriage and can use non-standard prices for individual customers. However, there are other factors that mean that a revenue cap is more suitable for Vector Transmission than a price cap.

E8 In particular, we do not need to forecast constant price revenue for a revenue cap, whereas we would need such a forecast for a price cap. As explained in more detail in the section below, forecasting of constant price revenue is particularly difficult for a gas transmission business.

E9 The difficulty of forecasting constant price revenue for a reset under a price cap, could mean that the allowed starting prices could be significantly higher or lower than that required by the business. We therefore consider that to promote the Part 4 purpose (including providing incentives to invest and providing services at a price that consumer demand) we should set a revenue cap for Vector Transmission.

Forecasting constant price revenue is unlikely to be possible with a reasonable degree of accuracy

E10 Vector Transmission currently uses the quantity of gas and the amount of reserved capacity as a basis for billing shippers for the transmission services it provides. As further discussed in Attachment F, in 2011, about half of Vector's revenue related to the quantity of gas transported, and the other to the reserved capacity.

E11 We consider that neither of these quantities can be forecast with a reasonable degree of accuracy for the purpose of setting a default price path.

E12 Historical demand for gas transported on the Vector Transmission pipeline, and hence the quantity billed, has been variable and there is a wide range of possible future demands. Historically, this variability has been driven by changes in demand from major gas users connected directly to transmission pipelines, such as electricity generators and the petrochemical industry. These major users in 2011 constitute over 50% of Vector Transmission's throughput. Concept Consulting Limited's study for the Gas Industry Company shows that future demand for gas will continue to be very sensitive to gas prices.[140]

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139 Concept Consulting Group Limited, *Gas Supply and Demand Scenarios 2012 – 2027, August 2012*; and worksheet NI_Proj_Line in Concept's model, which can be downloaded from https://docs.google.com/folder/d/0B8Fpt8nHFgDZdU1VbzZ6M0pLcjA/edit

140 Concept Consulting Group Limited, *Gas Supply and Demand Scenarios 2012 – 2027*, August 2012, and worksheet NI_Proj_Line in Concept's model.

E13 Overall demand for reserved capacity on the Vector Transmission pipeline grew on average by almost 8% between 2008 and 2011, but it is not clear what the change in reserved capacity will be over the regulatory period.[141] The Gas Industry Company work programme includes exploring the nature of capacity issues on parts of the Vector Transmission pipeline (eg, whether the problem is investment related and what options there are for alleviating actual or reserved capacity constraints), including through the work undertaken by Concept Consulting Limited.[142]

How we propose to address the Major Gas Users Group's concerns

E14 In response to our November 2011 Draft Decision, the Major Gas Users Group (MGUG) favoured a price cap for Vector Transmission over a revenue cap.[143] Both gas transmission businesses favoured a revenue cap.

E15 The main argument raised by the MGUG in support of a price cap was that it would provide greater incentive to maximise the use of existing capacity. The example given was that, under a price cap, Vector Transmission would have a greater incentive to increase volume on the system, and greater incentive to manage demand more effectively to avoid demand curtailment.[144]

E16 While we appreciate the concerns raised by the MGUG's argument has some merit, we consider that the difficulties relating to forecasting demand will on balance result in a price cap performing less favourably against the outcomes in the Part 4 Purpose statement than a revenue cap.

E17 We consider that the MGUG's concern can be addressed in other ways, such as through increased transparency. We expect that the ongoing work by the Gas Industry Company will create better understanding of the capacity issues in the gas transmission sector. We also expect that our recently published information disclosure requirements will help us and interested persons assess whether Vector Transmission sets prices and invests efficiently.[145]

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141 Commission calculations using information from Vector Transmission provided as part of an information notice.

142 Concept Consulting Group Limited, *Gas Supply and Demand Scenarios 2012 – 2027,* August 2012.

143 Major Gas Users Group, *Submission to Initial Default Price-Quality Paths for Gas Pipeline Businesses – Draft Reasons Paper*, 19 December 2011, paras 5(c) and 5(f).

144 Major Gas Users Group, *Submission to Initial Default Price-Quality Paths for Gas Pipeline Businesses – Draft Reasons Paper* 19 December 201, para 5(c)(f).

145 Refer Commerce Commission, *Information Disclosure for Electricity Distribution Businesses and Gas Pipeline Businesses: Final Reasons Paper,* Attachment 8, and Commerce Commission, *Gas Transmission Information Disclosure Determination 2012*, section 2.5.

Attachment F: How we forecast constant price revenue growth

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 discussed in Chapter 3.

Overview of the approach to modelling constant price revenue

F2 To set the price path for gas distributors, we require constant price revenue forecasts for the regulatory period, ie, 1 July 2013 to 30 September 2018.

F3 For distributors, 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. Some years of the forecasts are also used in the ΔD calculation in the compliance formula (as discussed in Attachment L). Our approach for gas distribution involves modelling constant price revenue separately for residential, industrial, and commercial users.

F4 For gas transmission businesses the revenue forecasts primarily affect the ΔD calculation because we propose to put these businesses under a revenue cap. The revenue forecasts are also used to illustrate starting price adjustments in percentage terms.

F5 We have relied on information on load groups provided by suppliers under an information gathering request to classify revenue into those three categories, and have modelled the impact of changes in forecast quantities a supplier charges for. The three distributors use gas quantities delivered, and per connection charges as parts of their tariffs.

F6 Our approach for gas transmission involves modelling revenue (in constant prices) separately by the billing quantities the businesses use. Both businesses use throughput fees that reflect the quantity of gas transported. MDL uses as a second billing basis the quantity of gas transported multiplied by the distance transported. Vector Transmission bills for the amount of reserved capacity.

F7 Revenue from gas quantities is modelled using gas demand forecasts from a study by Concept Consulting Limited for the Gas Industry Company.[146] We have modelled the other tariff components used by extrapolating historical trends in these components forward, except for Vector Transmission where we used a forecast from Concept.

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[146] Concept Consulting Group Limited, *Gas Supply and Demand Scenarios 2012 - 2027, August 2012*. The paper and the model files are available at http://gasindustry.co.nz/work-programme/information-projects/gas-supply-and-demand-scenarios-2012-2027-0.

Changes to our approach since our August 2011 discussion paper

F8 The approach we propose is different from the approach we proposed in our August 2011 discussion paper.[147] In that paper, we proposed to model constant price revenue by tariff type using economic and demographic drivers, such as GDP and population.

F9 Our proposed approach no longer uses GDP and population forecasts and instead models revenue by types of user and takes gas quantity forecasts from a study by Concept for the Gas Industry Company. The use of forecasts prepared for the Gas Industry Company was also suggested by MDL in a previous submission.[148]

F10 We have updated our approach in light of our thinking for electricity distribution, views expressed by submitters, and other new evidence. In particular, work undertaken by Concept shows that in New Zealand there does not appear to be a clearly identifiable relationship between GDP and population and gas demand that would be useful for forecasting purposes. For example, Concept shows that for some sectors there is an apparent negative correlation between GDP and gas demand.[149]

F11 Submitters' views on the most appropriate approach varied. However, there appeared to be broad agreement that an approach relying on high level drivers such as GDP growth and population is not appropriate.

F12 Modelling for different users and by different tariffs allows us to tailor forecasts to each of the distributors. For example, GasNet submitted that some of its large customers only pay fixed connection charges and do not pay charges that vary with gas quantity and as such would need to be modelled separately. [150]

F13 MGUG submitted that a sufficiently robust projection of demand for transmission can be developed based on analysis of historical trends at various gas transmission injection and receipt points, particularly for a two-year period. It suggested that gas transmission businesses should know the main demand drivers at each off-take point

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147 Commerce Commission, *Setting of Starting Prices for Gas Pipeline Businesses under the Initial Default Price-Quality Path,* 22 August 2011.

148 MDL, *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.

149 Concept Consulting Group Limited, *Gas Supply and Demand Scenarios 2012 – 2027,* August 2012, pp 62-66.

150 GasNet, *Submission on Setting Starting Prices for the Initial Default Price-Quality Path for Gas Pipeline Businesses*, 28 September 2011, para 23.

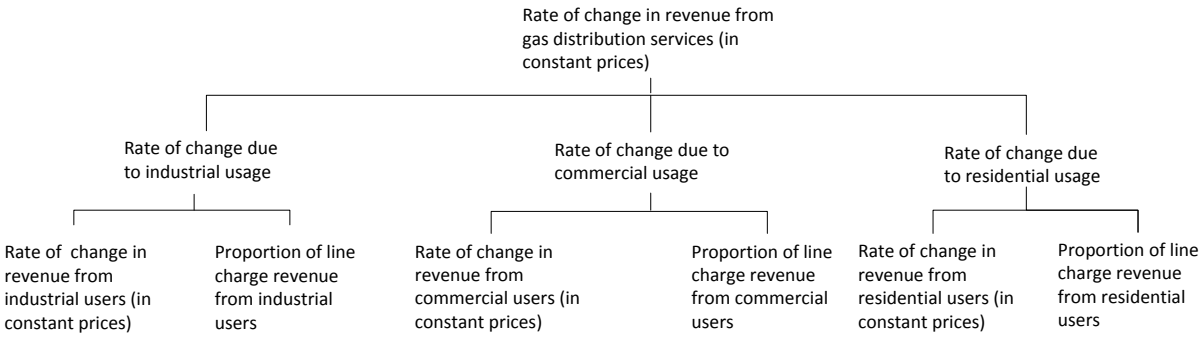
and can adjust for the few key customers who have a disproportionate effect on overall system volume.[151]

F14 MDL submitted that it does not expect growth in gas demand to be linked to GDP or population growth. Demand is driven by demand from large industrial users and by electricity generators. The demand from generation in turn depends on weather.[152]

We separately model revenue from three types of users and by type of billed quantity for gas distributors

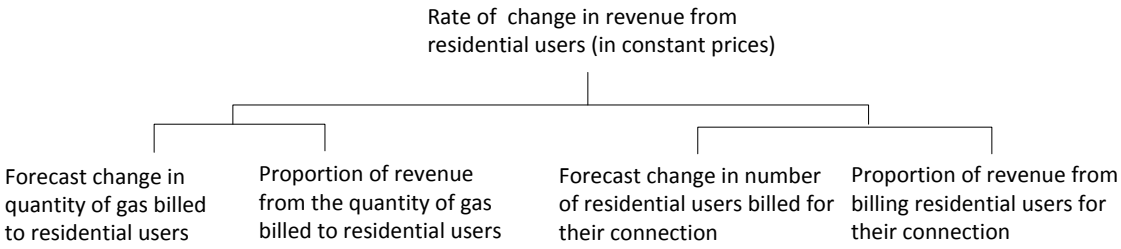
F15 The figure below gives an overview of our approach involving modelling of three main user groups - residential, industrial and commercial users.

Figure F1: Approach to modelling constant price revenue for gas distributors



F16 The rates of change in revenue from each type of user are further broken down into the two types of billed quantities that distributors use. This breakdown is shown in the figure below for residential users, and a similar breakdown applies to industrial and commercial users.

Figure F2: Approach to modelling rate of change in revenue from residential users



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151 Major Gas Users Group, *Re: Setting of Starting Prices for Gas Pipeline Businesses under the Initial Default Price Quality Path - Commerce Commission Discussion Paper*, 28 September 2011, paragraph 6(b).

152 MDL, *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.

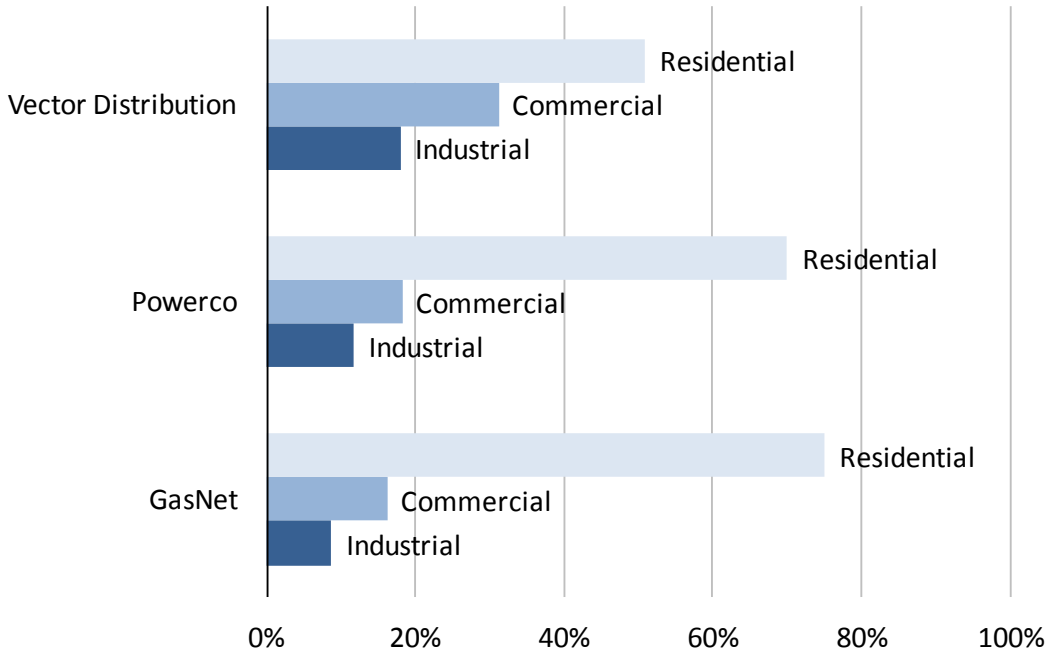
F17 Below we explain the role of each of the elements outlined above, how they fit together and our reasons for adopting the proposed approach. Our calculations are set out in detail in the spreadsheets published alongside this draft decision.

F18 Vector, Powerco and GasNet base their tariffs on the quantities of gas distributed, and per connection charges. Distributors use different charges for different load groups.[153] Gas distributors group their customers with similar characteristics into load groups for billing purposes.

F19 We have grouped the information from each of the distributor's load groups into industrial, commercial and residential users. Our groupings and the basis for these groupings are explained in Attachment G.

F20 The figure below sets out the contribution to revenue from each user type to total revenue in 2011.

Figure F3: The contribution of user types to total revenue varies (2011)

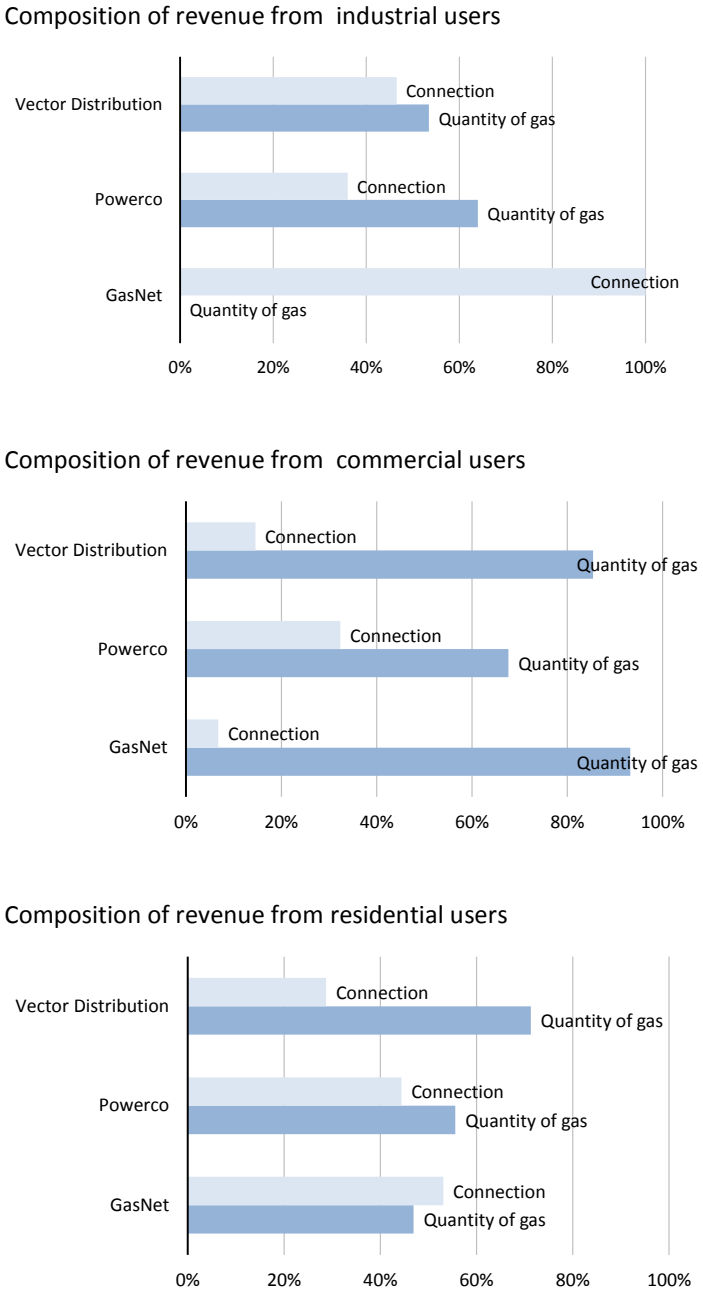


Source: Commission calculations using information provided by distributors.

F21 Our analysis of information from an information request shows that there is variation among suppliers in the amount of revenue they get from different types of quantities they bill for. The figure below illustrates the proportion of revenue suppliers get from each type of charge from industrial, commercial and residential users.

[153] Some distributors also have a regional differentiation in their charges. The information we used relates to the distributor overall.

Figure F4: Distributors use different combinations of billing quantities for different types of users



Source: Commission calculations using information provided by distributors.

F22 Suppliers choose what type of quantities they bill for. Our approach reflects information from each supplier on its 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.

Forecasting the change in quantity of gas billed to different user types

F23 Rather than developing our own forecasts of gas demand, and then using these to obtain forecasts of billed gas quantities, we propose to use gas demand forecasts from a study commissioned by the Gas Industry Company. Concept's study for the Gas Industry Company focuses mainly on the Vector Transmission system but also provides forecasts for gas distribution and the Maui pipeline.

F24 The factors that determine future gas demand (and supply) can result in large changes in gas price and demand. This means that in particular for gas transmission it is difficult to robustly forecast demand with precision. The study therefore develops gas demand and supply scenarios.

F25 Concept provides limited guidance on the most likely scenario, although it notes that:[154]

> In recent years New Zealand has moved into a position of greater gas availability, and this is being reflected in softer wholesale gas prices relative to earlier levels (albeit above the 'low gas price' scenario). Current indications are that these conditions are likely to continue for some years. Looking further ahead, it is more difficult to predict gas prices, and they could firm or soften depending on the rate of reserves additions versus usage. That said, any sudden major step-up in wholesale gas prices inside a five year period appears relatively unlikely, as the required preconditions would take some years to develop and would be unlikely to occur without warning.

F26 In our forecast we would like to use the most likely scenario, but Concept's study contains only limited evidence on this. In the modelling for the draft decision we therefore have adopted Concept's moderate gas price scenario. However, it appears that the most likely scenario is between the low and the moderate scenario. If, as Concept believe, gas prices for the next five years (and hence up until the end of the regulatory period) are lower than that, gas demand and constant price revenue would be higher than what we have assumed. We would like your views on any evidence that could be used to develop a most likely scenario.

F27 The gas forecasts in our draft decision are from the draft version of the model published on the Gas Industry Company website. It is possible that the final version of this study will become available in time for the final decision. We will consider for our decision whether to update our values in light of any changes in Concept's final study and submissions we receive in response to this draft decision.[155]

F28 We have assumed that the quantity of gas billed grows at the rate of forecast growth in gas demand in Concept's draft study.

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[154] Concept Consulting Limited, *Gas Supply and Demand Scenarios 2012 - 2027* August 2012, p. 5.

[155] Future gas demand is uncertain with ongoing discussion on the potential change in gas demand resulting from a change in activity in the aluminium sector.

F28.1 For industrial usage, we took the study forecasts for users that are billed on the basis of their time of use. [156]

F28.2 For residential usage, we took the study forecasts for users that are not billed on their time of use.[157]

F28.3 For commercial usage, the study does not provide separate values. We have assumed that forecast growth in commercial usage is the average of time of use and non-time of use forecast growth.

F29 We use the same demand forecasts for each distributor because Concept uses a single rate of change for all regions. We are not aware of readily available information that would allow us to make these forecast region specific and welcome submissions on this issue.

F30 The gas quantity forecast is specific to each distributor in that the forecasts for each type of user are weighted by their contribution to revenue in 2011, as laid out in Figure F4 above.[158]

F31 The table below shows the constant growth factors we have assumed for industrial, commercial and residential users.

Table F1: Forecast annual percentage change in demand by user type (2012 to 2019)

User type	Forecast change
Industrial	1.3%
Commercial	1.0%
Residential	0.6%

Source: Commission calculations using information from Concept Consulting Ltd.

F32 Further supporting information on how these growth factors are calculated is set out in Attachment G.

Forecasting the change in the number of users billed for their connection

F33 To forecast the change in revenue from per connection charges we have used historical trends. For each distributor and for each type of user, we calculated the

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156 The Concept study explains that time of use customers are industrial customers with demands typically greater than 10TJ per year.

157 The Concept study explains that non-time of use customers are predominantly mass-market small customers (both residential and small business).

158 The contribution of each user type to overall revenue in future years changes to the extent that different user types are forecast to grow at a different rates.

trend growth in the number of connections between 2008 and 2011.[159] We then assumed that this growth applies over the regulatory period. The use of historical trends to forecast the number of connections was also suggested by Powerco.[160]

F34 In our August 2011 issues paper we considered using population forecasts. However, the evidence we have reviewed suggests that population is not an accurate driver of gas demand.

F34.1 Vector submitted that installation control points change at a slower rate than population, the relationship is not constant over time and new population does not necessarily have the same uptake factors as historical population.[161]

F34.2 Concept shows that there does not appear to be a clearly identifiable relationship between population and gas demand in New Zealand that could be used for forecasting purposes. For example, Concept shows that non-time of use gas demand (ie, demand from residential users) has trended downward between 2002 and 2010, while population has steadily increased.[162]

F35 Vector proposed to make adjustments for these factors in the population forecasts (if used) or use installation control point forecasts from the asset management plans.[163]

F36 We consider that for the purpose of this reset the use of trend information is appropriate. For the next reset we will consider alternative data sources once evidence from information disclosures (including the disclosure of asset management plans) becomes available.

F37 The table below shows the trend growth in the number of connections for the different types of users for each distributor.

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159 The information and calculations are set out in the spreadsheet published alongside this paper.

160 Powerco, *Powerco submission on additional input methodologies for default price-quality paths: process and issues paper*, 27 January 2012, para 137.

161 Vector, *Submission to the Commerce Commission on the Setting of Starting Pricings for Gas Pipeline Businesses under the Initial Default Price-Quality Path*, 28 September 2011, para 148.

162 Concept Consulting Limited, *Gas Supply and Demand Scenarios 2012 – 2027*, August 2012, p. 66.

163 Vector, *Submission to the Commerce Commission on the Setting of Starting Pricings for Gas Pipeline Businesses under the Initial Default Price-Quality Path*, 28 September 2011 paras 148-149.

Table F2: Forecast annual percentage change in number of connections by user type (2012/13 to 2017/18)

User type	GasNet	Powerco	Vector Distribution
Industrial	-0.1	-6.1	-3.9
Commercial	0.2	1.7	1.7
Residential	0.3	0.6	1.9

Source: Commission calculations using information from Concept Consulting Limited.

Information used for modelling gas distribution

F38 The table below summarises, for each component, the information we used to model the change in constant price revenue for distributors.

F39 For further discussion on the information we use refer to Attachment G and the spreadsheet model we have published alongside this paper.

Table F3: Information for modelling revenue for gas distributors

Item	Information used	Source
Forecast change in quantity of gas billed to residential/ commercial/ industrial users	Industry-wide forecasts	Concept's scenario based study of gas demand and supply and Commission calculations
Forecast change in number of residential/commercial/ industrial users billed for their connection	Supplier-specific historical trends	Commission calculations based on information from s 53ZD requests
Proportion of revenue from residential/commercial/industrial users	Supplier-specific information on different categories of line charge revenue	Commission calculations based on information from s 53ZD requests
Proportion of revenue from the quantity of gas billed to each of the three types of users	Supplier-specific information on different categories of line charge revenue	Commission calculations based on information from s 53ZD requests
Proportion of revenue from billing each of the three types of users for their connection	Supplier-specific information on different categories of line charge revenue	Commission calculations based on information from s 53ZD requests

Gas transmission businesses' constant price revenue is modelled by billed quantities

F40 Under a revenue cap the change in constant price revenue does not affect the supplier's starting price. However, revenue forecasts are used to calculate the ΔD term used in determining initial allowable notional revenue (discussed further in Attachment L), and to illustrate the size of any starting price adjustment in percentage terms.

Our forecasts recognise that gas distribution and transmission services are related

F41 The approach to modelling we propose ensures, where possible, consistency between the transmission pipelines, and between transmission and distribution.

F42 Gas transmission services provided by MDL and Vector Transmission meet the demand from large users, which are often directly connected to the gas transmission network, such as electricity generation and large industrial users. The Vector and Maui pipelines also transport gas which is further distributed via gas distribution networks.

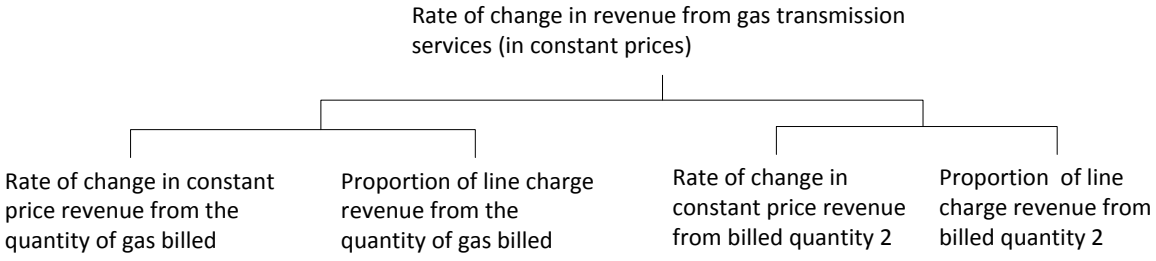
F43 Most of the gas transported in the Vector pipeline, is first transported by the Maui pipeline. For example, of the 90PJ transported by Vector in 2011, 81PJ went first through the Maui pipeline.[164] The Vector pipeline also has some gas directly put into it, eg, from the Kapuni gasfield.

F44 The Vector Transmission pipeline provides gas to large users directly connected to the network, and provides gas to the GasNet, Powerco and Vector distribution networks.

F45 In addition to transporting gas to the Vector pipeline, the Maui pipeline has several large customers directly connected to it. In total, MDL transported 133.5PJ of gas in 2011.

F46 The figure below gives an overview of our approach to modelling constant price revenue. This involves separate modelling of each of the two billed quantities used by transmission businesses.

Figure F5: Approach to modelling constant price revenue for gas transmission businesses



F47 Transmission businesses charge shippers for transmission services they provide. Vector Transmission and MDL have told us that they cannot trace back the amount of gas they bill for to the type of user, because their commercial relationship is with shippers. Unlike for gas distributors, we therefore have modelled gas quantities in aggregate and not broken down by user type.

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[164] PJ means petajoule, a measure of energy.

Billed quantities used by transmission businesses

F48 MDL recovers its revenue by billing shippers for the quantity of gas transported, and the amount of gas multiplied by the distance transported.

F49 Vector Transmission charges shippers for the quantity of gas transported and the amount of reserved capacity. [165]

F50 Our forecasts assume that the billed quantities used by each transmission business do not change over the forecast period. We also assume that the proportions of revenue from different billed quantities, which are used to combine the growth from different billed quantities into a single forecast of revenue in constant prices, are the same as in the base year.

F51 The table below sets out the contribution to revenue from each user type to total revenue in 2011.

Table F4: Contribution of user types to total revenues (2011)

	MDL	Vector Transmission
Quantity of gas billed	13%	44%
Quantity of gas multiplied by distance	87%	
Quantity of reserved capacity		56%

Source: Commission calculations using information provided by suppliers.

Forecasting the change in the quantity of gas billed

F52 The Concept study provides gas demand forecasts broken down into different user types. We have used this information to develop an overall gas quantity forecast for Vector Transmission and MDL respectively, and assumed that the change in gas demand is equal to the change in the quantity of gas billed.[166]

F53 The Concept report breaks gas demand into the following categories:

F53.1 time of use (ie, demand from industrial users);

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[165] Vector Transmission also has an overrun fee that is payable if a customer exceeds the reserved capacity. We have not separately modelled the amount of gas that exceeds the reserved capacity. Our modelling therefore assumes that revenue in constant prices is not driven by the quantity of gas exceeding reserved capacity. We consider this is a reasonable simplifying assumption as it is difficult to forecast this quantity.

[166] In practice there is a difference between the amount of gas transported in the pipeline and the amount of gas billed for. Vector Transmission may transport the same quantity of gas more than once within its system. The quantity of gas billed therefore exceeds the quantity of gas transported. For billing purposes MDL counts the amount of gas twice (because gas enters and leaves the pipeline) so that billed quantity is twice the amount of gas transported. Small differences may exist because of invoice adjustments that are not included in the Open Access Transmission Information System.

F53.2 non time of use (ie, demand from residential users);

F53.3 dairy;

F53.4 paper;

F53.5 meat;

F53.6 refining;

F53.7 steel;

F53.8 petrochemical demand for Vector Transmission;[167] and

F53.9 power generation for Vector Transmission.

F54 The study also provides a demand forecast for the North Island overall, which provides a forecast for overall petrochemical and power generation demand.[168] We used these forecasts to model the change in revenue from MDL's direct connects, ie petrochemical producers and power generators. The rest of MDL's gas quantity is assumed to grow at the same rate as that of Vector Transmission.

F55 The forecast growth of gas quantity in time of use and non-time of use demand is similar to that for gas distribution.[169]

Forecasting the change in other billed quantities

F56 To forecast MDL's quantity multiplied by distance transported we estimated historical trend growth between 2008 and 2011 in average distance gas is transported. We found that distance declined by 4.4% per year. We used this trend to develop a forecast consistent with the gas quantity forecast.[170]

F57 To forecast the change in Vector Transmission's reserved capacity (measured in maximum daily demand) we applied forecast peak week demand from Concept's study, which in the moderate supply scenario is 3.4% from 2011 to 2012 and around

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167 In Concept's study, this category is referred to as 'Other'. Concept explains that the 'other' category covers gates which have been classed by Vector as 'petrochemicals' and 'other' industrial sectors. Approximately 90% of 'other' demand is for the Frankley Rd system, principally relating to petrochemicals demand. Concept, *Gas Supply and Demand Scenarios 2012 – 2027*, August 2012, footnote 50.

168 Concept Consulting Group Limited, *Gas Supply and Demand Scenarios 2012 – 2027,* August 2012, p. 79 and the worksheet NI_Proj_Line in Concept's model.

169 However, we did not separately model gas demand from commercial users. For gas distributors we forecast the change in demand from commercial users as the average of time of use-demand and non-time of use demand.

170 We did this by extending forward the average distance in 2011 of 141 km by the trend growth, and multiplying the series by the gas quantity forecast.

0.26% thereafter.[171] This assumes that weekly peak demand is a reasonable proxy for reserved maximum capacity.

F58 The effect of weekly maximum demand on capacity requirement may differ from daily maximum demand. Over a period of less than one week the stores of gas contained in the pipeline can meet short term requirements without additional injection of gas. Gas-powered electricity generation plants can have high demand swings within a week (eg, caused by intermittent cold days).

F59 Perhaps more importantly, Concept forecasts actual demand, whereas Vector bills for reserved capacity, which may or may not be used fully by the shippers who reserve it. This means that reserved capacity may grow faster or slower than actual maximum capacity depending on the capacity bidding incentives and the behaviour of market participants.

F60 We also considered extrapolating historical trends in reserved capacity. However, reserved capacity grew by almost 8% per year between 2008 and 2011. We hesitate to assume a similar high growth would be achieved over the next regulatory period.

Information used for modelling gas transmission

F61 Table F5 summarises, for each component, the information we used to model the change in constant price revenue for gas transmission.

F62 For further discussion on the information we use, refer to the spreadsheet model we have published alongside this paper.

[171] Concept Consulting Group Limited, *Gas Supply and Demand Scenarios 2012 – 2027,* August 2012, p. 99, and worksheet AnProj_line_WIinter in Concept's model.

Table F5: Information for modelling change in constant price revenue for distributors

Item	Information used	Source
Forecast change in different quantities of gas for different demand types	Supplier-specific forecasts	Concept's scenario-based study of gas demand and supply, and Commission calculations
Forecast change in quantity of gas multiplied by distance transported (MDL)	Supplier-specific historical trends	Commission calculations based on information from s 53ZD requests, Concept's scenario-based study, and Commission calculations
Forecast change in reserved capacity (Vector Transmission)	Supplier-specific historical trends	Commission calculations based on information from s 53ZD requests
Proportion of revenue from different billed quantities	Supplier-specific information on different categories of line charge revenue	Commission calculations based on information from s 53ZD requests

Attachment G: Other information used for constant price revenue growth forecast

G1 This attachment sets out further details on the information for gas distribution we used in modelling revenue. The model, including all the information we have taken from Concept's study for gas distribution and transmission has been published alongside this paper.

Groupings of distributors' load groups into three types of users

G2 As explained in Attachment F, to model constant price revenue for distributors we have grouped information on distributors' load groups into industrial, commercial and residential users. These mappings are then used in the modelling, to calculate:

G2.1 the proportion of revenue from industrial, commercial and residential users (Figure F3); and

G2.2 the proportion of revenue for each user type, in turn split into the proportion of revenue from the quantity of gas billed, and from per connection charges (Figure F4).

G3 The table below sets out the mapping of load groups to industrial, commercial and residential usage for GasNet.

Table G1: Groupings of GasNet's load groups into industrial, commercial and residential

Industrial	Commercial	Residential
C12323	M142	M6
C12328	M200	M12
C12329	M23	
C12337	M33	
C14688	M43	
C14691	M43P	
C16459	M450	
C17499	M85	
C18637	M85T	
C19475	CNG	
C21967		
C26262		
C26443		
C26444		
C26779		
C31266		

G4 The table below sets out the mapping of load groups to industrial, commercial and residential usage for Powerco.

Table G2: Groupings of Powerco's load groups into industrial, commercial and residential usage

Industrial	Commercial	Residential
G30	G12	G06
G40	G14	G11
	G16	
	G18	

G5 The table below sets out the mapping of load groups to industrial, commercial and residential usage for Vector Distribution.

Table G3: Groupings of Vector Distribution's load groups into industrial, commercial and residential usage

Industrial	Commercial	Residential
Commercial >200 scm/h	Commercial <10 scm/h	Residential
Individual contracts	Commercial 10 scm/h < 40 scm/h	
	Commercial 40 scm/h < 200 scm/h	

Information for forecasting gas quantities for distributors

G6 As explained in Attachment F we have assumed that the quantity of gas billed grows at the rate of forecast growth in gas demand in the Concept study. Table F1 in Attachment F shows these forecasts of gas demand

G6.1 For industrial usage, we took the study forecasts for users that are billed on the basis of their time of use. [172]

G6.2 For residential usage, we took the study forecasts for users that are not billed on their time of use.[173]

[172] The Concept study explains that time of use customers are industrial customers with demands typically greater than 10TJ per year.

[173] The Concept study explains that non-time of use customers are predominantly mass-market small customers (both residential and small business).

G6.3 For commercial usage, the study does not provide separate values. We have assumed that forecast growth in commercial usage is the average of time of use and non-time of use forecast growth.

G7 The table below shows the inputs taken from the Concept study that we have used for each type of usage. Each table shows the rates of change in forecast gas demand, the proportion of demand the study assumes for that type of usage, and the weighted average forecast.

Table G4: Industrial usage forecast demand growth rates and weights (referred to as time of use demand in the concept study)

	Forecast rate of change %	Weight %
Space heating	-0.5	10
Water heating	2.0	5
Process heating	1.5	85
Weighted average forecast	1.3	

Source: Concept Consulting and Commission calculations.

G8 The table below shows Residential (non-time of use gas quantity) rates and weights.

Table G5: Residential usage forecast demand rates and weights (referred to as non-time of use demand in the concept study)

	Forecast rate of change per year	Weight
Space Heating	-0.5%	55%
Water Heating	2.0%	40%
Process Heating	1.5%	5%
Weighted average forecast	0.6%	

Source: Concept Consulting and Commission calculations.

G9 We have assumed that commercial forecast demand growth (ie, 1%) is the average of the industrial usage forecast (ie, 1.3% in Table G4 above) and residential usage (ie, 0.6% in Table G5 above).

Attachment H: Timing assumptions used to reach draft decisions

Purpose of this attachment

H1 This attachment explains the timing assumptions used to calculate present values when determining starting prices. It also refers to the proposed amendments to the customised price-quality path input methodologies.[174]

Our assumptions improve the accuracy of our modelling

H2 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.

H3 In modelling timing facts we have assumed that:

H3.1 opex is incurred in the middle of each year or part-year, on average. We have assumed that opex is spread throughout the year or part-year at regular intervals. This is close to equivalent in net present value terms to all costs being incurred in the middle of the year or part-year;

H3.2 capex is commissioned in the middle of each year or part year, on average. This reflects an assumption that assets are commissioned evenly throughout the year. We have made this assumption because any seasonal trends cannot be reliably forecast;

H3.3 tax costs are incurred in the middle of each year or part-year, on average.[175] 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.

H3.4 revenue is 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 somewhat later than mid-year on average; and

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174 Commerce Commission, *Consultation on Proposed Amendments to Input Methodologies: Cashflow timing for Customised Price-Quality Paths,* 10 August 2012.

175 Where the modelling is for a part-year, tax costs are assumed to occur in the middle of the part-year period.

H3.5 other income is received in the middle of each year or part-year, on average. This assumption is made because we cannot reliably forecast seasonality.

Alignment with timing assumptions used elsewhere

H4 We are currently reviewing submissions received on an amendment to the timing assumptions used in the input methodologies for customised price-quality paths.[176] The proposed amendments for customised price-quality paths adopt similar intra-year timing assumptions to those used in this paper for default price-quality paths.[177] The proposed amendment would address submitters' concerns by aligning the two types of paths.

H5 Submitters have also raised a concern that the intra-year timing assumptions add an additional level of complexity. 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.

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176 Commerce Commission, *Consultation on Proposed Amendments to Input Methodologies: Cashflow timing for Customised Price-Quality Paths,* 10 August 2012.

177 Under a customised price-quality path timing assumptions for commissioned and disposed assets are more accurately calculated to better meet suppliers' individual circumstances.

Attachment I: Why an additional allowance is only proposed for GasNet

Purpose of this attachment

I1 This attachment provides further information about why we have only proposed an additional allowance of $398k for GasNet under the initial default price-quality path.

How we calculate the potential additional allowance

I2 Before we explain why an additional allowance is unlikely to be appropriate for most suppliers, 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 6.

I3 The analysis contained in this attachment closely follows the analysis recently published in Attachment J of our paper on the revised draft reset of the default price-quality path for electricity distribution businesses.[178] Some parties will note that we have not addressed submissions received on Attachment J for the purposes of this paper. This is because we are yet to fully consider our position in light of these submissions. We will reconsider our position for the final decision on the initial default price-quality paths for gas pipelines services in light of submissions on this paper and those received on the reset of the default price-quality path for electricity distribution businesses.

An additional allowance has two impacts on consumers

I4 As noted in Chapter 6, an additional allowance for suppliers would have two impacts on consumers.

I4.1 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.

I4.2 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.

I5 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.

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[178] Refer: Commerce Commission, *Revised Draft Reset of the 2010-15 Default Price-Quality Paths,* 21 August 2012.

I6 To estimate what the appropriate adjustment would be, we have set up a simple mathematical model. This model measures the impacts with reference to the expected costs of a customised price-quality path, which are adjusted to reflect the probability of a proposal, and the expected additional costs to consumers under the default price-quality path, if an additional allowance is included.

I7 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

I8 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:

I8.1 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

I8.2 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.

I9 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

I10 Our model relies on some simplifying assumptions to help us understand the realities of when consumers will benefit from an additional allowance. However, 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 upfront.

The probability of a supplier proposing a customised price-quality path

I11 We link the probability of suppliers proposing a customised price-quality path to the likelihood of their 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.

I12 Revenue greater or less than the supplier requires before they propose a customised price-quality path can be analysed as a margin of error.[179] Our first simplification is

[179] We use the word error in its statistical sense.

that the margin of error is uniformly distributed. This means all possible actual outcomes are equally likely to occur.

I13 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; that is, half of suppliers will propose a customised price-quality path. Later, we consider the impact of relaxing this assumption with a more realistic view.

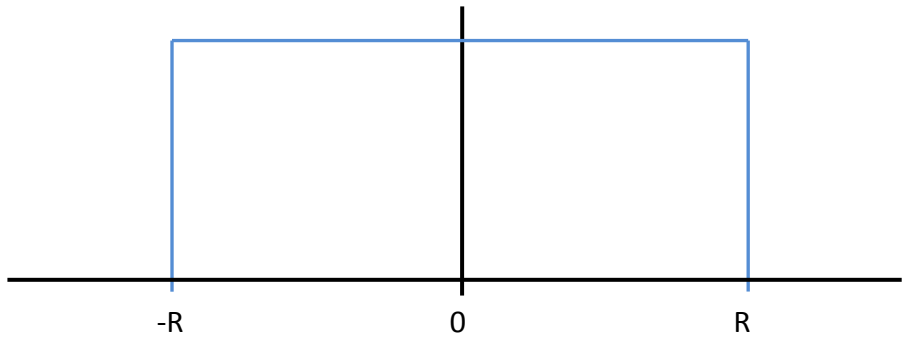
I14 These simplifying assumptions can be expressed in terms of a margin of error, R:

I14.1 Where R is negative, a supplier will propose a customised price-quality path.

I14.2 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.

I15 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 in Figure I1.

Figure I1: Uniform probability density function for error



Cumulative probability of a supplier proposing a customised price-quality path

I16 We can express the probability of a supplier proposing a customised price-quality path in terms of cumulative probability.[180] This tells us what the overall probability of

[180] The difference between a probability and a cumulative probability is that a probability gives the chances of a specific outcome occurring (eg, for example that the default price-quality path is precisely correct), while a cumulative probability gives the chances of an outcome a less specific outcome occurring (eg, 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.

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.

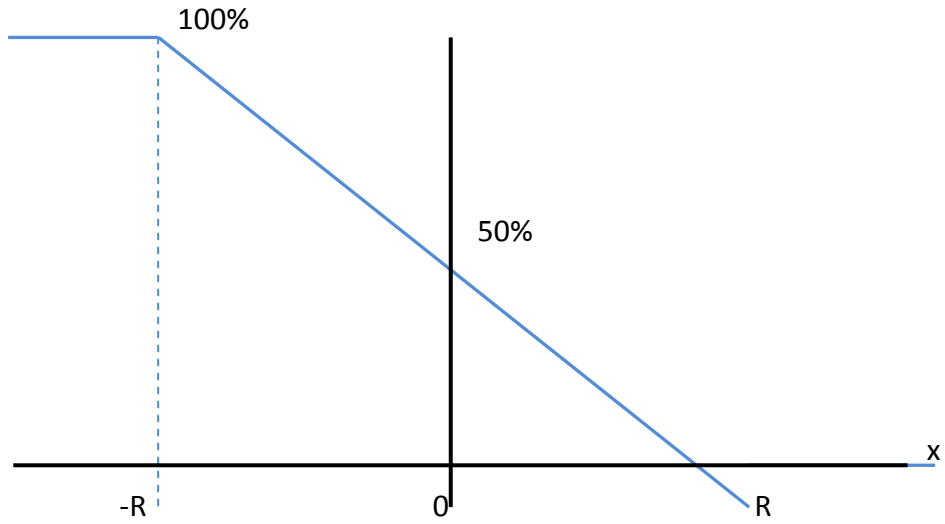
I17 The cumulative probability function for this uniform distribution is:[181]

Equation 1

$$F(x) = \frac{-x + R}{2.R}$$

I18 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 I2 below.

Figure I2: Cumulative probability of a supplier proposing a customised price-quality path with respect to an additional allowance 'x'



I19 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

[181] This is the cumulative probability function for a simplified uniform distribution given our expected value of zero and symmetry in the margin of error.

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.[182]

I20 This 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 will be beneficial to consumers.

Modelling an optimal adjustment which benefits consumers

I21 We need to calculate an optimal value for x which minimises the total of the following costs.

I21.1 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.

I21.2 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.

I22 The expected cost of a customised price-quality path to consumers can be denoted by:

$$E(Cost\,of\,a\,CPP) = F(x).C$$

I23 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.

I24 The expected cost of the additional allowance to consumers can be denoted by:

$$E(Additional Cost\,of\,a\,DPP\ \ from\,an\,additional\,allowance) = (1 - F(x)).x$$

I25 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.

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[182] Another implication of this is that the adjustment x enters the cumulative probability function as a negative value.

I26 We therefore want to minimise the expected cost:

Equation 2

$$MinE(\text{cost}) = F(x).C + (1 - F(x)).x$$

I27 Substituting Equation 1 into Equation 2 gives:

$$MinE(\text{cost}) = \frac{(-x+R)}{2.R}.C + \left(1 - \frac{(-x+R)}{2.R}\right).x$$

I28 We can expand the right-hand terms to:

$$MinE(\text{cost}) = \frac{-x.C}{2.R} + \frac{C}{2} + x + \frac{x^2}{2.R} - \frac{x}{2}$$

I29 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.

$$\frac{\partial E(\text{cost})}{\partial x} = -\frac{C}{2.R} + 1 + \frac{2x}{2.R} - \frac{1}{2}$$

I30 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

$$x = \frac{C - R}{2}$$

I31 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

I32 Equation 3 has two main implications.

I32.1 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.

I32.2 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.

I33 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:

I33.1 where prices are too low, suppliers have a fallback position of a customised price-quality path; or

I33.2 if prices are set too high, consumers have no such fallback position.

I34 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 be better off if the supplier proposed a customised price-quality path. This is because costs could then be assessed more accurately.

I35 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 suppliers for the initial default price-quality path

I36 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

I37 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:

I37.1 the results of modelling each supplier's revenue requirement using our forecasts; and

I37.2 the results of modelling each supplier's revenue requirement using the supplier's own information.

I38 The difference between these two figures, assessed in present value terms over the regulatory period, provides the margin of error referred to in the remainder of this attachment.[183]

[183] In practice, this margin of error may underestimate the true margin of error, unless the supplier's forecast represents the true upper bound on the feasible range of forecasts.

Our estimates of the margin of error for each supplier

I39 Table I1: shows the indicative margin of error that we have estimated for each supplier.

Table I1: Estimated margin of error in forecasts

Supplier	Commission forecast ($m)	Supplier forecast ($m)	Margin of error ($m)
GasNet	16.1	16.8	0.7
Powerco	182.2	185.7	3.5
Vector Distribution	264.2	277.6	13.4
Vector Transmission	335.6	385.0	49.4
Maui Development Limited	139.6	167.9	28.2

I40 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 modelling, or inaccuracies in the supplier's forecasts. Rather, the results indicate how far our modelling could lie from the true value.

The implications of a negative margin of error

I41 If there were to a supplier for which there was a negative margin of error (which there currently is not), then there would be 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 modelling.

The implications of large margins of error

I42 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 Vector Transmission or MDL, the potential savings to consumers (of $2.5m) need to be laid against the potential cost to consumers of avoiding a proposal. In these cases, the cost to consumers of avoiding the proposal is over $20 m.[184]

[184] $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, eg, 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.

I43 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

I44 In the case of the smallest margins of error, we have used the formula derived in paragraphs I21 to I31 above, to find that an additional allowance of between $0 and $400k might be appropriate for GasNet.

I45 The upper bound on the additional allowance was calculated by making the following simplifying assumptions:

I45.1 The upper bound on the cost of a customised price-quality path for GasNet would be around $1.5m.

I45.2 The probability of either supplier making a proposal for a customised price-quality path is 50%, when in practice the probability is likely to be far lower.

I46 For GasNet we are satisfied that the additional allowance required to avoid the prospect of a customised price-quality path may promote the long-term benefit of GasNet's consumers. This is because the cost of a customised price-quality path proposal is relatively large in the case of GasNet, and would therefore impose a disproportionately high cost on GasNet's consumers.

I47 Consequently, we propose to include an additional allowance for GasNet.

The impact of making more realistic assumptions about the probability of a proposal

I48 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 the probability of proposing a customised price-quality path is lower than 0.5.

I49 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 $\beta = \frac{R}{2}$. Then our 'optimal' equation (equation 3) becomes $x = \frac{C - R + \beta}{2}$. This also implies the additional allowance cannot be greater than $\frac{R}{2}$, as any value above this point cannot reduce the probability of a proposal any further.

I50 For GasNet this would cap the additional allowance to $350k and indicates a lower level of additional allowance should be considered. Given we do not know whether a probability of 25% is more realistic than 50% and the relatively small amount of revenue this concerns, we do not propose applying this methodology.

Varying the probability distribution

I51 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.

I52 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 J: Definition of distribution and transmission services

Purpose of this attachment

J1 This attachment explains how we have defined distribution and transmission services.

Distribution and transmission services are defined in the input methodologies

J2 Under the input methodologies, both gas transmission and gas distribution services are defined as meaning any gas pipeline services (as defined in s 55A of the Act) supplied across a network, with 'network' being defined differently for each type of service.

J3 The gas transmission input methodology defines the relevant network as:[185]

> ...the high pressure transmission pipeline systems under the control of one person between the place where gas enters those transmission pipeline systems (commonly referred to as a 'receipt point') and the place where gas exits them, provided that where the place of exit is a delivery point to a distribution network owned by the same person who owns the transmission pipeline system in question, the delivery point is the place specified by that person

and where 'person' has the same meaning as defined in s 2 of the Act.[186]

J4 For gas distribution services, the input methodology defines the relevant network as:[187]

> …the system used to distribute gas to a consumer, comprising pipelines and associated fittings between-
>
> (a) a delivery point from a transmission network; and
>
> (b) the point of supply, provided that where the pipelines and associated fittings are owned by the same person who owns the relevant transmission network, the delivery point is the place specified by that person

and where the terms 'consumer' and 'fittings' have the same meanings as defined in s 2(1) of the Gas Act 1992, and a 'point of supply' has the same meaning as specified in regulation 5 of the Gas (Safety and Measurement) Regulations 2010.

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185 Commerce Commission, *Commerce Act (Gas Transmission Services Input Methodologies) Determination 2010*, 22 December 2010, p. 15.

186 Section 2 of the Act defines a person as being the following: "*Person – includes a local authority, and any association of persons whether incorporated or not*."

187 Commerce Commission, *Commerce Act (Gas Distribution Services Input Methodologies) Determination 2010*, 22 December 2010, p. 15.

J5 As the Act excludes meters from the definition of gas pipelines, our draft decision is that a gas distribution network is clearly defined in the IMs as everything (from the 'point of delivery' from the transmission network) up to the gas measurement system (GMS) outlet point, less the GMS itself.

Definition of delivery point and receipt point

J6 Vector argued that the 'delivery point' and the 'receipt point' on a transmission network are not defined. It considers the non-definition of a delivery point on the transmission network has flow-on implications for the definition of a distribution network. [188]

J7 We note and appreciate that the general intent of Vector's submission was to ensure greater specificity in the definitions of gas distribution and gas transmission networks. However, in this instance, we consider that the relatively non-prescriptive definition of 'delivery point' and 'receipt point' between gas distribution and transmission networks is justified as ownership arrangements between separate distribution and transmission parties will naturally define where this demarcation should be. As we are not privy to these ownership arrangements, we do not want to impose a level of specificity on the precise demarcation point (between receipt point and delivery point) as this may impose an inappropriate definition for the two affected parties. [189]

J8 Where the point of delivery and the receipt point affect the same company or a related party, we consider that it is most efficient to allow the company or related party in question to determine the demarcation point, providing this separation is consistent and does not result in the duplication of assets as being both transmission and distribution assets.

Treatment of related companies

J9 Vector also submitted that related companies should not be captured by the definition of a 'person'.[190]

J10 This is relevant for Vector because Vector Limited owns the Auckland gas distribution network and Vector Gas Limited owns their gas transmission network and North Island gas distribution network.

J11 We note that the input methodologies state that for a transmission network:

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188 Vector Limited, *Submission on Initial Default Price-Quality Path for Gas Pipeline Businesses: Discussion Paper*, 27 May 2011, pp 29-30, paras 134-143

189 For the purposes of this paper, 'delivery point' is in relation to a gas transmission delivery point and 'receipt point' is in relation to a gas distribution receipt point.

190 Vector Limited, *Submission on Initial Default Price-Quality Path for Gas Pipeline Businesses: Discussion Paper*, 27 May 2011, pp 29-30, paras 140-143.

where the place of exit is a delivery point to a distribution network owned by the same person who owns the transmission pipeline system in question, the delivery point is the place specified by that person.

J12 Vector asserts that this definition would only apply to the transmission and distribution network owned by Vector Gas Limited, ie, the non-Auckland distribution/transmission relationship.

J13 We consider that Vector is best placed to be able to determine the appropriate demarcation point between Vector Limited and Vector Gas Limited, either through the ownership arrangements between the two companies, or at the discretion of Vector.[191]

[191] We consider that this in-principle position would not just apply to Vector but would remain the same should another party own and operate transmission and distribution network assets.

Attachment K: Information gathering requests

Purpose of this attachment

K1 This attachment explains why changes were required to the information we gathered from suppliers.

Changes made to information provided by suppliers

K2 A number of changes have been made to the information we gathered from suppliers. Table K1 below sets out the changes, including our reasons. Additional issues, not detailed in Table K1, were identified by the Commission. Feedback was provided to suppliers regarding these additional issues. However as they were not deemed material, no resubmission was required.

Table K1: Changes made to disclosed information

Supplier	Type of Information	What we have changed	Reason for change
Maui Development Limited	Commissioned assets	Amended to be internally consistent within template	Sum of closing RAB values of commissioned assets for the disclosure year 2012 ($000) of 299,765 is not consistent with Schedules A4 and A5 Commissioned Assets ($000) of 67.
Maui Development Limited	Insurance cost	2012-2017 insurance cost information	The 2012 actual insurance amount excluding natural disasters has been recalculated by applying the Vector Transmission percentage increase between 2012 and 2013. This calculated insurance amount excluding natural disasters has been held constant in the following years. We have categorised any increase on this amount as an increase due to natural disasters.
GasNet	Revenue statistics	Schedule C	Schedule C appears to be in $ as opposed to $000s.
Vector Distribution, Vector Transmission and GasNet	Opening RAB values	Sum of opening RAB values—disclosure year 2011 and sum of opening RAB values—disclosure year 2010	Removed disallowed asset value adjustments from GDB's disclosed data (as recommended by Nel Consulting Limited – 04/10/12 draft report).
All suppliers	Other regulated income	2008 – 2011 other regulated income	Calculated as the four-year average, except for Vector Transmission, where the 2011 value was omitted.

Proposed asset value adjustments independently reviewed

K3 As part of complying with the information requests, those suppliers that elected to undertake an asset adjustment process were required to provide a report from an independent engineer. The Commission engaged Nel Consulting Limited (NCL) to review and provide advice on the engineering reports submitted to support the asset adjustments. NCL concluded that all suppliers complied with the requirements except where detailed above in Table K1.

Scope of regulated services

K4 Powerco queried the scope of gas pipeline services in its submission to the November 2011 draft decision.[192] Suppliers were required to provide information on revenue (and costs) relating to the provision of gas pipeline services. We have assumed that the information provided by suppliers reflect the scope of regulated gas pipeline services as set out in Part 4 in s 55A and that suppliers applied the relevant input methodologies. We have used this revenue information to set the initial price path.

192 Powerco, *Initial Default Price-Quality Paths for Gas Pipelines Businesses: Draft Determination and Reasons Paper,* 19 December 2011, pp 7-8.

Attachment L: Assessing compliance of the initial default price-quality paths

Purpose of this attachment

L1 This attachment provides an overview of, and reasons for, the compliance obligations that we have proposed in our draft determination.

Key dates for compliance matters

L2 This section sets out the proposed assessment periods for which suppliers must demonstrate compliance and the compliance reporting dates for those assessment periods.

Assessment periods aligned with pricing years for each supplier

L3 We propose to align assessment periods with suppliers' existing pricing years. This will help to simplify compliance, as a supplier will have to demonstrate compliance using only one set of prices in any assessment period.[193]

L4 On an ongoing basis we will require:

L4.1 all suppliers (other than MDL) to demonstrate compliance with their respective price paths and quality standards for the year 1 October to 30 September; and

L4.2 MDL to demonstrate compliance with its price path and quality standards for the year 1 July to 30 June.[194]

L5 As the initial regulatory period is four years and three months in duration, the assessment periods will not perfectly align at the start and end of the regulatory period.

L5.1 For all suppliers other than MDL, we propose that the initial assessment period is the 15 month period 1 July 2013 to 30 September 2014. We consider that this is a better option than having two separate assessment periods of three months and 12 months. Our proposed approach avoids two

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[193] Our previous draft decision was to align the assessment periods for all suppliers. This revised draft decision affects MDL only. We do not consider there are any significant disadvantages of aligning MDL's assessment periods with its existing pricing years.

[194] MDL most recently changed its tariffs on 1 July 2012, and these will remain in place until at least 30 June 2013. However, MDL stated that it could change its existing pricing year. For example, when we were intending that the initial default price-quality paths would commence in 2012, MDL submitted that it expected to leave its tariffs in place until 30 September 2012, and set new tariffs from 1 October 2012 (subject to MDL Board approval). Refer to: MDL, Submission on Draft Reasons Paper for, *Initial Default Price-Quality Paths for Gas Pipeline Businesses,* 19 December 2011.

potential price changes at the beginning of, and immediately following, the initial three-month period and minimises compliance costs.

L5.2 For MDL we propose that the final assessment period is the three-month period 1 July 2017 to 30 September 2017.

Different compliance reporting dates for price and quality

L6 The proposed compliance reporting dates for each assessment period are set out in the tables below. In general, we propose that suppliers will demonstrate compliance with their:

L6.1 price path, just after the supplier sets its prices;[195] and

L6.2 quality standards, following the end of each assessment period.

L7 To minimise compliance costs, where appropriate, we have tried to align the compliance reporting dates for price and quality as set out the tables below.

Table L1: Compliance reporting dates for all suppliers (other than MDL)

Assessment period	Assessment date (price path)	Assessment date (quality standards)
1 (1 Jul 2013 – 30 Sep 2014)	30 Nov 2013	30 Nov 2014
2 (1 Oct 2014 – 30 Sep 2015)	30 Nov 2014	30 Nov 2015
3 (1 Oct 2015 – 30 Sep 2016)	30 Nov 2015	30 Nov 2016
4 (1 Oct 2016 – 30 Sep 2017)	30 Nov 2016	30 Nov 2017

Table L2: Compliance reporting dates for MDL

Assessment period	Assessment date (price path)	Assessment date (quality standards)
1 (1 Jul 2013 – 30 Jun 2014)	30 Aug 2013	30 Aug 2014
2 (1 Jul 2014 – 30 Jun 2015)	30 Aug 2014	30 Aug 2015
3 (1 Jul 2015 – 30 Jun 2016)	30 Aug 2015	30 Aug 2016
4 (1 Jul 2016 – 30 Jun 2017)	30 Aug 2016	30 Oct 2017
5 (1 Jul 2017 – 30 Sep 2017)	30 Oct 2017	30 Oct 2017

[195] Where a supplier restructures its prices or completes a transaction during the assessment period, however, we will require the supplier to submit further compliance information at the reporting date immediately following the assessment period.

L8 In reaching our views on the timing of annual compliance, we have considered the submissions that we received last year in response to our draft decision. In particular, we consider that:

L8.1 two months, as provided by the proposed assessment dates, is sufficient to compile and audit compliance with the quality standards – Powerco advocated for a later date;[196] and

L8.2 having a disjoint between price and quality assessments is outweighed by more timely information that demonstrates whether suppliers' pricing decisions are compliant or not – GasNet submitted this disjoint would be unhelpful for interested persons such as shareholders and consumers.[197]

Our approach for assessing compliance with a price path

L9 This section sets out our approach for assessing compliance with a price path, given certain constraints in the input methodologies and how we determine starting prices.

Why we do not use maximum allowable revenues to assess compliance

L10 Our starting price model produces for each supplier a series of maximum allowable revenues that are equal to the supplier's forecast costs over the regulatory period. This series is smoothed to reflect the factors that affect each supplier's revenue during the regulatory period. In particular, a supplier's revenue depends on:

L10.1 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

L10.2 in the case of a price cap, changes in the quantities billed, which result in 'constant price revenue growth'.

L11 Ideally, this series of maximum allowable revenues would set the upper bound of the revenues that a supplier could earn. A supplier's actual revenue in any given period therefore would not exceed the corresponding maximum allowable revenue.

L12 If a supplier is unable to accurately forecast its quantities, however, there is no certainty that the supplier's actual revenue would remain less than or equal to the maximum allowable revenue. This is because actual revenues are quantity dependent. These quantities vary from year to year, and are not known when a supplier sets its prices for the upcoming year.

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196 Powerco Limited, *Initial Default Price-Quality Paths for Gas Pipelines Businesses: Draft Determination and Reasons Paper,* 19 December 2011, p. 7.

197 GasNet Limited, *Submission on Initial Default Price-Quality Paths for Gas Pipelines Businesses, Draft Reasons Paper,* 19 December 2011, p. 12.

Why we use allowable notional revenue and notional revenue

L13 We have chosen (through the respective specification of price input methodologies) to assess compliance using allowable notional revenue (a proxy for maximum allowable revenue) and notional revenue (a proxy for actual revenue). Consistent with the relationship between actual revenue and maximum allowable revenue, notional revenue should not exceed allowable notional revenue. These figures are 'notional' because the set of prices and corresponding quantities relate to different time periods.

L14 One of the primary reasons for choosing to use allowable notional revenue and notional revenue is to provide some certainty to suppliers that their pricing decisions will be compliant. In this case, certainty comes from requiring suppliers to set their prices and assess compliance using known quantities (ie, from a prior period).[198]

L15 For a revenue cap, allowable notional revenue grows each year by the allowed rate of change, ie, CPI-0%. Notional revenue is calculated using known quantities, therefore allowing suppliers to calculate its maximum prices for the upcoming year. As we are interested in limiting a supplier's revenues under a revenue cap, the supplier's prices may vary over the regulatory period depending on the year-on-year changes in quantities.

L16 For a price cap, the same quantities are used to calculate allowable notional revenue and notional revenue. By having the same quantities, prices (on average) increase each year by the allowed rate of change.

Our revenue calculations remove the effects of pass-through and recoverable costs

L17 Some costs that suppliers face may be passed through directly to consumers. This requires the regulatory controls to operate on revenues that exclude the effects of pass-through costs[199] and recoverable costs.[200] The maximum allowable revenues calculated in our starting price model, allowable notional revenue and notional revenue, therefore, are all net of pass-through and recoverable costs.

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198 We considered and rejected other alternatives to this type approach, such as allowing suppliers to forecast quantities and have a 'wash-up' for any under or over recoveries once quantities are known. We recognise that this may affect MDL's current price setting regime that includes a mechanism to adjust for under- and over-recoveries in a prior period.

199 Pass-through costs include Local Authority rates; Commerce Act levies (including Control of Natural Gas Services levies – distribution only); Gas Act levies; and Electricity and Gas Complaints levies (distribution only). Refer to clause 3.1.2 of the respective input methodologies.

200 Recoverable costs that are relevant to the initial regulatory period include claw-back amounts that may be applied; and balancing gas costs or credits, which is subject to an approval process (transmission only). Refer to clause 3.1.3 of the respective input methodologies.

L18 Ideally we would assess regulated prices or revenues separately from pass-through and recoverable costs. We have not taken this approach, however, as suppliers do not separate out these costs in their prices.

How we propose to treat certain components of the price path

L19 This section sets out how we propose to calculate CPI, and how pass-through and recoverable costs will be treated for both the price cap and revenue cap.

Calculating CPI

L20 CPI for any given quarter year is the consumer price index stipulated in the 'All Groups Index SE9A' as published by Statistics New Zealand, as defined in the specification of price input methodology for gas distribution and gas transmission.

L21 For both a weighted average price cap and total revenue cap, we propose to calculate the annual allowed inflation adjustment to prices/revenues using the equations in Box L1 and Box L2. There is a lag in the CPI series to provide suppliers with certainty of the annual allowed inflation adjustment prior to when they set their prices for an upcoming assessment period.

L22 These CPI equations are the same as what we have used to calculate the series of maximum allowable revenues for each supplier in our starting price model; we did, however, need to use forecast CPI values in our starting price model for some years. No adjustments to the CPI equations used for compliance are needed.

Box L1: Annual allowed CPI adjustment for all suppliers (other than MDL)

$$\Delta CPI_t = \frac{CPI_{Jun,t-2} + CPI_{Sep,t-2} + CPI_{Dec,t-1} + CPI_{Mar,t-1}}{CPI_{Jun,t-3} + CPI_{Sep,t-3} + CPI_{Dec,t-2} + CPI_{Mar,t-2}} - 1$$

where $CPI_{i,t}$ is the CPI for the quarter i of pricing year t

Box L2: Annual allowed CPI adjustment for MDL

$$\Delta CPI_t = \frac{CPI_{Mar,t-2} + CPI_{Jun,t-2} + CPI_{Sep,t-1} + CPI_{Dec,t-1}}{CPI_{Mar,t-3} + CPI_{Jun,t-3} + CPI_{Sep,t-2} + CPI_{Dec,t-2}} - 1$$

where $CPI_{i,t}$ is the CPI for the quarter i of pricing year t

Pass-through and recoverable costs should be known when suppliers set their prices

L23 We propose that suppliers use pass-through and recoverable costs amounts that are known in advance of any given assessment period (ie, not forecasted), when setting prices for that period. Therefore, these costs for any given assessment period:

L23.1 are the most recent actual costs that are known when the supplier sets its prices for the assessment period; it is not necessary , however, for each type of cost to have the same lag (ie, be incurred in the same 12-month period);

L23.2 where relevant, must correspond to the same length of time as the assessment period; eg, if the assessment period is 12 months in duration, the pass-through costs or recoverable costs will be for a 12-month period; and

L23.3 must not have already been passed through to, or recovered from, consumers by the supplier. Therefore, suppliers are allowed to pass-through costs that were incurred prior to the regulatory period to the extent that the costs have not already been passed through to, or recovered from, consumers.

The revenue cap compliance formula

L24 This section sets out how MDL's and Vector Transmission's allowable notional revenue and notional revenue are proposed to be calculated.

Revenue cap compliance formula for the first assessment period

L25 As discussed above, the overall compliance test is that notional revenue must not exceed allowable notional revenue (eg, see equation M(1) in Box L3). The formulas for calculating allowable notional revenue and notional revenue are different for MDL and Vector Transmission because their initial assessment periods span 12 months and 15 months respectively.

L26 Box L3 sets out the relevant compliance calculations for MDL. Equations M(2) and M(3) set out how MDL will calculate allowable notional revenue and notional revenue respectively.

Box L3: Calculations for the first assessment period (MDL)

$$ANR_{2013/14} \geq NR_{2013/14}$$ equation M(1)

$$ANR_{2013/14} = \frac{MAR_{2013/14} + (K_{2013/14} + V_{2013/14})}{\Delta D} - (K_{2013/14} + V_{2013/14})$$ equation M(2)[201]

where:

$ANR_{2013/14}$	is the allowable notional revenue for 2013/14.
$MAR_{2013/14}$	is the maximum allowable revenue for 2013/14, as specified in Table L3.
ΔD	is the change in constant price revenue for 1 Jul 2012 to 30 Jun 2013 and 1 Jul 2013 to 30 Jun 2014, as specified in Table L3.[202]
$K_{2013/14} + V_{2013/14}$	is the sum of all pass-through costs and recoverable costs for the 2013/14 assessment period.

$$NR_{2013/14} = \sum_i P_{i,2013/14} Q_{i,2011/12} - (K_{2013/14} + V_{2013/14})$$ equation M(3)

where:

$NR_{2013/14}$	is the notional revenue for 2013/14.
$P_{i,2013/14}$	is the ith price for 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.

L27 Notional revenue is calculated using known quantities, as discussed above. We have chosen to use quantities that relate to two years prior to the pricing year, as these are the most recently known quantities for a prior pricing period when prices are set.

L28 Allowable notional revenue is derived from maximum allowable revenue, as set out in equation M(2). Maximum allowable revenue for any given year is calculated using our best estimate of what quantities will be in that year. To be consistent with notional revenue that uses quantities from two years prior, we divide maximum allowable revenue by our estimate of the change in constant price revenue forecasts for the two years t-1 to t (ΔD). The derivation of this relationship is set out in Box L8.

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201 The derivation of this formula is discussed in Box L8.

202 Specifically, the constant price revenue rates for each of the years are multiplied together, eg, for MDL $\Delta D = (1 + \Delta CPR_{2012/13})(1 + \Delta CPR_{2013/14})$.

L29 Box L4 sets out the relevant compliance calculations for Vector Transmission.

Box L4: Calculations for the first assessment period (Vector Transmission)

$$0.25\times ANR_{2012/13} + ANR_{2013/14} \geq 0.25\times NR_{2012/13} + NR_{2013/14}$$ equation VT(1)

$$ANR_{2012/13} = \frac{MAR_{2012/13} + (K_{2012/13} + V_{2012/13})}{\Delta D} - (K_{2012/13} + V_{2012/13})$$ equation VT(2)

where:

$ANR_{2012/13}$	is the allowable notional revenue for 2012/13.
$MAR_{2012/13}$	is the maximum allowable revenue for 2012/13, as specified in Table L3.
ΔD	is the change in constant price revenue for the periods 1 Oct 2011 to 30 Sep 2012 and 1 Oct 2012 to 30 Sep 2013, as specified in Table L3.
$K_{2012/13} + V_{2012/13}$	is the sum of all pass-through costs and recoverable costs for 2012/13.

$$ANR_{2013/14} = ANR_{2012/13}(1+\Delta CPI)(1-X)$$ equation VT(3)

where:

$ANR_{2013/14}$	is the allowable notional revenue for 2013/14.
$ANR_{2012/13}$	is the allowable notional revenue for 2012/13.
ΔCPI	is the derived change in the CPI to be applied for 2013/14.
$K_{2012/13} + V_{2012/13}$	is the sum of all pass-through costs and recoverable costs for 2012/13.
X	is the X factor.

$$NR_t = \sum_i P_{i,t} Q_{i,t-2} - (K_t + V_t)$$ equation VT(4)

where:

NR_t	is the notional revenue for year t.
$P_{i,t}$	is the ith price for year t.
$Q_{i,t-2}$	is the quantity corresponding to the i^{th} price during year t-2.
$K_t + V_t$	is the sum of all pass-through costs and recoverable costs for year t.

L30 We use the same approach for Vector Transmission as we do for MDL, except there is an added complication of dealing with the 15-month assessment period. Allowable notional revenue for 2012/13 (equation VT(2)) and notional revenue (equation VT(4)) are equivalent to MDL's calculations.

L31 We have, however, split out calculations for allowable notional revenue and notional revenue for the first three months and last 12 months of the assessment period.

Vector Transmission will be compliant if the combined total of the notional revenue figures does not exceed the combined allowable notional revenue figures, as expressed by equation VT(1). As the assessment period will cover only three months (1 July 2013 to 30 September 2013) of the pricing year, allowable notional revenue and notional revenue for 2012/13 have been weighted to reflect this part-year contribution (ie, full-year values are multiplied by one-quarter).

L32 Allowable notional revenue for 2013/14 is calculated by multiplying the allowable notional revenue for the previous year by the industry-wide rate of change in price, ie, CPI-0%, where CPI is lagged by 18 months.

Table L3: Inputs for determining allowable notional revenue for the first assessment period (transmission)

Supplier	Maximum allowable revenue (MAR) $m	Constant price revenue growth (ΔD)
MDL	37.2	0.901
Vector Transmission	91.1	1.011

Revenue cap compliance formula for subsequent assessment periods

L33 Box L5 sets out the compliance calculations for both MDL and Vector Transmission for assessment periods subsequent to the first period.

L34 On an on-going basis, allowable notional revenue is adjusted each year for the annual change in CPI and the X factor for that assessment period. This is reflected in equation T(3).

L35 The MDL last assessment period covers the three-month period from 1 July 2017 to 30 September 2017. As this will cover only three months of a pricing period, the contribution of this period 1 July 2017 to 30 September 2017 needs to be weighted to only reflect its part-year contribution to both the calculations of allowable notional revenue and notional revenue. The weighting, however, is presentational only. This is reflected in equation T(2). This will mean that MDL's current pricing year will not align with the start of the next regulatory period.

Box L5: Revenue cap calculations for assessment periods other than the first

For all assessment periods (except MDL's last assessment period):

$$ANR_t \geq NR_t$$ equation T(1)

For MDL's last assessment period

$$0.25 \times ANR_{2017/18} \geq 0.25 \times NR_{2017/18}$$ equation T(2)

$$ANR_t = ANR_{t-1}(1 + \Delta CPI)(1 - X)$$ equation T(3)

where:

ANR_t	is the allowable notional revenue for year t.
ANR_{t-1}	is the allowable notional revenue for year t-1.
ΔCPI	is the derived change in the CPI to be applied during the period t.
X	is the X factor for the period t.

$$NR_t = \sum_i P_{i,t} Q_{i,t-2} - (K_t + V_t)$$ equation T(4)

where:

$P_{i,t}$	is the ith price for year t.
$Q_{i,t-2}$	is the quantity corresponding to the ith price during year t-2.
$K_t + V_t$	is the sum of all pass-through costs and recoverable costs for year t.

Price cap compliance formula

L36 This section sets out how gas distributors' allowable notional revenue and notional revenue are proposed to be calculated.

Price cap compliance formula for the first assessment period

L37 Box L6 sets out the compliance calculations for gas distributors in the first assessment period. Equation $D_1(1)$ sets out the overall compliance test, while equations $D_1(2)$, $D_1(3)$ and $D_1(4)$ set out how gas distributors will calculate allowable notional revenue and notional revenue for the first assessment period.

Box L6: Price cap for the first assessment period

$$0.25\times ANR_{2012/13} + ANR_{2013/14} \geq 0.25\times NR_{2012/13} + NR_{2013/14}$$ equation $D_1(1)$

$$ANR_{2012/13} = \frac{MAR_{2012/13} + (K_{2012/13} + V_{2012/13})}{\Delta D} - (K_{2012/13} + V_{2012/13})$$ equation $D_1(2)$

where:

$ANR_{2012/13}$	is the allowable notional revenue for 2012/13.
$MAR_{2012/13}$	is the maximum allowable revenue for the year 2012/13, as specified in Table L4.
ΔD	is the change in constant price revenue for the periods 1 Oct 2011 to 30 Sep 2012 and 1 Oct 2012 to 30 Sep 2013, as specified in Table L4.[203]
$K_{2012/13} + V_{2012/13}$	is the sum of all pass-through costs and recoverable costs for 2012/13.

$$ANR_{2013/14} = (\sum_i P_{i,2012/13} Q_{i,2011/12} - (K_{2012/13} + V_{2012/13}) + 0.25(ANR_{2012/13} - NR_{2012/13}))(1 + \Delta CPI)(1 - X)$$

equation $D_1(3)$

where:

$P_{i,2012/13}$	is the i^{th} price for 2012/13.
$Q_{i,2011/12}$	is the quantity corresponding to the i^{th} price during 2011/12.
$K_{2012/13} + V_{2012/13}$	is the sum of all pass-through costs and recoverable costs for 2012/13.
$ANR_{2012/13} - NR_{2012/13}$	is the difference between allowable notional revenue and notional revenue for 2012/13.
ΔCPI	is the derived change in the CPI to be applied during 2013/14.
X	is the X factor for 2013/14.

$$NR_t = \sum_i P_{i,t} Q_{i,t-2} - (K_t + V_t)$$ equation $D_1(4)$

where:

$P_{i,t}$	is the i^{th} price for year t.
$Q_{i,t-2}$	is the quantity corresponding to the i^{th} price during year t-2.
$K_t + V_t$	is the sum of all pass-through costs and recoverable costs for year t.

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203 Specifically, the constant price revenue rates for each of the years are multiplied together, ie, $\Delta D = (1 + \Delta CPR_{2011/12})(1 + \Delta CPR_{2012/13})$.

Table L4: Inputs for determining allowable notional revenue for the first assessment period (distribution)

Supplier	Maximum allowable revenue (MAR) $m	Constant price revenue growth (ΔD)
GasNet	4.4	1.009
Powerco	48.9	1.010
Vector Distribution	70.7	1.013

L38 We have split out calculations for allowable notional revenue and notional revenue for the first three months and then the 12 months of the first assessment period. Gas distributors will be compliant if the combined total of the notional revenue figures does not exceed the combined allowable notional revenue figures, as expressed by equation $D_1(1)$. As the assessment period will cover only three months (1 July 2013 to 30 September 2013) of the 2012/13 pricing year, allowable notional revenue and notional revenue for 2012/13 have been weighted to reflect this part-year contribution (ie, full-year values are multiplied by one quarter).

We propose that calculations will use quantities from two years prior to the pricing year

L39 We propose to use quantities that relate to two years prior to the pricing year when calculating notional revenue and allowable notional revenue (other than for 2012/13, which is calculated using equation $D_1(2)$) , as these are the most recently known quantities for a prior pricing period when prices are set.

How allowable notional revenue is calculated for 2012/13

L40 Allowable notional revenue for 2012/13 is derived from maximum allowable revenue, as set out in equation $D_1(2)$. The maximum allowable revenue for that year is calculated using our best estimate of what quantities will be in that year. To be consistent with notional revenue that uses quantities from two years prior, we divide maximum allowable revenue by our estimate of the change in constant price revenue forecasts for the two years 2011/12 to 2012/13 (ΔD).[204] The derivation of this relationship is set out in Box L8.

How allowable notional revenue is calculated for 2013/14 and subsequent periods

L41 Allowable notional revenue for 2013/14 (equation $D_1(3)$) and subsequent periods (equation equation Dx(2)) is calculated by multiplying the prices from the previous year by a corresponding set of quantities lagged by two years, and subtracting pass-through and recoverable costs and adding the 'revenue differential' (see the next section) from the previous assessment period. The resulting value is multiplied by

[204] It is possible to express allowable notional revenue for an initial assessment period as a percentage adjustment from prices in a previous period (eg, by using a formula to specify an X factor for that period).This expression simplifies to equation $D_1(2)$.

the industry-wide rate of change in price, ie, CPI-0%, where CPI is lagged by 18 months.

Why our allowable notional revenue includes a 'revenue differential term'

L42 The way in which we set allowable notional revenue for a weighted average price cap must be independent of the maximum weighted average price that may be charged during the regulatory period. For the electricity distribution default price-quality path we have used the 'revenue differential term' to do this. We propose to use a revenue differential term for the gas price caps as well (represented by the term 'ANRt-1-NRt-1' in equations $D_1(2)$ and $D_x(2)$).

L43 The revenue differential term is the difference between notional revenue and allowable notional revenue for the immediately preceding assessment period. This term is multiplied by 0.25 in equation $D_1(2)$ to reflect that the difference is for one quarter only.

L44 The revenue differential term is only relevant after an initial allowable notional revenue is determined; since at that point there is potential for divergence between the prices that are allowed to be charged and the prices that are actually charged. The revenue differential term is not designed to allow suppliers to recoup any under-recovery in a previous year.[205] This means suppliers can price up to the original path each year, but not above it to recover 'under-pricing' in a previous year.

Price cap compliance formula for subsequent assessment periods

L45 Box L7 sets out the compliance calculations for gas distributors in all assessment periods other than the first. The equations are largely the same as explained for the first assessment period. The differences are that:

L45.1 the overall compliance test is for 12 months, as given by equation Dx(2);

L45.2 allowable notional revenue, as given by equation Dx(2), is expressed as a general formula that applies for all assessment periods; and

L45.3 the revenue differential term equation Dx(2) is not multiplied by a factor of 0.25.

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[205] Refer to Commerce Commission, *2010-2015 Electricity Distribution Default Price-Quality Path Revenue Differential Term Amendment, Reasons Paper,* 30 November 2011.

Box L7: Price cap for assessment periods other than the first

$$ANR_t \geq NR_t$$ equation $D_x(1)$

$$ANR_t = (\sum_i P_{i,t-1}Q_{i,t-2} - (K_{t-1} + V_{t-1}) + (ANR_{t-1} - NR_{t-1}))(1 + \Delta CPI)(1 - X)$$ equation $D_x(2)$

where:

$P_{i,t-1}$	is the i^{th} price for year t-1.
$Q_{i,t-2}$	is the quantity corresponding to the i^{th} price during year t-2.
$K_{t-1} + V_{t-1}$	is the sum of all pass-through costs and recoverable costs for year t-1.
$ANR_{t-1} - NR_{t-1}$	is the difference between allowable notional revenue and notional revenue for year t-1.
ΔCPI	is the derived change in the CPI to be applied during the period t.
X	is the X factor for the period t.

$$NR_t = \sum_i P_{i,t}Q_{i,t-2} - (K_t + V_t)$$ equation $D_x(3)$

where:

$P_{i,t}$	is the i^{th} price for year t.
$Q_{i,t-2}$	is the quantity corresponding to the i^{th} price during year t-2.
$K_t + V_t$	is the sum of all pass-through costs and recoverable costs for year t.

Transactions / price restructures during an assessment period

L46 As discussed earlier in this attachment, we will require suppliers to demonstrate compliance with their price path, just after the supplier sets its prices. A supplier, however, may restructure or change its prices, complete an amalgamation, take over, merge with, or complete a transaction with another supplier during an assessment period. These changes would impact on the notional revenue and allowable notional revenue for that assessment period.

L47 If a supplier has undertaken any price change, structural or otherwise, which impacts on the calculation of notional revenue or allowable notional revenue, we propose that the supplier demonstrates that:

L47.1 the change has not increased its allowable notional revenue; and

L47.2 it remains compliant with the price path.

L48 Where it is not possible for a supplier to demonstrate the impact of the price restructure, price change or transaction on notional revenue or allowable notional

revenue we propose that suppliers can demonstrate compliance by using an alternative approach which has an equivalent effect.

Calculating allowable notional revenues using maximum allowable revenue

L49 We calculate initial allowable notional revenue values for all suppliers using maximum allowable revenues that we calculate in our starting price model, the change in constant price revenue for two years, and the pass-through and recoverable costs that will be passed on to consumers during the assessment period. Box L8 explains how we have derived the expression we use in equations M(2), VT(2) and $D_1(2)$.

Box L8: Using maximum allowable revenue to calculate allowable notional revenue

Maximum allowable revenues can be expressed in terms of allowed prices multiplied by a set of corresponding quantities (which we estimate). As we don't limit the amount of pass-through and recoverable costs that are passed on to consumers, we remove the pass-through and recoverable cost components that suppliers include in their prices. This is represented in equation (a).

$$MAR \equiv \sum_i P_{i,t} Q_{i,t} - (K_t + V_t)$$ equation (a)

Adding pass through and recoverable costs to both sides of equation (a) gives:

$$MAR + (K_t + V_t) = \sum_i P_{i,t} Q_{i,t}$$ equation (b)

We can then divide both sides of equation (b) by ΔD (which is the change in constant price revenue or change in quantities for the years t and t-1, $\Delta D = \Delta Q_{i,t-2} \Delta Q_{i,t-1}$).

$$\frac{MAR + (K_t + V_t)}{\Delta D} = \frac{\sum_i P_{i,t} Q_{i,t}}{\Delta D}$$ equation (c)

The effect of ΔD is that quantities on the right side of equation (c) are adjusted by the change in quantities for two years. This is represented by:

$$\frac{MAR + (K_t + V_t)}{\Delta D} = \sum_i P_{i,t} Q_{i,t-2}$$ equation (d)

Subtracting pass through and recoverable costs to both sides of equation (d) gives:

$$\frac{MAR + (K_t + V_t)}{\Delta D} - (K_t + V_t) = \sum_i P_{i,t} Q_{i,t-2} - (K_t + V_t)$$ equation (e)

The left side of the equation is what we have specified in our allowable notional revenue formulas, while the right side is how we specify notional revenue.

Actual growth rates may differ from our constant price revenue forecasts

L50 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).

L51 When we consulted on using a similar approach for the proposed electricity distribution reset, submitters suggested using a wash-up mechanism to reduce the risk of under-or over-estimating constant price revenue.[206] We welcome further views on a potential wash-up mechanism and how it would be implemented into the compliance formulas, including audit considerations.

We intend to apply claw-back to compensate consumers for over-recovery of revenues

7.9 We propose to apply claw-back to GasNet to compensate consumers for over-recovery of revenues over the period 1 January 2008[207] to 30 September 2012, as provided for under s 55F(2) of the Act. Applying claw-back will mean that GasNet has to lower its prices on a temporary basis, to compensate consumers for the over-recovery that occurred under the prices previously charged.[208]

How claw-back will be calculated

L52 We propose that the total amount of claw-back associated with the over-recovery by GasNet will be calculated using the equation in Box L9. The claw-back amount includes actual quantities in the calculation of "actual revenue" to reflect the actual cost to consumers of the over-recovery.

L53 The claw-back is represented as the difference between actual revenue and permitted revenue. Actual revenue is adjusted by a discount factor to reflect the time value of money. Permitted revenue is based on 2008 actual revenues adjusted for changes in actual CPI and quantities.

L54 One issue that we invite submissions on is the appropriate way to calculate the time value of money adjustment for:

L54.1 the present value of the GasNet claw-back amount; and

L54.2 recovery of the GasNet claw-back (see the next section: How claw-back will be recovered).

L55 Alternatives approaches for calculating the time value of money adjustments required include:

L55.1 the 50th percentile estimate of the cost of capital; or

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206 Refer to: Commerce Commission, *Revised Draft Reset of the 2010-15 Default Price-Quality Paths*, 21 August 2012, pp. 137-138.

207 Calculating the amount of claw-back required commencing 1 January 2008 does not breach the presumption against retrospectivity as the 1 January 2008 date is expressly stated in the Act.

208 As part of our June 2012 information request, we requested that suppliers demonstrate whether or not they had increased their weighted average prices above the forecast or actual movement in CPI from 1 January 2008 to 30 September 2012. GasNet was the only supplier to state that it had increased its weighted average prices by more than the CPI movement.

L55.2 the 75th percentile estimate of the cost of capital; or

L55.3 the cost of debt; or

L55.4 a time value of money adjustment reflecting the interest rates consumers face (for investment and for borrowing).

L56 The approach for calculating the claw-back amount is specific to this one-off transitional claw-back provision under s 55F(2) of the Act. The approach is not intended to create a precedent for the application of claw-back in other circumstances, as this will depend on the specific facts or circumstances.

L57 In calculating the claw-back amount, we propose to use the all groups index number of the CPI from NZ Statistics consistent with s 55F(2) of the Act. This differs from the CPI used in other situations for the initial default price-quality paths, where we have used the definition of CPI used in the respective input methodologies. Most notably the definition in the input methodologies adjusts the CPI series for the impact of October 2010 increase in GST, where as the definition in the Act does not.

How claw-back will be recovered

L58 Claw-back is to be treated as a recoverable cost, as set out under clause 3.1.3 (b) of the respective input methodologies. We are required to spread claw-back over time to minimise undue financial hardship to the supplier.[209]

L59 The claw-back will be allocated and applied by GasNet against all assessment periods within the regulatory period. The profile for application of the claw-back is provided in Box L9.

L60 We invite submissions on the appropriate way to calculate the time value of money adjustment required when allocating the recovery of the GasNet claw-back across the initial regulatory period. We have proposed in this paper that the 75th percentile estimate of the cost of capital be used as this is applied in determining GasNet's starting prices and maintains net present value neutrality.

Further information requests

L61 The provision for claw-back under s 55F(2) of the Act concerns the period 1 January 2008 to the date the determination is made. The weighted average price information provided by suppliers in response to our June 2012 information requests, however, only covers the period up to 30 September 2012. Suppliers, other than MDL, have since changed their prices from 1 October 2012 (ie, new prices applied from 1 October 2012).

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

L62 We expect to issue further information requests requesting additional weighted average price information for the period 1 October 2012 to 28 February 2013 (the anticipated date that the determination will be made).

L63 Where any other suppliers are assessed to have increased their weighted average prices by more than CPI claw-back may apply. We would use an approach consistent with that stated in Box L9 for calculating the claw-back required.

L64 All of the information may not be available to calculate claw-back over the period 1 October 2012 to the date the determination is made on the same basis as set out in Box L9. Where appropriate, we will consult on any further assumptions that may be required prior to the final determination.

Box L9: Claw-back calculations

Step 1.

The claw-back required (CR) for each of the periods (a) to (d) below, is calculated using equation CR(1):

(a) 1 Oct 2008 – 30 Sep 2009

(b) 1 Oct 2009 – 30 Sep 2010

(c) 1 Oct 2010 – 30 Sep 2011

(d) 1 Oct 2011 – 30 Sep 2012.

The period 1 January 2008 to 30 September 2008 is not included as any change in price occurred before this part period, and therefore are not compared to the movement in CPI.

$$CR_t = \text{Net Rev}_t(1+TVa)^n - ((\text{Net Rev}_{t-1}(1+\Delta CPI)(1+\Delta CPR))(1+TVa)^n) \quad \text{equation CR(1)}$$

where:

Net Rev_t	Revenue relating to regulated gas pipeline services less actual pass-through and recoverable costs for period t.
TVa	Time value of money adjustment for calculating the claw-back amount
ΔCPR	$\frac{P_{t-1}Q_t - P_{t-1}Q_{t-1}}{P_{t-1}Q_t}$
ΔCPI	$\frac{CPI_{Sep,t}}{CPI_{Sep,t-1}} - 1$
n	for the period (a) n = 5; (b) n = 4; (c) n = 3; and (d) n = 2

Step 2.

The total claw-back required (TCR) is the sum of the claw-back required (CR) for each period (a) to (d).

Step 3.

The total claw-back required (TCR) is then allocated against each of the assessment periods in the regulatory period. The amounts are adjusted by the time value of money adjustment for calculating the claw-back recovery required (TVr) and treated as a recoverable cost. We currently propose that the 75th percentile estimate of the cost of capital be used for recovery.

Assessment period		Claw-back to be recovered during the assessment period
First assessment period	1 Jul 2013 – 30 Sep 2014	$((TCR/4.25)*1.25)*(1+TVr)^1$
Second assessment period	1 Oct 2014 – 30 Sep 2015	$((TCR/4.25)*1)*(1+TVr)^2$
Third assessment period	1 Oct 2015 – 30 Sep 2016	$((TCR/4.25)*1)*(1+TVr)^3$
Fourth assessment period	1 Oct 2016 – 30 Sep 2017	$((TCR/4.25)*1)*(1+TVr)^4$

Our proposed process for approving balancing gas amounts – transmission only

L65 The gas transmission input methodologies require us to specify an approval process for balancing gas amounts[210] within the default price-quality path determination. We propose the following approval process:

L65.1 Each gas transmission business must submit an annual balancing gas statement for the Commission's approval by the dates set out in Tables L5 and L6 below.

L65.2 The statement must include the net cost or credit amount arising from the gas transmission business' purchase or sale of balancing gas that has not been allocated to a person shipping gas on the gas transmission business' network. The statement must also include relevant information and calculations used to derive the net cost or credit amount, including:

L65.2.1 the date, quantity, price and sale or purchase amount for each transaction; and

L65.2.2 the shipper name, date, quantity, price and credit or debit amount for each allocation of balancing gas to a shipper.

L65.3 The Commission will notify each gas transmission business of the net cost or credit amount to be treated as a recoverable cost by the dates set out in Tables L5 and L6 below.

L66 The tables below set out the relevant timeframes for this approval process. There is a consistent lag between when balancing gas amounts incurred and subsequently treated as a recoverable cost (approximately two years).

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[210] Commerce Commission, *Commerce Act (Gas Transmission Services Input Methodologies) Determination 2010*, 22 December 2010, p. 52.

Table L5: Timeframes relevant to approval of Vector's balancing gas amounts

Period where balancing gas amounts incurred	Due date for balancing gas statements	Decision date on balancing gas amounts	Assessment period where balancing gas amounts are a recoverable cost
1 Jul 2011 – 30 Sep 2012	By information request	As part of determination	1 (1 Jul 2013 – 30 Sep 2014)
1 Oct 2012 30 Sep 2013	15 Apr 2014	31 May 2014	2 (1 Oct 2014 – 30 Sep 2015)
1 Oct 2013 – 30 Sep 2014	15 Apr 2015	31 May 2015	3 (1 Oct 2015 – 30 Sep 2016)
1 Oct 2014 – 30 Sep 2015	15 Apr 2016	31 May 2016	4 (1 Oct 2016 – 30 Sep 2017)

Table L6: Timeframes relevant to approval of MDL's balancing gas amounts

Period where balancing gas amounts incurred	Due date for balancing gas statements	Decision date on balancing gas amounts	Assessment period where balancing gas amounts are a recoverable cost
1 Jul 2011 – 30 Jun 2012	By information request	As part of determination	1 (1 Jul 2013 – 30 Jun 2014)
1 Jul 2012 – 30 Jun 2013	15 Jan 2014	28 Feb 2014	2 (1 Jul 2014 – 30 Jun 2015)
1 Jul 2013 – 30 Jun 2014	15 Jan 2015	28 Feb 2015	3 (1 Jul 2015 – 30 Jun 2016)
1 Jul 2014 – 30 Jun 2015	15 Jan 2016	28 Feb 2016	4 (1 Jul 2016 – 30 Jun 2017)
1 Jul 2015 – 30 Sep 2015	15 Jan 2017	28 Feb 2017	5 (1 Jul 2017 – 30 Sep 2017)

Annual compliance statement and supporting information

L67 By the relevant annual compliance dates, suppliers will be required to provide an annual compliance statement stating whether or not they have complied with their price path and quality standards. This statement must be supported by relevant data and calculations (as set out in the respective draft determinations).

L68 In any circumstance where a supplier is unable to meet its quality standards, the supplier must provide further information explaining:

L68.1 their reasons for not meeting the standard;

L68.2 the effect of specific incidents on meeting the quality standard;

L68.3 a description of the incidents, including their nature cause and location; and

L68.4 the number of consumers affected.

L69 Each annual compliance statement must be accompanied by an independent audit report and Directors' certificate.

Customised price-quality path proposal dates

L70 We propose that a supplier may submit a customised price-quality path proposal at any time during the regulatory period before 1 October 2016, in accordance with s 53Q of the Act.[211]

[211] We previously indicated that we did not intend to set customised price-quality path application windows for gas pipeline services as part of the input methodologies determination process. Refer to: Commerce Commission, *Input Methodologies (Electricity Distribution and Gas Pipeline Services) Reasons Paper*, 22 December 2010, p. 625.