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Setting Transpower's individual price-quality path for 2015—2020

Reasons for draft decision

Date: 16 May 2014

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Executive Summary

Purpose of this paper

X1 This paper provides our draft decisions and supporting reasons for the following key components of the individual price-quality path for Transpower New Zealand Limited (Transpower) for the next regulatory period from 1 April 2015 to 31 March 2020 (referred to in this paper as RCP2).

- X1.1 How maximum revenues will be calculated and the effect of incentive mechanisms on Transpower's revenues.
- X1.2 The grid output measures, some of which make up the quality standards, for RCP2.
- X1.3 Transpower's operating expenditure (opex) and base capital expenditure (base capex) allowances for RCP2. These allowances are key components of the maximum revenues Transpower can earn.

X2 This paper also identifies areas that we expect Transpower to develop before submitting its next proposal in 2018 and suggests a number of business improvement initiatives for Transpower that may assist Transpower in making that proposal.

X3 We seek your feedback on the draft decisions we have reached in this paper as well as the suggested business improvement initiatives.

- X3.1 Submissions on our draft decision are due by 5pm on 27 June 2014.
- X3.2 Cross-submissions are due by 5pm on 11 July 2014.

Transpower is subject to individual price-quality path regulation

X4 We are required to set an individual price-quality path for RCP2. An individual price-quality path determines the maximum revenues Transpower can recover from consumers for its services, and sets the quality standards it must meet, for each year of the regulatory period. The price-quality path relates to the transmission services provided by Transpower and excludes system operator revenues.

X5 This is the second such path since the new Part 4 of the Commerce Act was introduced in 2008.

X6 Certain rules and processes, referred to as input methodologies, apply to how we set the price-quality path and how Transpower complies with it. Additional input methodologies which were developed over the course of RCP1 will apply for the first time in RCP2.

X7 For RCP2 we have used the first individual price-quality path as our starting point and have adapted it where appropriate. We see effective individual price-quality regulation as being a dynamic process over multiple regulatory periods, while being mindful of the importance of providing regulatory predictability. The regulation will necessitate changes as we better understand the effect of the incentives that we have set, and to respond to changing external conditions. We expect to continue to develop a suite of mechanisms that are of long-term benefit to consumers.

We received a quality and expenditure proposal from Transpower

X8 On 2 December 2013, we received Transpower's quality and expenditure proposal. The proposal includes Transpower's proposed operating expenditure (opex) and base capital expenditure (base capex) allowances, and grid output measures for RCP2.[1] These are important components of the individual price-quality path.

Our draft decisions

X9 Our draft decision follows a detailed review of Transpower's quality and expenditure proposal.

X10 We have engaged independent experts to help inform our decisions in certain areas. The independent experts were Strata Energy Consulting Limited (Strata) and Partna Consulting Limited (Partna). Our consultants' reports have been published alongside this paper.

How Transpower's maximum allowable revenue will be calculated

X11 We propose that Transpower's forecast maximum allowable revenue (MAR) will continue to be calculated using a building blocks approach with a 'MAR wash-up.' Pass-through and recoverable costs will be added to the forecast MAR to arrive at the forecast revenue; the amount which is recovered from consumers.

X12 Key changes that are proposed in the individual price-quality path from RCP1 to RCP2 are:

X12.1 incentive mechanisms will apply to the base capex and quality standards as provided for by the Capital Expenditure Input Methodology Determination;

X12.2 Transpower will be able to voluntarily under-recover from consumers if it wishes, without the under-recovery being 'washed-up' and recovered from consumers in a subsequent year;

[1] Transpower's proposal can be found on our website at http://www.comcom.govt.nz/regulated-industries/electricity/electricity-transmission/transpower-individual-price-quality-regulation/transpowers-price-quality-path-from-2015-to-2020/.

X12.3 economic value account (EV account) adjustments are able to be smoothed over more than one year to avoid price shocks;

X12.4 mid-year cash-flow timing assumptions will be applied to forecast MAR and MAR wash-up building blocks to better account for the time-value of money; and

X12.5 certain large reconductoring projects will be 'listed' with approval given on an individual basis once certain criteria have been met.

Proposed grid output measures and quality standards for RCP2

X13 We agree with the grid output measures proposed by Transpower but have set more challenging targets for some measures. We have also added three additional grid output measures that have reporting requirements, which are not linked to revenue.

X14 Transpower proposed both revenue-linked grid output measures and non-revenue-linked grid output measures. The revenue-linked grid output measures comprise asset performance measures and grid performance measures. Non-revenue-linked grid output measures are termed 'other performance-based measures' and are for reporting only.

X15 The proposed quality standards that will apply to Transpower in RCP2 will be the same as the targets for the revenue-linked grid output measures.

X16 For each of the grid output measures there is a proposed target, cap, collar, and incentive rate. The cap and collar set the range of performance for which Transpower will be penalised or rewarded under the grid output adjustment incentive mechanism with the cap being the upper bound for rewards. The incentive rate is the value of the revenue loss or gain for each unit (%, interruption or minute) away from the target, up to the cap or collar.

X17 We propose that $10 million of revenue be at risk per annum through the grid output adjustment mechanism (roughly 1% of revenue). Table X1 summarises the quality standards for RCP2.

Table X1: Draft decision on grid output measures and quality standards for RCP2

Grid output measure	Point of service category	Quality standard	Target	Cap	Collar	Incentive rate ($000 per unit change)
Asset performance measures						
Availability of circuits (%)	AP1: HVDC	98.5	98.5	99.5	97.5	1,000
	AP2: HVAC	99.6	99.6	100	99.2	2,500
Grid performance measures						
GP1: Number of interruptions (per annum)	High Priority	2	2	0	4	606
	Important	9	9	4	14	242
	Standard	26	26	21	31	133
	Generator	11	11	6	16	133
	N-security	50	50	26	74	10
GP2: Average duration of interruptions (per annum in minutes)	High Priority	70	70	30	110	15
	Important	100	100	30	170	9
	Standard	65	65	0	130	5
	Generator	130	130	50	210	4
	N-security	80	80	45	115	3
GP3: P90 Longest durations (per annum in minutes)	High Priority	120	120	80	160	15
	Important	240	240	170	310	9
	Standard	130	130	60	200	5
	Generator	350	350	260	440	4
	N-security	215	215	170	260	3

Note: Based on simplified assumptions, the revenue at risk for each measure reflects between 69% and 141% of the value of lost load (VOLL).

Opex and base capex allowances

X18 Our draft decision is to reduce Transpower's total proposed opex allowance by $71.8m and the base capex allowance by $133.3m. For comparison with Transpower's proposed expenditure, these adjustments are expressed in 2012/13 constant prices.

X19 Our proposed adjustments for RCP2, in constant price terms, are set out in Table X2. The 7.5% productivity adjustment proposed by Transpower is not applied to these adjustments; rather it is applied to the nominal allowances.

Table X2: Total proposed expenditure adjustments for RCP2 (2012/13 constant prices)

	Transpower's proposal ($m)	Our draft adjustments ($m)	Adjusted expenditure ($m)
Opex	1,309.3	-71.8	**1,237.5**
Base Capex	1,188.6	-133.3	**1,055.3**

Note: we have provided for additional expenditure relating to demand response in the opex allowance. In this table, our draft adjustments have been reduced to account for the $1.5m demand response allowance.

X20 We set the opex and base capex allowances in nominal terms for each year of RCP2. These allowances are shown in Table X3. These allowances incorporate the 7.5% productivity adjustment proposed by Transpower where we consider it should still apply in light of our proposed adjustments.

X21 We seek submitters' views on forecasting metals costs. We provisionally agree with Transpower's proposed metals cost escalation factors. However, we are concerned that sharp changes in cost escalation for some commodities, eg, steel which increases at an average yearly rate by 4.8% between 2013 and 2020 (denominated in USD), are forecast with limited explanation.

Table X3: Opex and base capex allowances (nominal) for each year of RCP2

	2015/16	2016/17	2017/18	2018/19	2019/20	Total RCP2
Opex ($m)	264.8	271.8	278.0	278.8	281.2	**1,374.6**
Base capex ($m)	224.3	246.4	206.4	219.5	200.3	**1,096.9**

X22 Our final adjustment to base capex may be less if Transpower can propose an appropriate incentive mechanism that links $34.2m of expenditure to delivered levels of asset health. This is because we had concerns about Transpower's ability to deliver its grid replacement and refurbishment work programme. Transpower has indicated that it is willing to develop and propose such a mechanism.

Suggested business improvement initiatives

X23 We have identified areas that it would be helpful for Transpower to develop before submitting its next proposal in 2018 and have suggested a number of business improvement initiatives.

X24 These are a continuation of current initiatives undertaken by Transpower and have been informed by observations about the processes Transpower used to develop its work programme and expenditure allowances for RCP2.

1. Introduction

1.1 We are required to set an individual price-quality path to apply to Transpower New Zealand Limited (Transpower) for the next regulatory period from 1 April 2015 to 31 March 2020. This period is referred to in this paper as RCP2.

1.2 An individual price-quality path determines the maximum revenues that Transpower can recover from consumers for its services, as well as the quality standards it must meet, for each year of the regulatory period.

1.3 On 2 December 2013, we received Transpower's quality and expenditure proposal for RCP2. The proposal includes Transpower's proposed operating expenditure (opex) and base capital expenditure (base capex) allowances, and grid output measures.[2] These are important components of the individual price-quality path.

1.4 We have now completed our assessment of Transpower's proposal.

Purpose of this paper

1.5 We have reached a draft decision on key aspects of the individual price-quality path, including those aspects that were covered by Transpower's proposal. This paper provides our draft decisions and supporting reasons for:

1.5.1 how Transpower's maximum revenues will be determined for each year of RCP2 and the effect of incentive mechanisms on Transpower's revenues;

1.5.2 the grid output measures, some of which make up the quality standards, for RCP2; and

1.5.3 Transpower's opex and base capex allowances for RCP2. These allowances are key components of the maximum revenues that Transpower can earn.

1.6 After assessing Transpower's proposal, we have identified some areas we consider need to be improved to enable Transpower to submit a substantially improved proposal at the end of RCP2 and we suggest measures to monitor that development. These are called business improvement initiatives.

1.7 We seek your feedback about the draft decisions we have reached in this paper and about the proposed business improvement initiatives:

1.7.1 submissions on our draft decision are due by 5pm on 27 June 2014; and

1.7.2 cross-submissions are due by 5pm on 11 July 2014.

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2 Transpower's proposal is on our website at www.comcom.govt.nz/regulated-industries/electricity/electricity-transmission/transpower-individual-price-quality-regulation/transpowers-price-quality-path-from-2015-to-2020/.

This paper follows on from previous consultation

1.8 We published an Issues paper[3] on 10 February 2014 and subsequently received submissions and cross-submissions from interested persons.[4]

1.9 We also asked Transpower for additional information in certain areas when conducting our evaluation. A full list of the information we requested from Transpower is on our website.

Independent experts have assisted with our evaluation of Transpower's proposal

1.10 We engaged Strata Energy Consulting Limited (Strata) and Partna Consulting Group Limited (Partna) to assist with our evaluation of Transpower's proposal.

1.11 Strata and Partna have produced reports that have informed our draft decisions and are referred to throughout this paper. We have published these reports alongside this paper:

1.11.1 Strata Energy Consulting Limited and Energy Market Consulting Associates "Technical Advisor Report on the Transpower New Zealand Ltd IPP Proposal for RCP2: Report to The Commerce Commission" (12 May 2014)—referred to as the 'Strata report'.

1.11.2 Partna Consulting Group Limited "Review of Transpower's Proposed Quality Measures: How they compare with international practice in Australia and the UK" (11 April 2014)—referred to as the 'Partna report'.

We will consult on the draft individual price-quality path determination separately

1.12 Our decisions will be given effect to through an individual price-quality path determination.

1.13 We intend to publish a draft individual price-quality path determination that reflects our draft decisions on 30 May 2014. This will be accompanied by a companion paper that will discuss compliance reporting requirements for the individual price-quality path.

There may be changes to input methodologies and information disclosure requirements

1.14 We are proposing a number of changes to input methodologies that are consistent with, and will affect, our draft decision on the individual price-quality path. If we

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3 Commerce Commission "Invitation to have your say on Transpower's individual price-quality path and proposal for the next regulatory control period: Issues paper" (10 February 2014).

4 For submissions received from our Issues paper, please see our website at www.comcom.govt.nz/regulated-industries/electricity/electricity-transmission/transpower-individual-price-quality-regulation/transpowers-price-quality-path-from-2015-to-2020/.

proceed with our draft decisions, we will also need to amend certain information disclosure requirements.[5]

1.15 We signalled that we intended to amend a number of input methodologies when we issued our notice of intention to start work on proposed amendments to the input methodologies for Transpower in February 2014.[6]

1.16 These potential input methodology amendments will be consulted on as part of the Transpower input methodology amendments process.[7] The consultation paper for these amendments is intended to be published on 30 May 2014 along with the draft individual price-quality path determination.

1.17 In Attachment C we have summarised the potential amendments we consider may be required.

1.18 In this paper, we have assumed that all input methodology amendments that directly affect our draft decision will be made. If following on from consultation we decide to not amend certain input methodologies, our decision will be changed to reflect this and we will consider whether any further consultation is necessary.

1.19 We may need to make amendments to the information disclosure requirements to give effect to our draft decision. We will address potential amendments in the companion paper that will accompany our draft individual price-quality path determination.

Other input methodology amendments that may affect our decision

1.20 Several other input methodology amendments are currently being consulted on that will have an impact on Transpower's individual price-quality path.

1.20.1 We included three of these potential amendments in our 11 March 2014 consultation paper.[8]

1.20.2 We have consulted on potential amendments to the weighted average cost of capital (WACC) and the Incremental Rolling Incentive Scheme (IRIS) input methodologies.[9]

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5 Input methodologies are the underlying rules and processes of Transpower's regulation.

6 Commerce Commission "Notice of Intention: proposed amendments to input methodologies for Transpower" (10 February 2014).

7 Please see our website at http://www.comcom.govt.nz/regulated-industries/input-methodologies-2/amendments-and-clarifications/.

8 See Commerce Commission "Proposed amendments to input methodologies for Transpower" (11 March 2014).

What this paper does not cover

1.21 The matters listed below are not covered in this paper.

1.21.1 Consultation on input methodology amendments.

1.21.2 Approval of major capex – this is done on a project by project basis.

1.21.3 The dollar amount of revenue that Transpower will be allowed to recover from consumers for each year of RCP2.

1.21.4 The Transmission Pricing Methodology (TPM).

How the approved expenditure allowances affect electricity prices

1.22 The maximum revenues that we allow are used to determine the prices paid by consumers for the transmission of electricity. The Electricity Authority estimates that transmission charges make up about 7.5% per cent of a typical household electricity bill.[10]

1.23 The opex allowance that we approve directly affects prices paid by consumers in RCP2 for the transmission component of an electricity bill. The recovery of the base capex allowance, however, is spread over a longer term and has a less direct effect on prices during RCP2. This is because the capex we approve will be added to Transpower's asset base with the return on these assets, as well as depreciation of the assets, being recovered from consumers over the asset's useful lives which are typically 30–40 years.

1.24 Not all the information needed to compute Transpower's maximum revenues for RCP2 is presently available, eg, the outturn of Transpower's asset base at the end of RCP1. However, in December 2013, Transpower advised its customers on the expected forecast revenues for RCP2.[11] To arrive at its forecast, Transpower used a number of assumptions including that all proposed expenditure would be approved. Transpower proposed around $1.4 billion in opex and $1.2 billion in base capex for the five years of RCP2, in nominal terms. Transpower's estimate is shown in Table 1.1.

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9 See Commerce Commission "Invitation to have your say on whether the Commerce Commission should review or amend the cost of capital input methodologies" (20 February 2014); Commerce Commission "Further work on the cost of capital input methodologies: Process update and invitation to provide evidence on the WACC percentile" (31 March 2014); and Commerce Commission "Incentives for Suppliers to Control Expenditure During a Regulatory Period: Process and Issues Paper" (20 September 2013).

10 See http://www.ea.govt.nz/consumers/about-your-power-bill/.

11 See Transpower "2015/16 to 2019/20 Transmission Revenue"(9 December 2014) at https://www.transpower.co.nz/sites/default/files/uncontrolled_docs/rcp2-revenue-initial-forecast-information.pdf.

Table 1.1: Transpower's estimate of forecast revenues for RCP2 (nominal)

Year	2015/16	2016/17	2017/18	2018/19	2019/20	Total RCP2
Transpower forecast ($m)	985	1,002	1,041	1,044	1,064	**5,136**
Change from previous year	4%	1.7%	3.9%	0.3%	1.9%	-

1.25 We have estimated that our draft adjustments to Transpower's opex and base capex allowances, discussed in Chapter 5, would reduce Transpower's estimate of forecast revenue by 2.5% per year on average. This equates to $26 million per year on average or $130 million over the five years of RCP2, in nominal terms.

Structure of this paper

1.26 In Chapter 2 we discuss our expectations of how the individual price-quality path will develop over time. We also discuss the challenges we face in setting appropriate opex and base capex allowances.

1.27 Chapter 3 sets out how we propose to calculate Transpower's allowed revenues for each year of RCP2. This includes how building blocks will be used to calculate the forecast allowable revenue, how this revenue will be 'washed-up' each year, and the effect that incentive mechanisms will have on revenue.

1.28 Chapter 4 sets out our draft decisions on the quality standards and grid output measures for RCP2.

1.29 Chapter 5 explains our draft decision on the opex and base capex allowances for each year of RCP2. This includes how we have reached our draft decisions.

1.30 Chapter 6 then discusses observations we had of Transpower's proposal and areas where we suggest Transpower improves before submitting its next proposal in 2018.

1.31 The attachments to this paper provide detail additional to the chapters.

We want to hear and consider your views

1.32 Before issuing our final decision, we want to hear and consider the views of consumers and stakeholders. We welcome submissions on the draft decisions we have reached in this paper as well as the suggested business process initiatives.

1.32.1 To give us time to review submissions and meet our timeframes, we ask that we receive emailed submissions by **5pm on 27 June 2014.**

1.32.2 There will then be an opportunity for cross-submissions on matters raised in submissions. We ask that we receive any cross-submissions by **5pm on 11 July 2014.**

1.33 Please email your submission to regulation.branch@comcom.govt.nz with the subject line 'Transpower individual price-quality path [submission/cross-submission]' and your name.

1.34 All submissions will be published on our website. Please identify any content considered confidential. If a submission contains confidential information, we ask that you provide a confidential version and a public version.

Our process from here

1.35 Following receipt of submissions and cross-submissions on our draft decisions, we will make our final decisions on the base capex and opex allowances, and grid output measures and quality standards for RCP2 by 29 August 2014. We may also publish a revised draft individual price-quality path determination at this time to seek feedback on how the requirements have been drafted.

1.36 We will then issue Transpower with an information gathering notice that will require Transpower to apply the values to calculate a draft forecast maximum revenues for each year of RCP2.

1.37 We intend to publish the final individual price-quality path determination by 31 October 2014. This could be delayed depending on the timing of the WACC input methodology review.

1.38 We intend to complete any necessary changes to the information disclosure requirements by 13 December 2014.

1.39 Table 1.2 summarises the next steps in our process including key dates for the potential input methodology amendments.

Table 1.2: Next steps in our process

Process step	Indicative date
Publish draft individual price-quality path determination and companion paper on compliance reporting	30 May 2014
Submissions on draft decisions in this paper are due	27 June 2014
Cross-submissions for draft decisions in this paper are due	11 July 2014
Submissions on draft individual price-quality path determination are due	11 July 2014
Publish decision on any amendments to input methodologies applicable to setting Transpower's individual price-quality path, except for calculating the cost of capital	29 August 2014
Publish decision and supporting reasons paper on setting Transpower's individual price-quality path for 2015–2020, including decision on grid output measures and expenditure allowances	29 August 2014
Revised draft individual price-quality path determination, excluding revenue figures	29 August 2014
Issue information gathering notice to Transpower to calculate its revenues (this may be delayed depending on whether it is advantageous to seek feedback on the drafting of the revised draft individual price-quality path determination)	29 August 2014
Publish cost of capital determination for Transpower's individual price-quality path (this may be delayed depending on timing of decision on cost of capital review)	30 September 2014
Response to information gathering notice is due	11 October 2014
Final individual price-quality path determination (this may be delayed depending on the timing of the decision on cost of capital review)	31 October 2014
Publish decision on any amendments to information disclosure requirements related to decisions on setting Transpower's individual price-quality path	13 December 2014

2. The individual price-quality path evolves over time

Purpose of this chapter

2.1 This chapter provides context for how we have approached setting Transpower's individual price-quality path for RCP2, and the draft decisions that we have reached in this paper. It discusses:

2.1.1 our expectations that individual price-quality path regulation will evolve;

2.1.2 what it means to set a second price-quality path for Transpower;

2.1.3 our role in setting and administering an improving price-quality path; and

2.1.4 our challenge in setting appropriate quality measures and expenditure allowances at any given time.

We expect price-quality regulation will evolve over multiple regulatory periods

2.2 We see effective individual price-quality regulation as being a dynamic process over multiple regulatory periods, while being mindful of the importance of providing regulatory predictability. The regulation will change as we better understand the effect of the incentives we have set, and to respond to changing external conditions. We expect to continue to develop a suite of mechanisms that are of long-term benefit to consumers.

2.3 The individual price-quality path for RCP2 is intended to improve on what was in place for the first regulatory period, which we refer to as RCP1. The changes between RCP1 and RCP2 also indicate how quickly we see the regulation evolving for subsequent regulatory periods.

2.4 The pace and direction of the development track we are setting considers the practical constraints that Transpower faces. The track also takes into account the need to give the various regulatory instruments time to bed down and mature so their effectiveness can be understood, before making further changes.

2.5 The pace and direction are also informed by observing, comparing and contrasting the development of like instruments in other jurisdictions, particularly in the UK and Australia.

Setting a second price-quality path for Transpower

2.6 The individual price-quality path that we finalise later this year will be the second path that we set for Transpower. The path is for the duration of RCP2, and will apply to the electricity lines services that Transpower supplies.[12]

2.7 In the sections below we discuss:

2.7.1 how some characteristics of the price-quality path are already fixed, given the input methodologies that apply; and

2.7.2 how we have used the RCP1 price-quality path as our starting point.

Some characteristics of the price-quality path are already fixed

2.8 The primary purpose of the individual price-quality path is to promote the long-term interests of consumers, consistent with the purpose of Part 4 of the Commerce Act 1986. We are guided by certain input methodologies in how to set a price-quality path for Transpower that promotes this purpose. These input methodologies are discussed in Attachment A.

2.9 The purpose and provisions of Part 4 along with the input methodologies gives rise to the following characteristics for Transpower's price-quality path.

2.9.1 We set the maximum revenues that limit what Transpower can recover from its consumers. These maximum revenues are based on Transpower's forecast costs for the next regulatory period. Revenue is calculated using a 'building blocks' approach that applies the input methodologies that we have set (ie, for valuing Transpower's Regulatory Asset Base (RAB), commissioned assets, tax and cost allocation).

2.9.2 We do not set the prices that Transpower can charge individual customers, as these are calculated using a methodology for setting transmission prices which is governed by the Electricity Authority.

2.9.3 The quality standards and grid output measures that we set should reflect the service that Transpower's customers demand and value. This is so that Transpower invests appropriately in its network and consumers do not receive a lower quality service than possible given the level of expenditure accommodated by the price path.

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[12] The individual price-quality path provisions in the Commerce Act of s 53ZC apply to Transpower by way of an Order in Council under s 52N. Electricity lines services include both transmission services and system operator services. However, Transpower's system operator services are not covered by our individual price-quality path. This is because we consider the existence of a separate arm's-length contract between Transpower and the Electricity Authority for these services results in outcomes consistent with those that would be observed in a workably competitive market.

2.9.4 Expenditure allowances, an important determinant for calculating maximum revenues, should reflect efficient investment. This provides for investment to occur at the appropriate time, and results in service being provided at an appropriate quality.

2.9.5 We set the price-quality path before the regulatory period starts so that Transpower can expect to earn a normal return on its investment in the grid. We do this also so Transpower has incentives to continue to make efficient investments in its network.

2.9.6 We provide financial incentives for Transpower to spend less than the forecast costs, which will result in above normal returns in the short-term. Any efficiency gains made during a regulatory period eventually benefit consumers as they are shared in the next regulatory period.

We have used the price-quality path for RCP1 as our starting point

2.10 Our starting point in setting the price-quality path for RCP2 is the approach used for RCP1.

2.11 We have, however, developed features during RCP1 that are yet to be applied; also some of the provisions for RCP1 were transitional.[13]

2.12 The price-quality path that we propose is consistent with the input methodologies that apply and aims to be integrated with information reporting requirements that were developed during RCP1 and that now apply to Transpower. A significant new feature for RCP2, for example, is the full application of the Capital Expenditure Input Methodology (Capex IM)[14] to:

2.12.1 implement revenue-linked quality measures;[15] and

2.12.2 set the base capex allowance.[16]

2.13 We propose developments for RCP2 that we consider are incremental, gradual and well-signalled. They are a sufficiently challenging step to what we expect would be a further-enhanced individual price-quality path for RCP3. This measured incremental

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13 We first set a price-quality path for Transpower in 2010 which covers the period 1 April 2011 to 31 March 2015. Prior to that Transpower was subject to an administrative settlement.

14 *Transpower Capital Expenditure Input Methodology Determination* [2012] NZCC 2 (31 January 2012), clause 1.1.3 ('Commencement') and clause 1.1.4 ('Transitional provisions'). The Capex IM took effect from the date of publication in the Gazette for major capex projects, including those commenced before and from the start of RCP2 for base capex and grid output measures.

15 See Chapter 4.

16 See Chapter 5.

approach has been taken to reduce uncertainty and promote predictability for stakeholders (consumers, Transpower or other interested persons).

2.14 Particular areas that we have focused our attention on developing for RCP2 are:

2.14.1 quality, and how the individual price-quality path best reflects what consumers want; and

2.14.2 incentives, and the processes to put in place to reward (or penalise) Transpower for improved efficiency, energy efficiency, use of demand side management in place of capex, and robust forecasting of opex and capex.

2.15 The next reset of the price-quality path will present further opportunities for refinement. This will be for the regulatory period starting from 1 April 2020, which we refer to as RCP3. For example, the setting of the price-quality for RCP3 will be the first time when implementation of any changes stemming from the required 7-year review of the Capex IM is possible.[17] In Chapter 6 we discuss suggested business process initiatives for Transpower to carry out in RCP2 to maintain the pace and direction for RCP3.

Our role in setting and administering an improving individual price-quality path over time

2.16 Over time we expect that our role in regulating Transpower's individual price-quality path will also evolve. We will continue to get a better understanding of:

2.16.1 Transpower's performance and how the design of the individual price-quality path is contributing to, or hindering, this; and

2.16.2 the costs, benefits, risks or uncertainties for Transpower and consumers of the rules that we have set, including how much intervention is necessary.

2.17 Our interventions during a regulatory period may be less necessary once we get that better understanding of Transpower's performance, and of whether the individual price-quality path is delivering against the Part 4 purpose.[18]

2.18 Our examination of Transpower's proposed expenditure may move further towards a high-level (top-down) approach where we place greater emphasis on how Transpower applies its governance over that expenditure. We can then monitor the reasonableness of Transpower's expenditure. This is discussed in more detail in Chapter 3.

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17 Commerce Act 1986, s 52Y(1).

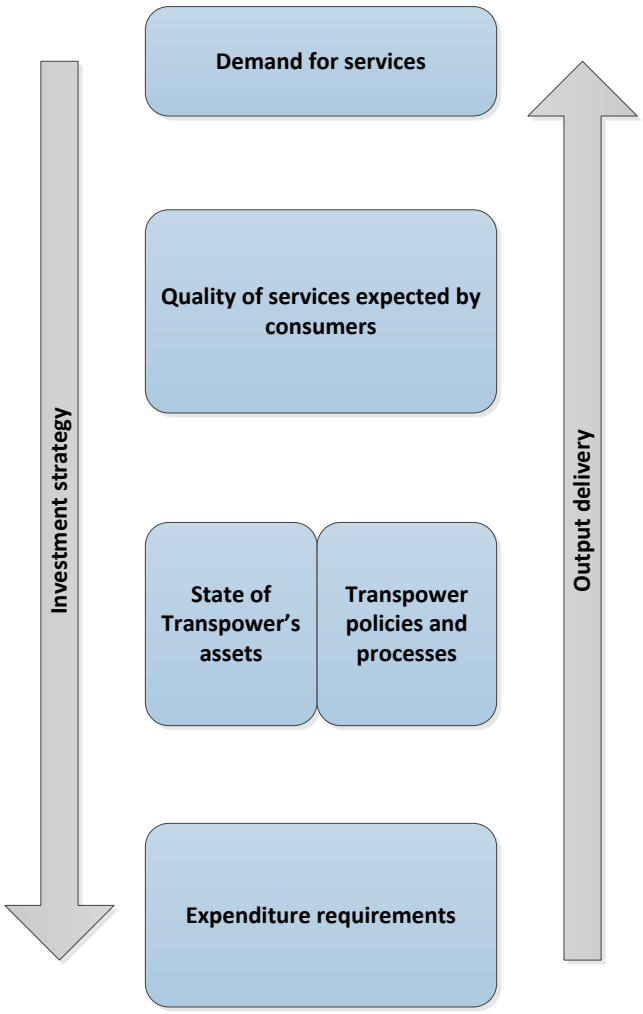
18 For example, interventions in RCP1 included yearly determinations for updates to forecast maximum allowable revenue.

Our challenge to set appropriate quality measures and expenditure allowances

2.19 In setting appropriate quality measures and the 'right level' of expenditure for where we are on the development track for the price-quality path, we are mindful of various factors. These factors include the relationship between the demand for services, quality of services demanded by consumers, how this affects Transpower's decision-making on its assets, the investment in the grid, Transpower's management of its operations, and the revenue Transpower requires to meet these expectations.

2.20 One challenge is to understand current consumer value preferences and then convert that understanding into the most cost-efficient means of satisfying those requirements. This requires some level of judgement to achieve the desired connection. That relationship is described at a high level in Figure 2.1.

Figure 2.1: Relationship between demand, consumer preferences and expenditure



2.21 Transpower's proposal demonstrates its understanding of the demand for its services and its understanding of consumer preferences on price and quality. That information is combined with the forecast state of its grid assets and its policies and processes to give an investment strategy. That strategy is costed to give us the proposed opex and capex requirements.

The understanding of consumer preferences and required expenditure will improve over time

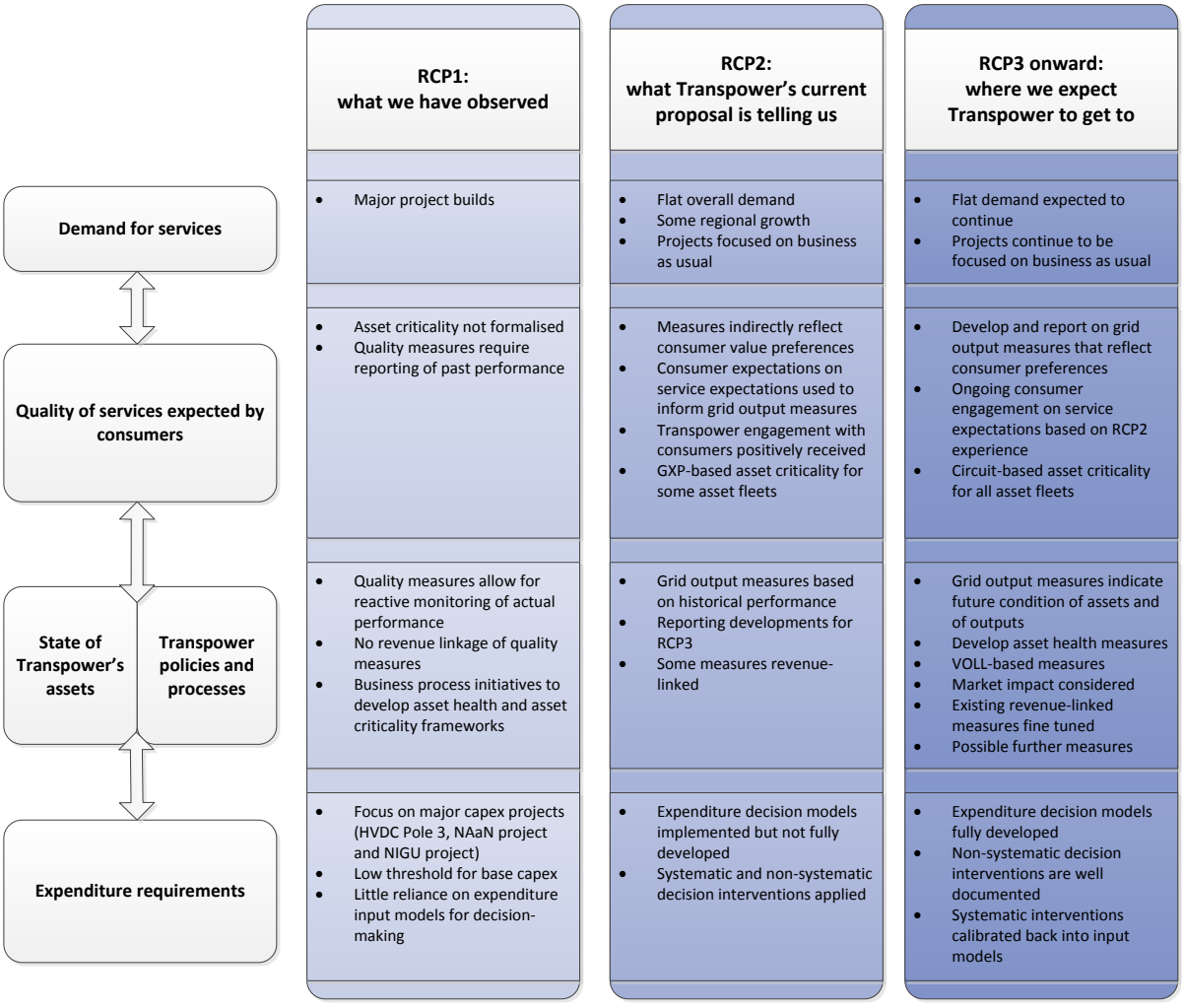
2.22 We discuss below how we expect Transpower's proposals to evolve from period to period. This evolution is characterised across three plus regulatory periods since the start of the individual price-quality path, described in Figure 2.2, where:

2.22.1 'RCP1' looks back at what we have observed;

2.22.2 'RCP2' considers what Transpower's current proposal tells us;[19] and

2.22.3 'RCP3 onward' sets out where we expect Transpower to get to by the time it is required to submit its proposal for RCP3.

Figure 2.2: Progression in development of Transpower's proposals



19 Our evaluation of the progress Transpower has made in developing and presenting its RCP2 quality and expenditure proposal are commented on in more depth in Chapters 4 and 5 respectively.

2.23 By setting out our expectations now, we are giving predictable signals to Transpower and other interested persons of the direction we see the quality and expenditure proposals developing for the future. We understand that we broadly agree with Transpower on this.

2.24 Some notable pointers on how to progress are:

2.24.1 flattening of demand and less focus on delivering major capex projects;

2.24.2 greater sophistication in addressing consumer preferences and value, and a finer granularity in the measurement of them;

2.24.3 implementation of measures that forecast the future condition of assets and of outputs rather than relying on measures based on reactive monitoring of historical performance;[20] and

2.24.4 full development of expenditure decision models with well-documented interventions and systematic feedback loops.

2.25 Steps in that progression are:

2.25.1 RCP1 is characterised by the use of quality measures that demonstrate actual performance, with only limited measures for asset management and operations that demonstrate the results of business improvement initiatives.

2.25.2 RCP1 has only limited incentives linked to revenue. These incentives are supported by non-revenue-linked targets and the reporting of information that we consider useful in developing future measures. The limited revenue-linked incentives were initially reflected solely in the individual price-quality path determination for RCP1. They have since been supplemented for RCP2 by the capex incentive measures and output incentive measures in Schedule B of the Capex IM.

2.25.3 For RCP2, Transpower has proposed quality measures that indirectly reflect customer preferences and the development of measures for asset management and operations for RCP3. In this respect, the revenue-link for RCP2 can be seen as transitional.

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[20] Reactive monitoring can be characterised as providing data on undesirable events such as system failures or asset failures. They are a final check on the effectiveness of an asset management system and are limited in circumstances such as monitoring high impact low probability (HILP) events, long lead time events, or indirect effects such as customer satisfaction. In contrast, proactive monitoring aims to provide best indications of warning signs of potential problems before they occur or become significant. For example, a measure of current and future asset health and criticality, which can be used to better inform the amount and timing of future replacement capex before replacement becomes a critical issue.

2.26 Given the time until RCP3, speculating on the detail of the RCP3 individual price-quality path would not be productive. However, we do expect that incentive mechanisms for that later individual price-quality path will be progressively developed over RCP2 and that it will include measures for:

2.26.1 quality, that are at a more granular level and directly reflect customer value preferences; and

2.26.2 asset health and criticality, that reflect targeted delivery of specific customer outputs.

2.27 We comment in Chapter 6 on a number of areas that we expect to see Transpower advance before RCP3 to improve its investment decisions and delivery, given our observations while evaluating Transpower's RCP2 proposal.

2.28 To monitor Transpower's development of its ability to deliver the necessary improvements in those areas for RCP3, we propose to set a requirement for Transpower to identify by 1 July 2015 those business process improvements it will undertake in RCP2, including those already in progress. Transpower will be required to report yearly in RCP2 on progress in developing against any improvements it plans to make.

2.29 To ensure we get timely information on Transpower's progress toward any resulting grid output measures we might be asked to consider in evaluating its RCP3 proposal, the first report must be produced at the same time as the mid-point Integrated Transmission Plan in 2016.[21] This timing is scheduled so that we and interested persons can give Transpower useful feedback that it can incorporate in their plans before it must submit its RCP3 proposal.

[21] Commerce Commission "Information Disclosure Requirements for Transpower, Reasons Paper" (28 February 2014), paragraph 3.48.

3. Incremental changes to the price path for RCP2

Purpose of this chapter

3.1 This chapter outlines our draft decision on the incremental changes we propose to make to Transpower's individual price-quality path for RCP2 from the individual price-quality path that applied for RCP1 and how these changes better promote the purpose of Part 4 of the Act.[22]

3.2 This chapter also discusses specific features of the individual price-quality path we propose for RCP2, including how we will set Transpower's forecast maximum allowable revenue (MAR) and the suite of incentive mechanisms that will apply.

3.3 This chapter does not set the forecast MAR values for RCP2. As set out in Chapter 1, we intend to publish these by 31 October 2014.

We propose incremental changes to the individual price-quality path for RCP2

3.4 We propose to adopt a similar approach to the individual price-quality path for RCP1. Table 3.1 sets out a summary of the similarities and differences in our draft decision.

Table 3.1: Summary of key draft decisions on the price path

Draft decision for RCP2	Change in approach from RCP1
1. RCP2 will be a 5-year period.	The standard 5-year period per the Commerce Act will apply. See Attachment B.
2. Compliance with price path is with the forecast MAR, to be set on a forward-looking (*ex ante*) basis.	No change. See Attachment B.
3. An unsmoothed building blocks approach will be applied to set the forecast MAR.	No change. See Attachment B.
4. We will apply all relevant input methodologies in the building blocks to set the forecast MAR and the MAR wash-up.	No change in approach. Our draft decision reflects proposed amendments to input methodologies. See Attachment C.
5. The values in the building blocks used to calculate the forecast MAR will be set by reference to relevant expenditure values and other values (eg, depreciation) for each disclosure year ending 30 June in RCP2.	No change. See Attachment B.
6. Transpower will apply revenues based on the forecast MAR, forecast pass-through costs and forecast recoverable costs in setting its prices for each pricing year ending 31 March in RCP2.	No change. See Attachment B.

22 *Commerce Act (Transpower Individual Price-Quality Path) Determination 2010* [2010], Decision No. 714.

Draft decision for RCP2	Change in approach from RCP1
7. Revenue wash-ups are to be made yearly (the MAR wash-up).	No change. See Attachment B.
8. Substitution of opex for approved major capex to be allowed based on Generally Accepted Accounting Principles (GAAP) accounting during the regulatory period.	New feature. See below for reasons.
9. Revenue-linked grid output measures will be applied in line with the Capex IM.	New feature. See Chapter 4 for reasons.
10. The Economic Value (EV) account is to be used to account for under/over-recovered revenues until the next pricing year, with balances carried forward being adjusted at the WACC rate.	No change. See Attachment B.
11. Gains and losses on ineffective currency and commodity hedges for GAAP are to be recorded as EV entries.	No change. See Attachment B.
12. Incentive adjustments are to be recorded as EV entries.	No change. See Attachment B.
13. Legacy 2011 EV account balances are to be cleared by the end of RCP2.	No change. See Attachment B.
14. RCP1 EV account entries that have not already been dealt with in revenues and prices will be carried forward into RCP2.	No change. See Attachment B.
15. The forecast MAR will be updated yearly for EV adjustments.	No change. See Attachment B.
16. EV adjustments will be smoothed to avoid pricing shock effects.	New feature. See below for reasons.
17. Transpower may voluntarily under-recover the forecast MAR from consumers.	New feature. See below for reasons.
18. Mid-year cash-flow timing assumptions will be applied to the forecast MAR and MAR wash-up building blocks.	New feature. See below for reasons.
19. The major capex incentive rate will be 33%.	No change. See Attachment B.
20. The base capex incentive rate will be 33%.	New feature. See below for reasons.
21. The approved opex allowance for the forecast MAR will be set using the forecast consumers price index (CPI).	No change. See Attachment B.
22. The approved opex allowance for the MAR wash-up will adjust for the disparity between the actual CPI and the forecast CPI.	No change. See Attachment B.
23. The allowed controllable opex for the IRIS will be set equal to the opex allowance used in the MAR wash-up.	New Feature. See Attachment B.
24. Transpower may request a reduction in the opex allowance for material changes to the scope of a project.	New feature. See below for reasons.
25. The forecast MAR may be updated during RCP2 to take account of approved listed contingent projects.	New Feature. See below for reasons.
26. Additional opex approved after a catastrophic event may be recovered in recoverable costs.	New Feature. See Attachment D for reasons.
27. The price-quality path determination will define 'Other regulated income'.	New Feature. See below for reasons.
28. Forecast pass-through costs and recoverable costs included in prices may be washed-up for accrual accounting adjustments.	New Feature. See below for reasons.

These changes to the price-quality path will better meet the purpose of Part 4 of the Act

3.5 We have incorporated new features into the individual price-quality path for RCP2 to better meet the purpose of Part 4 of the Act. We consider these features will give Transpower further incentive to innovate and invest, improve efficiency and will limit Transpower's ability to extract excessive prices.

3.6 Examples of how we consider the individual price-quality path in RCP2 will better meet the purpose of Part 4 of the Commerce Act are described in Table 3.2.

Table 3.2: How the purpose of Part 4 of the Commerce Act will be better met

Purpose of Part 4 of the Act	Example
Transpower will have a further incentive to innovate and invest, including in replacing assets.	Inclusion of a mechanism to allow identified reconductoring projects, that are currently not justified for inclusion in the base capex allowance, to be approved during the regulatory period and adjusted in the forecast MAR.
Transpower will have further incentives to improve efficiency and provide service at a quality that reflects consumer demands.	Inclusion of revenue-linked grid output measures as the quality standard under the individual price-quality path. See further detail in Chapter 4.
Transpower will share with consumers the benefits of efficiency gains, including through lower prices.	In RCP2 the full suite of incentive measures introduced in the Capex IM come into effect. These will have a revenue effect through the EV account. See the discussion on the incentive framework in Attachment A.
Transpower will be limited in its ability to extract excessive profits.	In RCP2 we will apply mid-year cash-flow assumptions in the formulae for setting the building blocks that comprise the forecast MAR for each pricing year.

We will continue to update the forecast MAR on a yearly basis

3.7 While working with the individual price-quality path for RCP1 we have, along with Transpower, identified ways to improve workability and integration with the other regulatory instruments set since the individual price-quality path was first determined in 2010.[23]

3.8 We currently amend the individual price-quality path determination each year to calculate the yearly updated forecast MAR.[24] This update accounts for, as an example, differences in timing of capex from forecast or the revenue adjustments

[23] The Capex IM was set in January 2012 and the information disclosure determination was set in February 2014.

[24] *Commerce Act (Transpower Individual Price-Quality Path) Determination 2010* [2010], Decision No. 714, clause 3.3(2).

that arise from incentive mechanisms. See Attachment B for details on the forecast MAR calculation.

3.9 Our aim is to eventually 'automate' the forecast MAR resets as far as prudent. Under that process Transpower would mechanically make yearly updates based on defined conditions set out in the determination and include the associated calculations with its annual compliance reporting. This would be a less complex procedure than the current yearly process and would potentially reduce the cost of compliance for the Commission and Transpower.

3.10 We have weighed up the pros and cons of adopting this approach for RCP2. In particular, we have looked at the changes coming into effect in the individual price-quality path, especially the measures in the Capex IM coming into effect for the first time. Given this, we have concluded that we will continue to determine the forecast MAR each year.

3.11 Even so, we will look to simplify the forecast MAR update process for RCP2. For example, we will look to embed compliance reporting requirements that affect the forecast MAR update calculations within a determination to limit the number of information notices. Also, in our 7-year review of the input methodologies, we may consider whether the points at which the input methodologies allow or require us to make decisions that affect the forecast MAR are still necessary.[25]

3.12 We will also be retaining the MAR wash-up mechanism and the EV account. The MAR yearly wash-up calculation is designed to ensure that, over time, Transpower's actual financial performance reflects the impact of Transpower's incentives.

3.13 The MAR wash-up mechanism and how the EV account works are described in more detail later in this chapter and in Attachment B.

Transpower will be incentivised to improve performance

3.14 By setting Transpower's forecast MAR in advance, the individual price-quality path provides Transpower with incentives to improve its performance. This is because Transpower may retain the benefits of any outperformance of the assumptions underpinning the individual price-quality path.

3.15 For example, If Transpower can deliver the specified grid output measures at a lower cost than the amount of the expenditure allowances, these financial benefits are then shared between Transpower and consumers through the incentive mechanisms.

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25 Commerce Act 1986, s 52Y(1).

3.16 We provide specific incentive mechanisms for Transpower to improve its efficiency and deliver services at a quality that reflects consumer demands. There are four groups of incentive mechanisms that will fully apply in RCP2. These mechanisms will ultimately impact on Transpower's MAR, namely:[26]

3.16.1 incentives that apply to base capex;[27]

3.16.2 incentives that apply to individual major capex projects;[28]

3.16.3 the revenue-linked grid output measures;[29] and

3.16.4 the IRIS that applies to opex.[30]

Incentive decisions

3.17 To give effect to the incentives set out in the input methodologies, we must make a small number of decisions to include in the individual price-quality path determination.

3.17.1 The major capex incentive rate will continue at 33%. This is the rate that has applied since the Capex IM was determined.[31]

3.17.2 Consistent with the major capex incentive rate and the effective rate of sharing of rewards and penalties under the IRIS, the base capex incentive rate will be set at 33%.[32]

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26 The papers referred to below describe in detail the elements of the incentive regulation framework under which we set the individual price-quality path and set the values for each Transpower incentive. See Commerce Commission "Individual Price-Quality Path (Transpower) Reasons Paper" (22 December 2010), Chapter 3, Section 3.9 and Chapter 4, Section 4.6; Commerce Commission "Input Methodologies (Transpower) Reasons Paper" (22 December 2010), Chapter 7, Section 7.5, 'Incremental Rolling Incentive Scheme under Part 4'; and Commerce Commission "Transpower Capital Expenditure Input Methodology Reasons Paper" (31 January 2012), Chapter 3 (base capex and grid outputs) and Chapter 4 (major capex).

27 The base capex expenditure adjustment, and the policies and processes adjustment. Capex IM, Schedule B, clauses B1 and B2.

28 The major capex overspend adjustment, major capex project output adjustment, major capex efficiency adjustment, and major capex sunk costs adjustment.

29 The grid outputs adjustment that will apply as a result of the setting of the revenue-linked grid output measures. See Chapter 4.

30 *Transpower Input Methodologies Determination* [2012] NZCC 17, Part 3, Subpart 6 and clause 3.1.3(1)(a). We refer to this determination as the 'Transpower IMs'. Note that under clause 3.1.3, the IRIS mechanism is currently asymmetric (ie, only reflect positive net balances from the IRIS mechanisms in recoverable costs). However, we have recently been consulting on making this incentive mechanism symmetrical for RCP2. We intend to publish our draft decision on any potential amendment during the submission period for this paper.

31 Capex IM, clause 2.3.1(2).

3.17.3 The allowed controllable opex for the IRIS will be set for the regulatory period at equal to the approved opex allowance used in the MAR wash-up calculation which is adjusted for the actual rate of CPI inflation.[33]

3.18 Please refer to the 2012 Capex IM reasons paper for why we consider 33% is an appropriate incentive rate.[34]

3.19 Our draft decision to align the allowed controllable opex for the IRIS with the approved opex allowance used in the MAR wash-up calculations is discussed in Attachment B.

Possible further incentive mechanism

3.20 In our draft decisions on the base capex allowance we have removed a proportion of expenditure for replacement and refurbishment (R&R).

3.21 Transpower has an option of proposing an expenditure-linked asset health measure.[35] We may reinstate the R&R expenditure into the base capex allowance if we are satisfied with Transpower's proposal.

3.22 We have not provided for any additional asset health index measure in our draft determination, as this would pre-empt any proposal from Transpower. We comment on progress on our discussions with Transpower on advancing this matter in Chapter 5.

The MAR wash-up will correct for any revenue over- or under-recovery from consumers

3.23 We propose to retain the revenue wash-up approach from RCP1 and for the EV account to operate in a similar way. Balances in the EV account brought forward from RCP1 will be applied in initially setting or later updating the forecast MAR for RCP2, as applicable.

3.24 The MAR wash-up is designed to ensure that, over time, Transpower's actual financial performance reflects the impact of Transpower's incentives.

3.25 Details of the MAR wash-up calculation are set out in Attachment B.

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32 Ibid, clause 2.2.2(1)(b).

33 The result of the calculations under the IRIS mechanism is applied to revenues and prices through Transpower's recoverable costs and is not applied through the EV account or the forecast MAR.

34 Commerce Commission "Transpower Capital Expenditure Input Methodology Reasons Paper" (31 January 2012), para. 3.6.9 and 4.6.6.

35 Capex IM, clause 2.2.2(c)(iv).

Wash-ups of pass-through costs and recoverable costs

3.26 Transpower's pass-through costs and recoverable costs are excluded from the MAR wash-up. As a result, no entry is made in the EV account for any differences between the forecast pass-through costs and recoverable costs used in setting the forecast revenues each pricing year.

3.27 In RCP1 Transpower made accrual accounting adjustments for differences between the forecast costs and the actual costs incurred, and for any disparity between the actual costs incurred and the actual revenues recovered from consumers for these costs.

3.28 No accounting approach was specified in either the input methodologies or RCP1 individual price-quality path determination for setting or washing up pass-through or recoverable costs that are used to set the forecast MAR or the MAR wash-up. We considered the GAAP accrual accounting treatment adopted by Transpower to be appropriate.

3.29 To provide certainty to Transpower and its customers, our draft decision is that in RCP2 we will explicitly include reference to these accounting adjustments in the individual price-quality path determination.

How the EV account will work

3.30 Any resulting revenue difference between the MAR and the actual net transmission revenues received (ie, revenues net of pass-through costs and recoverable costs) during RCP2 will be recorded as an entry in the EV account. The EV account will also record the results of the yearly incentive adjustment calculations.

3.31 The entries to the EV account will also continue to include gains and losses on an instrument that ceases to be an effective hedge or a commodity instrument that is not an effective hedge.

3.32 Any balance in the EV account will then be applied as an 'EV adjustment' to adjust the forecast MAR for Transpower's pricing in the next available pricing year to allow Transpower to recover revenue from consumers or return revenue to consumers to clear the relevant entry from the EV account.[36] We refer to this process as the forecast MAR update.

3.33 The balance in the EV account for a disclosure year is rolled forward from year to year with interest calculated at the WACC rate.

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[36] The wash-up can adjust the future forecast MAR either up or down depending on the result of the wash-up calculation.

The existing EV account entries will be cleared over RCP2

3.34 The EV account at the start of RCP1 contained large balances. In our decision for that regulatory period we determined that those initial EV account balances should be spread over eight years of Transpower's revenues, including three years of the first regulatory period.[37]

3.35 Consistent with that decision, our draft decision is that the amounts of the original legacy EV account balances remaining at the end of the first regulatory period will be spread as EV adjustments over the five disclosure years of RCP2. This will clear all of the historical 2011 EV account balances.

3.36 The balances in the EV accounts will be applied as EV adjustments to the forecast MAR on a similar basis as for RCP1. The entries in the EV account at the start of RCP2 will include:

3.36.1 the legacy EV account balances brought forward from 2011 that have only been partially recovered or returned in revenue during RCP1 under an eight year spread, and which will be recovered from and returned to revenue in the forecast MAR over the five years of RCP2 (see below for draft reasons);[38]

3.36.2 the result of the MAR wash-up calculation for the 2013-14 disclosure year, which will be recovered from or returned to revenue in the forecast MAR in the 2015-16 pricing year;[39]

3.36.3 the allowable hedging gains or losses for the 2013-14 disclosure year, which will be recovered from or returned to revenue in the forecast MAR in the 2015-16 pricing year;[40] and

3.36.4 the result of the major capex overspend adjustment, major capex project output adjustment or major capex sunk costs adjustment, if applicable, for the 2013-14 disclosure year, which will be recovered from or returned to revenue in the forecast MAR in the 2015-16 pricing year.[41]

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37 *Commerce Act (Transpower Individual Price-Quality Path) Determination 2010* (30 October 2013), clause 5.3(4)(a). The eight year spreading period comprises the 3 years of the Remainder Period of RCP1 (the 2012-13 through 2014-15 disclosure years of RCP1) and the next 5 disclosure years, on the assumption that RCP2 would be the standard length of an RCP of 5 disclosure years, as reflected in sections 53ZC(2)(a) and 53M(4) of the Commerce Act.

38 *Commerce Act (Transpower Individual Price-Quality Path) Determination 2010* (30 October 2013), clause 5.3(4)(a).

39 Ibid, clause 5.3(4)(b) and Schedule E.

40 Ibid, Part 2, definition of 'EV account entry', paragraphs (b) and (c).

41 Ibid, clause 5.3(4)(e); and Capex IM, Schedule B, clause B4 to B6.

3.37 Due to the timing of the start of RCP2 and the time when the compliance calculations are carried out for the end of RCP1, the following further entries will be made in the EV account in respect of RCP1 after the commencement of RCP2:

3.37.1 the result of the MAR wash-up calculation for the 2014-15 disclosure year, which will be recovered from or returned to revenue in the update of the forecast MAR in the 2016-17 pricing year;

3.37.2 the allowable hedging gains or losses for the 2014-15 disclosure year, which will be recovered from or returned to revenue in the update of the forecast MAR in the 2016-17 pricing year;

3.37.3 the result of the major capex overspend adjustment, major capex project output adjustment or major capex sunk costs adjustment, if applicable, for the 2014-15 disclosure year, which will be recovered from or returned to revenue in the update of the forecast MAR in the 2016-17 pricing year;

3.37.4 the result of the major capex efficiency adjustment, if applicable, for the 2014-15 disclosure year, which will be recovered from or returned to revenue in the update of the forecast MAR in the 2016-17 pricing year;[42]

3.37.5 any minor capital expenditure overspend adjustment calculated for RCP1 at the end of the 2014-15 disclosure year, which will be recovered from or returned to revenue in the update of the forecast MAR in the 2016-17 pricing year;[43] and

3.37.6 the result of any major capex overspend adjustment or major capex output adjustment following the commissioning in RCP1 of the North Island Grid Upgrade (NIGU) project, which will be determined once we make our decision on Transpower's request for an amendment to the major capex allowance and approved major capex project outputs. This will likely be returned to revenue in the update of the forecast MAR in any remaining years in RCP2 following our decision regarding that project (see below 'Avoiding price shocks caused by large EV adjustments').[44]

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42 Ibid, 2013, clause 5.3(4)(e); and 2012, Schedule B, clause B7.

43 Ibid 2013, clause 5.3(4)(d).

44 Commerce Commission "Amending Transpower's allowance and outputs for the North Island Grid Upgrade Project; Our proposed approach and issues to consider" (29 November 2013), paragraphs 2.50 to 2.55.

Avoiding price shocks caused by large EV adjustments

3.38 We signalled in the Capex IM reasons paper that we would consider whether EV account entries should be spread over more than one year to avoid price shocks in exceptional circumstances.[45]

3.39 These circumstances might include particularly large entries from MAR wash-ups or from the incentive mechanisms. For example, it might apply to large major capex overspend adjustments.

3.40 The experience to date in RCP1 has been that the MAR wash-ups do not cause shocks in the later forecast MAR updates. This is because they arise principally from forecast variations and project commissioning variations which are largely under Transpower's control.

3.41 Of potentially greater significance would be large incentive adjustments arising from capex overspends in the major capex overspend adjustment or the base capex expenditure adjustment.

3.42 Given that the major capex overspend adjustment is asymmetric (ie, only applies to project overspends) and the chances of Transpower materially underspending its base capex are probably low, we would expect any exceptional circumstances to relate to material overspend adjustments rather than underspend amounts.

3.43 Given the size of the adjustment proposed by Transpower to the major capex allowance for the NIGU project, there is the potential for a price shock effect if we were to not allow a material portion of the amount requested by Transpower.

3.44 Such adjustments for project overspends will be in consumers' favour and therefore should arguably be returned to consumers at the next available opportunity. However, we consider there is a balance between giving consumers such a temporary reduction in prices for one year and the objective of predictability of future prices.[46]

3.45 Consistent with our decision described in the Capex IM reasons paper, the individual price-quality path determination will provide for Transpower to be able to request approval from the Commission to spread the resulting EV adjustment over more than one pricing year.

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45 Commerce Commission, "Transpower Capital Expenditure Input Methodology, Reasons Paper", 31 January 2012, paragraph 2.3.8.

46 See Meridian Energy Limited "Transpower RCP2 submission" (3 March 2014), p. 1 "Predictability of annual wash-up process."

3.46 Subject to the circumstances at the time, we would not normally expect the spreading of the EV adjustment over multiple years to cross between regulatory periods.

We propose that Transpower can voluntarily under-recover revenues from consumers

3.47 We propose that Transpower would be able to make voluntary revenue reductions in RCP2 if it wishes to do so. We also propose that any voluntary reduction in the allowable benefits under the IRIS in RCP2 would also be treated as a voluntary reduction in the forecast MAR.

3.48 Transpower has to date indicated two instances where it proposes to make voluntary revenue reductions in RCP2. These total $49.1m across RCP2 ($27.1m for the NIGU project voluntary reduction and $22m for the RCP1 maintenance scope adjustment in the IRIS).[47]

3.49 Given that such adjustments are *prima facie* beneficial to consumers, we see no reason to put in place a calculation mechanism for these voluntary adjustments. However, we will ensure that the drafting of the individual price-quality path determination is done in a way that does not interfere with the intent of the adjustments.

3.50 We propose that Transpower will report on the reasons for any voluntary revenue adjustments or IRIS benefit adjustments in its annual compliance statement. This is so we and other interested persons can understand whether the outputs proposed for RCP2 are affected or whether any consequent adjustment will be required to expenditure, outputs or revenues for RCP3 in due course.

3.51 For more detail on this voluntary revenue adjustment process, see Attachment B.

We propose to apply cash-flow timing assumptions in setting the forecast MAR

3.52 The building block calculations used in setting the forecast MAR and the MAR wash-up each year of RCP2 will apply mid-year cash-flow timing assumptions. This will better account for the time-value of money within a disclosure year and is similar to the assumptions we have adopted in other regulated sectors.[48] Currently, the building block calculations and MAR wash-up use an end-of-year cash-flow timing assumption.

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47 Transpower "2015/16 to 2019/20 Transmission Revenue" (9 December 2013), p. 2.

48 For background discussion on the cash flow timing assumptions adopted in the electricity distribution sector and in the gas distribution and transmission sectors for customised price-quality paths, see Commerce Commission, "Electricity and Gas Input Methodologies Determination Amendments (No.2) 2012, Reasons Paper", 15 November 2012.

3.53 More accurate modelling of the building blocks in the price path will reduce the likelihood that Transpower will under- or over-recover returns for the regulatory period after taking account of the time-value of money. This will result in a price path that more accurately reflects the expenditure that would be seen in competitive markets. In particular, it limits any excessive profits that may arise when assuming end-of-year timing of cash-flows.

3.54 This change in timing assumptions recognises that Transpower will incur and receive cash-flows at various times during each disclosure year. Using the amended forecast cash-flow timing assumptions will more accurately reflect Transpower's forecast cash-flows.

3.55 The details on the timing assumptions we propose to apply to the building blocks are described in more detail in Attachment B.

Substituting opex for major capex during the regulatory period

3.56 Transpower has identified circumstances where the expenditure amounts we approve in a major capex allowance may ultimately be required under GAAP accounting to be accounted for as opex rather than capex as they become incurred during the project.

3.57 A key issue is the respective treatments of opex and capex under the incentives we have set for Transpower. The major capex overspend adjustment incentive in Schedule B of the Capex IM is asymmetric (ie,. it only penalises overspends and does not reward underspends). The IRIS mechanism for opex is currently asymmetric, but we are currently consulting on whether to make it symmetric (which is our preferred approach).

3.58 If our preferred approach of making the IRIS symmetrical is adopted, this would mean that the effective substitution arising from the GAAP accounting classification of expenditure that was originally forecast in the major capex allowance as capex, but then actually gets accounted for as opex under GAAP, could have the effect of incentivising Transpower to spend on projects in a way that does not encourage efficiency.

3.59 To maintain the incentive neutrality would require an adjustment mechanism to allow actual expenditure incurred against the approved major capex allowance that ends up being accounted for under GAAP as opex to be classified and recovered in revenues in the course of the regulatory period as recoverable costs.

3.60 Transpower has not identified a need for any mechanism for similar substitution of opex back to major capex. Neither is a mechanism required between base capex and opex, as the respective expenditure incentives are symmetrical and the incentive rates are approximately aligned.

3.61 If the symmetrical treatment of opex is adopted in the IRIS, we propose to proceed with an adjustment mechanism between approved major capex and the actual opex incurred in order to deliver major project outputs. The mechanism would have the following features:

3.61.1 The mechanism would only apply to expenditure incurred by Transpower after our approval of the major capex project under the Capex IM;

3.61.2 The expenditure that the mechanism applies to must have been initially forecast as capital expenditure in the major capex proposal and subsequently required to be accounted for under GAAP as opex;

3.61.3 The total approved expenditure (both capex and opex incurred on the project) would not change as a result; and

3.61.4 The expenditure must be necessary to deliver major capex project outputs.

3.62 This mechanism would require an amendment to the Capex IM. See Attachment C for further details on our consultation for the necessary amendment.

The base capex allowance would be adjusted in RCP2 for 'listed projects'

3.63 The cut-off point between base capex and major capex is set in the Capex IM in one of two ways:[49]

3.63.1 By technical description of the type of project: capital expenditure on replacement, refurbishment, business support and ICT assets is base capex irrespective of the size of the project; or

3.63.2 By dollar value: projects or programmes that exceed $20 million and that are not base capex under one of the above technical descriptions is major capex.

3.64 Separately from the RCP2 expenditure proposal, Transpower asked us to consider an input methodology amendment to the Capex IM to allow R&R projects that have a high cost, broad scope and/or uncertain timing (such as line reconductoring) to be included as part of the major capex approval process.

3.65 We consider it appropriate to exclude any reconductoring expenditure from the draft decision on the base capex allowance to be used in the setting of the forecast MAR for RCP2 because the need, timing or cost of each project was uncertain when Transpower submitted its proposal.[50]

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49 Capex IM, clause 1.1.5(2), definition of 'base capex.'

50 Details of the specific projects as provided to us by Transpower are set out in Chapter 5.

3.66 If the expenditure is included in setting the base capex allowance, the risk is that the uncertainties about amount and timing may result in the base capex incentive mechanisms ultimately producing revenue adjustments that are not in the best long-term interest of consumers. For example, Transpower may incur a revenue penalty for not being able to forecast the costs of a reconductoring project accurately even if the amount spent is efficient.

3.67 Even so, we do not consider that excluding the expenditure for the full term of RCP2 would meet the purpose of Part 4 (ie, incentive to invest in replacement and improve efficiency). The projects relate to a number of reconductoring requirements that we consider might justifiably need to be carried out in RCP2. Delaying the projects to RCP3 for inclusion in the base capex allowance for that regulatory period may not be in the interests of consumers.

3.68 We consulted on this matter in our Issues paper. The Major Electricity Users' Group (MEUG) suggested two options for dealing with the identified uncertainties on these large projects:

3.68.1 shorten the term of RCP2 to say 3 years and bring forward the RCP3 proposal to allow the projects to be forecast more accurately for the third regulatory period, or

3.68.2 provide for an allowance for contingent expenditure within RCP2.

3.69 We do not consider the arguments for shortening the regulatory period from the standard five years, as set out in the Commerce Act, are sufficiently strong in this case.

3.70 In its submission on our Issues paper, Transpower agreed that the large reconductoring projects did not fit comfortably with the base capex approval framework, but also did not automatically fit within the major capex approval framework, because the investment need is brought on by asset condition rather than the need for capacity and network use.[51]

3.71 After considering Transpower's request and consulting in our Issues paper, our draft decision is that the individual price-quality path determination will instead include a framework for considering increases to the base capex allowance during the course of RCP2.

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[51] Transpower "Response to IPP issues paper" (3 March 2014), paragraph 17.

3.72 Our draft decision to include this framework in the individual price-quality path determination rather than as a permanent input methodology reflects our expectation that Transpower will be in a position to comprehensively propose a base capex allowance for RCP3. This would include all forecast R&R projects. Our expectation is that the framework would not be required for RCP3 or beyond.

3.73 Subject to the outcome of consultation on an amendment to the price path reconsideration input methodology to give effect to this mechanism in the individual price-quality path determination, any adjustments to the base capex allowance would then feed into the yearly updates of the forecast MAR. This is similar to the price path reconsideration allowed in the input methodologies for newly-approved major capex projects.[52]

3.74 Under the proposed framework Transpower would submit to the Commission for approval an application certified by its Chief Executive. If, after reviewing the application, we believe conditions outlined in the individual price-quality path have been met, we would reconsider the individual price-quality path to provide for the revenue impact of the additional base capex allowance for the relevant listed project. This element of the listed project framework would require amendments to the Transpower IMs—see Attachment C for further details.

3.75 Where asset enhancement is more than merely incidental as an outcome of the project, Transpower would instead be required to submit a major capex proposal in line with the relevant provisions of the Capex IM.[53]

A definition of 'other regulated income' is required

3.76 In RCP1 there was no formal definition of other regulated income in the individual price-quality path determination. However, in practice Transpower has included income, other than transmission charges, which is associated with its electricity transmission services in the MAR wash-up calculations.

3.77 The definition of 'other regulated income' was incorporated into Transpower's information disclosure determination for the purposes of the return on investment calculation. This is to ensure that all forms of income are included in the MAR wash-up calculation where the underlying expenditure giving rise to the income has been allowed as an approved amount in the MAR building blocks.

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52 It is also similar to the contingent project mechanism that is provided for gas transmission businesses. See *Gas Transmission Services Input Methodologies Determination 2012*, Decision 712, clause 5.7.3(1).

53 See respective paragraphs (b) of the definitions of 'asset refurbishment' and 'asset replacement' in Capex IM, clause 1.1.5(2). These effectively exclude a project from the definition of 'base capex' and includes it in 'major capex' if the project improves the original service potential (for asset refurbishment) or materially improves the original service potential (for asset replacement).

3.78 Two examples of other forms of income are:

3.78.1 the proceeds of disposal of assets from the RAB; and

3.78.2 the receipt of insurance proceeds, which in the case of recent catastrophic events in New Zealand have been shown to be very material.

3.79 For consistency, we propose that the same definition as for information disclosure would apply under the individual price-quality path determination. This definition would exclude:

3.79.1 income that has already been accounted for in the MAR wash-up in transmission prices;

3.79.2 investment-related income;[54] and

3.79.3 capital contributions received as a contribution toward the cost of an asset, which under GAAP are offset against the RAB rather than being recognised as income.

3.80 Given the potential difficulty in forecasting other regulated income, we do not propose to require it to be forecast in the forecast MAR calculation. It will be recognised in the MAR wash-up. This is consistent with the way Transpower has accounted for such income in RCP1.

[54] For example, insurance proceeds received by Transpower from its captive insurance subsidiary Risk Reinsurance Limited under the terms of an insurance policy held by Transpower would be classified as 'other regulated income' for these purposes and would be included in the MAR wash-up, but a dividend payment from that subsidiary would be 'investment-related income' and would be excluded from the MAR wash-up.

4. Our proposed grid output measures and quality standards

Purpose of this chapter

4.1 This chapter sets out our draft decisions on the grid output measures and quality standards that will apply to Transpower for RCP2.[55] It discusses grid output measures that are revenue-linked and not revenue-linked separately.

4.2 Attachment E sets out additional analysis that supports our draft decisions on the grid output measures.

Our draft decision on revenue-linked grid output measures and quality standards

4.3 We propose that specified grid output measures will be linked to revenue, which are grouped into two types (as per Transpower's proposal):[56]

4.3.1 asset performance (AP) measures, for which there are two measures AP1 and AP2.

4.3.2 grid performance (GP) measures, for which there are three measures GP1 to GP3 that each have five categories that represent different points of service.

4.4 Each of the 17 measures has a proposed target, cap, collar, and incentive rate. The cap and collar set the range of performance for which Transpower will be penalised or rewarded with the cap being the upper bound for rewards. The incentive rate is the dollar amount of revenue loss or gain for each unit of deviation from the target.

4.5 The total amount of revenue at risk each year for all revenue-linked measures is $10m, which is the maximum amount of revenue Transpower can lose or gain through this mechanism.

4.6 The quality standards that we propose to apply for RCP2 are the grid output targets for each of the 17 revenue-linked measures.

4.7 Table 4.1 shows the quality standards and grid output targets for RCP2 along with the caps, collars and incentive rates.

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55 A grid output measure quantifies the benefits delivered by the grid. Clause 2.2.2(1)(c) of the Capex IM defines five types of grid output measures: grid performance; asset performance; asset capability; asset health and other.

56 Transpower has proposed its grid output measures in section 10 of its proposal—Transpower "Expenditure Proposal for Regulatory Control Period 2" (2 December 2013). In its proposal, Transpower refers to 'grid output measures' as 'service performance measures'. In this paper we use 'grid output measures' as used in the Capex IM or just 'measures.'

Table 4.1: Quality standards and components of revenue-linked grid output measures

Grid output measure	Point of service category	Quality standard	Target	Cap	Collar	Incentive rate ($000 per unit from target)
Asset performance measures						
Availability of circuits (%)	AP1: HVDC	98.5	98.5	99.5	97.5	1,000
	AP2: HVAC	99.6	99.6	100	99.2	2,500
Grid performance measures						
GP1: Number of interruptions (per annum)	High Priority	2	2	0	4	606
	Important	9	9	4	14	242
	Standard	26	26	21	31	133
	Generator	11	11	6	16	133
	N-security	50	50	26	74	10
GP2: Average duration of interruptions (per annum in minutes)	High Priority	70	70	30	110	15
	Important	100	100	30	170	9
	Standard	65	65	0	130	5
	Generator	130	130	50	210	4
	N-security	80	80	45	115	3
GP3: P90 Longest durations (per annum in minutes)	High Priority	120	120	80	160	15
	Important	240	240	170	310	9
	Standard	130	130	60	200	5
	Generator	350	350	260	440	4
	N-security	215	215	170	260	3

4.8 Asset performance measure AP1 is the measure of energy availability of the high-voltage direct current (HVDC) Pole 2 and Pole 3. Asset performance measure AP2 is the average availability of a selected group of high-voltage alternating current (HVAC) circuits.[57]

[57] Transpower "Service Performance Measures", in Transpower *Expenditure Proposal for Regulatory Control Period 2* (2 December 2013), BR04, pp. 57-61.

4.9 The three GP measures provide information on the number and duration of unplanned interruptions to supply.[58]

4.10 The five categories for the GP measures reflect the different needs and expectations of customers concerning their points of service.[59] The categories are high priority, important, standard, generator and N-security.

Our draft decision on the other performance-based grid output measures.

4.11 In addition to the revenue-linked measures, we propose to set nine other performance-based grid output measures for RCP2.[60] These are a combination of the six measures that Transpower proposed and three additional measures. We will require that Transpower reports against these other performance-based measure, but they are not linked to revenue. Table 4.2 lists these other measures (OM).

Table 4.2: Other performance-based grid output measures proposed for RCP2

Grid output measures	Description
OM1	Time to provide initial information following an unplanned interruption.
OM2	Time to provide updated information following an unplanned interruption.
OM3	Accuracy of notified restoration times following unplanned interruptions.
OM4	Extent that Transpower meets planned outage restoration times.
OM5	Extent that Transpower places customers on 'N' security.
OM6	Number of unplanned momentary (of less than one minute) interruptions.
OM7	Energy not supplied for each point of service for each interruption.
OM8	Extent that Transpower meets planned outage start times for critical circuits and equipment.
OM9	Extent that Transpower provides its reports to affected parties on unplanned interruptions within 15 workings days of the interruption. Transpower will report any exceptions on the number of times it did not meet the timeframe.

Note: OM1 to OM6 are as proposed by Transpower.

58 Transpower has also proposed long-term targets for the grid performance measures. Our view on the long-term targets is discussed in Attachment E.

59 Transpower "Expenditure Proposal for Regulatory Control Period 2" (2 December 2013), p. 123.

60 We have used the term 'performance-based grid output measures' to distinguish these measures with the 'other grid output measures' used in the Capex IM. By definition, these measures are 'performance-based measures' rather than 'other grid output measures.'

How we have reached our draft decision

4.12 We have aimed to select quality standards, grid output measures and set targets for the applicable measures so that consumers will be able to assess whether Transpower is providing the quality of service that they expect.[61]

4.13 In reaching our draft decision we have considered:

4.13.1 consumer's expectations of Transpower's performance;

4.13.2 the alignment between consumer expectations and the proposed grid output measures and targets, caps and collars;

4.13.3 recommendations by our external consultant;

4.13.4 the consistency of our decision with the Capex IM; and

4.13.5 the consistency of our quality standards with those set by the Electricity Authority.[62]

4.14 We set out the rules and processes that we have followed in setting grid output measures and quality standards in Attachment A.

4.15 We engaged Partna to review the grid output measures developed by Transpower and assess how those measures compare with practice in Australia and in the UK.[63] The Partna report is available on our website. Strata peer reviewed this work.

4.16 Partna's advice also informed our draft decisions on the revenue-linked incentive rates, caps and collars.

4.17 In the following sections we discuss:

4.17.1 the relationship between quality standards and grid output measures for RCP2;

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61 The purpose of Part 4 includes that regulated suppliers should "provide services at a quality that reflects consumer demands"; Commerce Act, clause 52(1)(b).

62 Section 54V of the Commerce Act requires that the quality standards we set should be based on and consistent with the quality standards for Transpower as set by the Electricity Authority. We discussed our proposed quality standards with the Electricity Authority and our view is that the two are consistent given the direction the Electricity Authority plans to take and the different roles of the two sets of quality standards. The Electricity Authority quality standards focus on the performance of the core grid while the ones we propose focus on the customer.

63 Partna is also the secretariat for the ENA Quality of Supply and Incentives Working Group. The Commission is an observer on this group.

4.17.2 how our revenue-linked measures and quality standards reflect Transpower's proposal but are more challenging; and

4.17.3 how we propose additional 'other performance-based grid output measures.'

The relationship between quality standards and grid output measures for RCP2

4.18 As part of the price-quality path, we are required to determine quality standards.[64] Through the Capex IM we established a mechanism to measure performance against grid outputs and link this to revenue.[65] This provides incentives to balance cost/quality trade-offs, consistent with the provisions in s 53M(2) of the Commerce Act.

4.19 When we set the Capex IM we explained that quality standards for any given regulatory period will comprise, at minimum, of a subset of grid output measures for that period (eg, performance-based measures that quantify the level of service received by consumers). We also explained that the quality standards may incorporate additional measures.

> A subset of the grid output measures that are determined and apply to a given RCP [regulatory control period], will be, in part, the quality standards that apply to that RCP. This will fulfil the requirement of s 53M for the Commission to set quality standards. However, the determination that specifies the quality standards may set additional quality standards to those captured by the grid outputs.[66]

4.20 The quality standards that we set are quantifiable measures, such as targets or bands. For RCP2, Transpower has proposed targets for its revenue-linked grid output measures. Similar to RCP1 these have focused on availability (ie, HVDC, HVAC) and interruptions of supply. Submissions indicated a general level of support (albeit, not unqualified) for the grid output measures and targets proposed.[67]

4.21 We propose for RCP2 that all Transpower's revenue-linked grid output targets are quality standards. The revenue-linked grid output targets are performance-based measures that quantify the level of service received by consumers. We have not proposed any additional quality standards. Grid output measures that are not revenue-linked will be reported on only; however, these may inform quality standards in the future.

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64 Commerce Act 1986, s 53M.

65 Commerce Commission "Transpower Capital Expenditure Input Methodology Reasons Paper" (31 January 2012), pp 38-45.

66 Ibid, paragraph 3.4.4, p. 39.

67 Major Electricity Users' Group "Transpower RCP2 submission", 3 March 2014, p. 3; Meridian "Transpower RCP2 submission", 3 March 2014, p. 2; and CarterHoltHarvey "Transpower RCP2 submission", 3 March 2014, p. 4.

Our revenue-linked measures and quality standards reflect Transpower's proposal but are more challenging

4.22 As set out above, our draft decision is to adopt the same 17 revenue-linked grid output measures as proposed by Transpower, and to impose as quality standards the grid output targets for those 17 measures. As discussed in Attachment E, paragraphs E5 to E8, we consider these measures are adequate and meet the requirements for the grid output adjustment set out in the Capex IM.[68] The grid output adjustment is the mechanism used to give effect to revenue adjustments concerning grid output measures.

4.23 We propose to use the same target values as proposed by Transpower, except for GP1 which measures the number of interruptions per annum. For GP1 we propose to exclude automatic under-frequency load shedding (AUFLS) events and set more challenging targets for high priority, important and N-security points of supply. Transpower's proposed targets for GP1 were based on historical performance that included interruptions due to AUFLS events. We consider that the AUFLS events inappropriately skewed Transpower's targets. This is discussed further in Attachment E.

4.24 We have set caps, collars and an incentive rate that capture a number of factors, including the VOLL. These are discussed further below. As our draft decision is to set more challenging targets for GP1 than those proposed by Transpower, the caps and collars will also differ from those proposed by Transpower to ensure the revenue at risk remains at about 1% of MAR. The caps and collars are symmetrical.[69]

4.25 We propose to have $10 million of revenue at risk each year.[70] We consider this will provide Transpower with sufficient incentive to consider cost-quality trade-offs of its investment decisions. We estimate 1% of revenue equals approximately a 2% change in earnings before interest and tax, all things being equal.[71] Our draft decision is consistent with the amount of revenue at risk in similar mechanisms in overseas regulatory regimes of similar maturity.[72] We have adopted Transpower's proposed distribution of the revenue at risk across the different measures.[73]

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68 The Capex IM specifies that Transpower must propose a suite of grid output measures that includes asset performance measures and grid performance measures. See Capex IM, clause 2.2.2(1)(c).

69 Commerce Commission "Transpower Capital Expenditure Input Methodology Reasons Paper" (31 January 2012), paragraph 3.4.3, p. 38.

70 This means that Transpower may be penalised by up to $10m a year if it fails to surpass all collars that are set, or receive up to an additional $10m in revenue if all caps are exceeded. $10 million is approximately 1% of Transpower's estimated average annual revenue in RCP2.

71 Based on Transpower's forecast revenue for 2014/15.

72 The Australian Energy Regulator's recent decisions have linked 1% of transmission system operators' revenue with reliability targets. In some cases, an additional 2% of revenue was linked to market impact measures. See for example Australian Energy Regulator "Final decision: ElectraNet transmission

4.26 In the remainder of this section we explain:

4.26.1 how the grid output adjustment links Transpower's revenue with its performance;

4.26.2 what the grid output adjustment comprises and how it works;

4.26.3 how a number of factors influence how caps, collars and incentive rates are determined; and

4.26.4 the potential implications of not meeting the quality standards.

The grid output adjustment links Transpower's revenue with its performance

4.27 The annual grid output adjustment is the mechanism that connects the revenue-linked grid output measures and by which Transpower's revenue is adjusted.[74]

4.28 The grid output adjustment is intended to incentivise Transpower to provide services at a quality that reflects consumer demand by balancing the cost-quality trade-offs. The incentive scheme also reduces any incentives for Transpower to under-invest that may result from other incentive mechanisms.

What the grid output adjustment comprises and how it works

4.29 The grid output adjustment comprises four components: target level of performance, cap, collar, and incentive rate.

4.29.1 There is a target level of performance for each of the grid output measures included in the adjustment;

4.29.2 A 'cap' and a 'collar' sets the range of performance for which Transpower may be penalised or rewarded. The cap is the upper bound and the collar is the lower bound. The purpose of the cap and collar is to limit the amount of revenue that is at risk under the incentive scheme; and

4.29.3 An incentive rate determines the financial impact (loss or gain) on Transpower of each unit (number, minute or percentage) of deviation from the target, up to the cap or collar.

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determination, 2013-14 to 2017-18", April 2013, p. 45. Ofgem's decision for TPCR4 was that up to 1% of transmission system operator's revenue was at risk for outperformance against the reliability targets, and up to 1.5% was at risk for underperformance. Ofgem "TPCR4 Rollover: Final Proposals", 28 November 2011, page 32.

73 80% of the revenue at risk is linked to grid performance measures and of this, most related to load customers with N-1 security. This reflects the most important aspect of service to customers and consumers, and the higher cost to these customers from loss of supply.

74 Capex IM, Schedule B, clause B3.

4.30 The revenue at risk is the maximum amount of additional revenue Transpower may receive if it exceeds the targets established, and the maximum it may be penalised if fails to meet these targets.

4.31 Together, these components determine the extent that Transpower is likely to have revenue gains or losses as a result of the quality of service it provides in RCP2. Below we provide some stylised examples of how the adjustment is calculated.

4.31.1 Example 1: for GP1 high priority points of service the target is 2 interruptions, the cap is 0 interruptions, the collar is 4 interruptions and the incentive rate is $606,000 per interruption.

4.31.1.1 If actual performance is 1 interruption, then Transpower will be rewarded by $606,000 = (2 – 1) x $606,000.

4.31.1.2 If actual performance is 4 interruptions, then Transpower will be penalised by $1,212,000 = (2 – 4) x $606,000.

4.31.1.3 If actual performance is 6 interruptions, then Transpower will be penalised by $1,212,000, since the penalty is capped at 4 interruptions.[75]

4.31.2 Example 2: for AP1 the target is 98.5%, the cap is 99.5% and collar is 97.5% and incentive rate is $1,000,000 per 1% variation.

4.31.2.1 If actual performance is 99.0%, then Transpower will be rewarded by $500,000 = (99.0% – 98.5%)*$1,000,000.

4.31.3 Example 3: for AP2 the target is 99.6%, the cap is 100%, the collar is 99.2% and the incentive rate is $2,500,000 per 1% variation.

4.31.3.1 If actual performance is 99.4%, then Transpower will be penalised by $500,000 = (99.6% – 99.4%)*$2,500,000.

[75] There is, however, the possibility of Court penalties. See paragraph 4.36.

The caps, collars and incentive rates are determined based on a number of factors

4.32 The incentive rate is determined by the amount of revenue at risk, as well as the caps and collars.

4.33 We have set the caps and collars to ensure that the resulting incentive rate reflects, to the extent possible, the value of lost load (VOLL). The VOLL is taken as $20,000 per MWh. We have adopted Transpower's assumption that there is an average system-wide load of 4,500 MW allocated across the different customer types and that the average interruption is 30 minutes. Our draft decision on the incentive rates recognises that the VOLL is an average and will therefore vary for different customer groups.[76]

4.34 A cross-check indicates that the revenue at risk for each measure reflects between 69% and 141% of the VOLL, depending on the measure and the point of service category. Table 4.3 sets out the proposed incentive rates for each grid output measure, and compares these values as a percentage of VOLL.

4.35 We have also had regard to Transpower's historic performance and long-term targets when setting the caps and collars.[77] In some instances, our draft decision on the cap exceeds the long-term target. However, we consider the resulting incentive rates and collars will provide Transpower with the appropriate incentives to provide services at a quality that reflects consumer demands.

[76] We have tried to ensure that the incentive rate relative to the value of lost load is highest for High Priority point of service categories, consistent with Transpower's approach.

[77] In its proposal, Transpower set both long-term targets and RCP2 targets for the revenue-linked grid outputs measures.

Table 4.3: Comparison of incentive rates against VOLL, and revenue at risk

Grid output measure	Point of service category	Incentive rate ($000 per unit from target)	Incentive rate as % of VOLL (per unit)	Revenue at risk ($000)
Asset performance measure				
Availability (%)	AP1: HVDC	1,000	NA	1,000
	AP2: HVAC	2,500	NA	1,000
Grid performance measure				
GP1: Number of interruptions (per annum)	High Priority	606	141	1,212
	Important	242	86	1,212
	Standard	133	83	667
	Generator	133	83	667
	N-security	10		242
GP2: Average duration of interruptions (min)	High Priority	15	106	606
	Important	9	92	606
	Standard	5	95	333
	Generator	4	77	333
	N-security	3		121
GP3: P90 Longest durations (min)	High Priority	15	106	606
	Important	9	92	606
	Standard	5	88	333
	Generator	4	69	333
	N-security	3		121

Implications of not meeting the quality standards

4.36 In exceptional circumstances where quality standards are not met, the Commission may seek pecuniary penalties under s 87 or criminal sanctions under s 87B of the Commerce Act for that underperformance. We will not take any such enforcement action for performance below the quality standard but above the collar that is set for the grid output measure. Any enforcement action would be in addition to the grid output adjustment. Attachment A sets out further information on these matters.

We propose additional 'other performance-based grid output measures'

4.37 As set out above we propose to set nine other performance-based grid output measures for RCP2, three more than Transpower proposed. These measures will have compliance reporting requirements.

4.38 In the remainder of this section:

4.38.1 we discuss the details of the three additional performance-based grid output measures; and

4.38.2 we explain why we do not propose to link any performance-based measures to revenue.

Details on the three additional performance-based grid output measures

4.39 The additional measures have been included as a result of the submissions we received on our Issues paper and our evaluation of Transpower's proposal. These are discussed below.

4.40 Grid output measure OM7: Under this measure Transpower will report the estimated unserved energy, in MWh, due to unplanned interruptions. The report should disclose the estimated unserved energy, the date, time and duration of the interruption per point of service. This new measure allows consumers to estimate the financial impact of interruptions, using the VOLL applicable to them.

4.41 Grid output measure OM8: Transpower will report the number of times it does not meet the start times of planned outages, and the reasons for the delay or postponement. We are mindful that market requirements are one of the main reasons for Transpower not being able to start its planned outages on time. For this reason, OM8 is likely to continue to be a reporting measure in the foreseeable future and not linked to revenue. We note that in Australia, transmission operators are rewarded, with an incentive of up to 2% of revenue, for scheduling planned outages that reduce the impact of the outage on the electricity market.[78]

4.42 Grid output measure OM9: This grid output measure will incentivise Transpower to provide reports on interruptions to supply to affected parties within a reasonable time frame following an interruption. Consumers indicated that they wanted Transpower to regularly report on how it was performing in terms of GP1, GP2, OM5 and OM6.[79] We consider that regular additional reporting on these measures is not very productive. Instead we consider that it is more useful to consumers and interested parties for Transpower to report, in a timely manner, the reasons for any interruptions and the corrective actions that Transpower has taken or plans to take.

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78 Partna report, pp. 31 and 39.

79 Carter Holt Harvey "Transpower RCP2 submission" (3 March 2014), Q22 and Q30.

We expect that this will assure affected consumers that Transpower is focused on resolving supply issues that affect them.

Other performance-based measures will not be linked to revenue

4.43 We do not propose to link any other performance-based measures to revenue in RCP2. Submissions suggested we should revenue-link some of the other measures.[80] We do not consider this is appropriate at this time because we consider that:

4.43.1 there is insufficient information on these measures at this time to include them in a manner that will provide the right incentives; and

4.43.2 including additional measures without appropriate analysis and supporting data may have unintended consequences.

4.44 We propose that Transpower develops and reports on these other performance-based grid output measures during RCP2, and considers linking some of these to revenue in RCP3.

4.45 We will discuss how these measures will be reported in the companion paper that will accompany the draft individual price-quality path determination.

80 Meridian "Transpower RCP2 submission" (3 March 2014), p. 2.

5. Our proposed operating and capital expenditure allowances

Purpose of this chapter

5.1 The purpose of this chapter is to set out our draft decisions and supporting reasons for Transpower's opex and base capex allowances for RCP2.

5.2 This chapter also sets out our draft decision on the cost escalators used to convert the 2012/13 constant price allowances into nominal allowances.

5.3 Transpower presents its forecast expenditure in its proposal on a 2012/13 constant prices basis. We have evaluated the expenditure on the same basis. Values in this chapter are therefore expressed in 2012/13 constant prices, unless otherwise stated. What we approve though is a nominal expenditure allowance for each year of RCP2.

5.4 This chapter should be read with the Strata report.

Our draft decision on opex and base capex allowances

5.5 Following a detailed review of Transpower's proposal, our draft decision is to reduce Transpower's total proposed opex allowance by $71.8m and its base capex allowance by $133.3m.

5.6 Our adjusted expenditure allowances for RCP2 are set out in Table 5.1.

Table 5.1: Total proposed expenditure adjustments for RCP2 (2012/13 constant prices)

	Transpower's proposal ($m)	Our draft adjustments ($m)	Adjusted expenditure ($m)
Opex	1309.3	-71.8	**1,237.5**
Base Capex	1188.6	-133.3	**1,055.3**

Note: we have provided for additional expenditure relating to demand response in the opex allowance. In this table, our draft adjustments have been reduced to account for the $1.5m demand response allowance.

5.7 This constant price expenditure does not take into account the 7.5% productivity adjustment proposed by Transpower.[81] For comparability, this is applied to the nominal allowances in the same manner as Transpower's proposal. The 7.5% adjustment applies to R&R and information and communications technology (ICT) capex only, and not the base enhancement and development (E&D) expenditure as proposed by Transpower.

81 Transpower "Expenditure Proposal for Regulatory Control Period 2" (2 December 2013), page IV.

5.8 The reduction in the base capex allowance includes $34.2m relating to transmission lines and AC station portfolios. The reduction to base capex may be less if Transpower can propose an appropriate incentive mechanism that links expenditure to delivered levels of asset health for transmission lines and AC stations portfolios.

5.9 For the purposes of the individual price-quality path, we approve nominal opex and base capex allowances. This requires converting the constant price allowance into expenditure valued in the dollars of the forecast year. Transpower forecast cost escalators to convert constant price expenditure into a proposed nominal expenditure allowance.

5.10 Our draft opex and base capex allowances are set out in Table 5.2. The table also shows a reduction to the base capex allowance of $80.8m owing to the 7.5% productivity adjustment.

Table 5.2: Total opex and base capex allowances (nominal) for RCP2

	Opex ($m)	Base capex ($m)
Adjusted expenditure	1,237.5	1,055.3
CPI inflation	117.5	98.6
Real price effects	19.7	46.1
Nominal expenditure	1,374.6	1,200.0
Nominal commissioned	-	1181.9
USD foreign exchange adjustment	- 0.2	- 4.2
7.5% productivity adjustment	-	- 80.8
Draft nominal allowance	**1,374.6**	**1,096.9**

Note: the base capex allowance is approved on a commissioned basis so the nominal expenditure has been converted to a commissioned basis using assumptions as to when certain base capex will be commissioned (able to be used to provide electricity lines services). Figures may not add exactly due to rounding. See Attachment F for a discussion on the cost escalators used to convert constant price expenditure into nominal allowances.

5.11 The allowances for each year of RCP2 are set out in Table 5.3.

Table 5.3: Opex and base capex allowances (nominal) for each year of RCP2

	2015/16	2016/17	2017/18	2018/19	2019/20	Total RCP2
Opex ($m)	264.8	271.8	278.0	278.8	281.2	**1,374.6**
Base capex ($m)	224.3	246.4	206.4	219.5	200.3	**1,096.9**

5.12 The proposed base capex allowance excludes expenditure associated with certain condition-based reconductoring projects. As discussed in Chapter 3, we propose to provide an allowance for the 'listed' projects on a project by project basis. The listed projects are discussed later in this chapter.

Cost escalators are applied to the constant price expenditure allowances

5.13 Cost escalators are made up of economy-wide increases in prices as measured by the consumer price index (CPI), and real price effects which reflect the difference between CPI changes and changes in the prices of inputs of particular relevance to Transpower. We discuss cost escalation factors in more detail in Attachment F.

5.14 Our draft decision is to accept Transpower's proposed cost escalation factors once:

5.14.1 Transpower's proposed NZ dollar/ US dollar exchange rate forecast is replaced with forward exchange rates from Bloomberg; and

5.14.2 the foreign exchange exposure assumption to information and systems technology (IST) hardware and software cost escalation is removed.

5.15 We also propose an amendment to the Capex IM for the definition of 'forecast CPI' to allow us to use a different forecast CPI assumption to that used by Transpower. We are consulting separately on this proposed amendment.

5.16 We seek submitters' views on forecasting metals costs. We provisionally agree with Transpower's proposed metals cost escalation factors. However, we are concerned that sharp changes in cost escalation for some commodities, eg, steel which increases at an average yearly rate by 4.8% between 2013 and 2020 (denominated in USD), are forecast with limited explanation.

How we have reached our draft decision

5.17 We have reached our draft decision following a detailed review of Transpower's proposal, and supporting information that was provided with the proposal or subsequently requested. In Attachment A we set out our approach for evaluating Transpower's proposal.

5.18 We have also relied on Strata's advice in reaching our draft decisions. We have followed the Capex IM criteria in our decision-making, and asked Strata to do the same in its advice. At a high-level we consider that the criteria are consistent with assessing whether Transpower's proposal represents the efficient costs of a prudent supplier. We discussed this with Strata and asked them to keep this question in mind throughout its work.

5.19 Strata and the Commission worked closely together throughout the review. This included:

5.19.1 comparing both of our initial observations on Transpower's proposal;

5.19.2 jointly participating in briefing sessions from Transpower and question sessions with Transpower, including meeting debriefs;

5.19.3 regular meetings to discuss Strata's progress, including updates on review findings and proposed recommendations;

5.19.4 reviewing additional questions to Transpower and subsequent replies from Transpower;

5.19.5 reviewing the findings of Strata's review and recommendations, including the assessment against the evaluation criteria in the Capex IM; and

5.19.6 reviewing and commenting on the Strata report.

5.20 Due to the large volumes of information used by Transpower to support its expenditure proposal, we did not find it practical or efficient to review all the information or projects. We adopted a more pragmatic approach where we and Strata performed a top-down review. This started at the governance level and worked down to the individual projects for a representative sample of projects. Further information on the approach can be found in Attachment A.

5.21 We also performed a targeted review of Transpower's financial models, asset management models, cost estimating system, and supporting data to verify that they were developed and used in line with Transpower's stated policies and procedures.

5.22 We have relied on Transpower's expertise, internal processes, and quality systems for areas such as:

5.22.1 the historical information used to build up the cost estimates for volumetric portfolios eg, tower painting;

5.22.2 condition assessment procedures and the resultant data; and

5.22.3 the processes used to determine cost and quantities estimates.

5.23 The top-down review and sampling of individual projects has provided a check on the areas where we have relied on Transpower.

5.24 In the following sections we discuss:

5.24.1 the reasons for our draft decision on the base capex allowance, and what expenditure we consider is prudent and efficient for RCP2;

5.24.2 how the base capex allowance can increase for 'listed projects';

5.24.3 our draft decision for the opex allowance, and what expenditure we consider is prudent and efficient for RCP2; and

5.24.4 the proposed nominal expenditure allowances.

Our proposed base capex allowance

5.25 This section sets out our supporting reasons for our draft decision on a base capex allowance. Transpower proposed a base capex allowance of $1,188.6m (2012/2013 constant prices) for RCP2. The section discusses proposed adjustments for the groupings of portfolios that were used to build up Transpower's proposed base capex allowance.[82] A summary of adjustments proposed for each grouping is set out in Table 5.4.

Table 5.4: Adjustments to Transpower's proposed base capex (2012/13 constant prices)

Base capex category	Transpower's proposal ($m)	Proposed adjustments ($m)	Adjusted totals ($m)
Grid R&R Capex—Transmission lines and AC stations	683.5	- 34.2	649.3
Grid R&R Capex—Secondary Assets	115.7	- 12.2	103.5
Grid R&R Capex—HVDC	21.4	-	21.4
Grid E&D Capex RCP2<$20m	123.8	- 67.1	56.7
ICT Capex—IT finance	22.1	- 15.0	7.1
ICT Capex excluding IT finance	188.7	- 4.7	183.9
Business Support	33.4	-	33.4
Total	**1,188.6**	**- 133.3**	**1,055.3**

Notes: Figures may not add exactly due to rounding.

5.26 The adjustments expressed for each grouping are not specific directions or requirements for Transpower. Rather, they are used to calculate the overall base capex allowance provided for under the Capex IM. Transpower can reprioritise its work programme and corresponding expenditure as it sees fit.

How we have applied Transpower's proposed 7.5% productivity adjustment

5.27 In its proposal, Transpower has applied a 7.5% 'productivity' adjustment to the majority of base capex. Transpower indicates that this is a top-down adjustment that reflects gains in productivity that have been realised through investment that has already taken place and that should be passed through to customers.

5.28 The adjusted nominal amount proposed by Transpower is the expenditure that it believes is required for RCP2 to deliver the proposed level of outputs.

82 When referring to portfolios we are referring to expenditure groupings such as power transformers, tower painting, indoor switchgear replacement etc.

5.29 In its review, Strata considered Transpower's proposed adjustment and accounted for this when proposing further reductions to specific portfolios of constant price expenditure.[83]

5.30 We have accepted Strata's recommendation to remove the adjustment for E&D projects. Strata conducted a project by project review that resulted in expenditure levels for individual E&D projects that we consider are prudent and efficient.

5.31 Transpower has labelled the adjustment a productivity adjustment. This raises questions as to how this interacts with Transpower's incentive mechanisms, eg, the base capex expenditure adjustment in the Capex IM, which aims to improve efficiency.

5.32 We do not consider that there is a conflict owing to the fact that Transpower considers the proposed nominal amount minus the top-down adjustments to be sufficient to deliver the necessary outputs as at the time of the proposal. Any efficiencies representing future increases in productivity that accrue to Transpower will be recognised by the incentive mechanisms we have in place.

We consider $683.5m is for combined Grid Replacement and Refurbishment Capex for transmission lines and AC stations is appropriate

5.33 We consider that $683.5m is prudent and efficient for transmission lines and AC stations R&R capex over RCP2. However, we have concerns with estimation bias and the probability of projects rolling into RCP3. Consequently, we are proposing to reduce the expenditure by $34.2m to $649.3m.

5.34 A material difference between the grid capex programme that was delivered compared to what was submitted before RCP1 raises concern about delivery.[84] There are a number of potential reasons why there are variations between forecast and actual capex. [85]

5.35 The issue is not that the variations have occurred, rather the effect of these variations. Reduced spending can be seen as positive so long as it is efficient and not detrimental in achieving network performance targets. For AC stations, if deferral of transformer expenditure was driven by improved asset information, this can be seen as a positive variation as the life is extended and replacement deferred.

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83 Strata report, paragraphs 249-256 and 441-442.

84 Strata report, paragraphs 434-442.

85 The reasons for differences between forecast and actual may include, cost estimation inaccuracy, bias in planning/forecasting, changes in key assumptions (eg, asset condition),changes in policy and strategy (eg, asset lives), changes in statutory obligations, productivity/efficiency gains, and delivery issues (eg, deferral due to resource constraints).

5.36 The variation in transmission lines replacement appears to be mainly attributable to constraints on delivery, including a limited pool of contract painting resources. In this case, the health of the assets is likely to be deteriorating below the ideal state.

5.37 Transpower has improved its modelling and forecasting of expenditure. Even so, given the doubts about Transpower being in a position to deliver the outputs indicated in RCP2, Strata has recommended a reduction in RCP2 of $34.2m.[86]

5.38 The reduction to base capex may be less if Transpower can propose an appropriate incentive mechanism that links an asset health measure to the expenditure for transmission lines and AC substations portfolios.

5.39 The characteristics of the mechanism that we expect are:

5.39.1 the three fleets with well-developed asset health models (power transformers, tower painting, and outdoor circuit breakers) should link asset health with expenditure;

5.39.2 other fleets that do not have well-developed asset health models should link the number of units delivered to expenditure;

5.39.3 each fleet would likely have a separate asset health cap, collar, target, incentive rate; and

5.39.4 if material, some substitution may be allowed between fleets to take into account improved asset health information.

5.40 We have discussed the expectations for the proposed asset health measure with Transpower. Transpower has committed to investigate and propose a mechanism and will include details in its submission on this paper.

We consider $103.5m for combined Grid Replacement and Refurbishment Capex for secondary assets is appropriate

5.41 We consider that $103.5m is prudent and efficient for secondary assets over RCP2. This is a reduction of $12.2m from what Transpower proposed.

5.42 The reduction relates to a large amount of expenditure for the substation management system. This expenditure is not adequately justified in the business case provided by Transpower. We recommend that Transpower should consider changing the implementation programme for the SMS to allow a review of the business case and further quantification of the costs and benefits.[87]

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86 Strata report, paragraph 444.

87 Ibid, paragraphs 424-431.

We consider $21.4m for combined Grid Replacement and Refurbishment Capex for HVDC is appropriate

5.43 We consider that $21.4m is a prudent and efficient level of expenditure for HVDC over RCP2. This is the amount that Transpower proposed. We have reviewed Transpower's proposed expenditure for HVDC capex and the proposed work list appears to be reasonable.[88]

We consider $56.7m for Grid Enhancement and Development Capex is appropriate

5.44 We consider that $56.7m is a prudent and efficient level of expenditure for E&D capex over RCP2. This amount is a reduction of $67.1m from what Transpower proposed.

5.45 In RCP2, E&D base capex is based on a $20m project upper threshold, which is a change from the $5m threshold that applied to RCP1.[89] The result of the increase is that a greater number of E&D projects have been included in this category as compared to RCP1.

5.46 Transpower proposed 15 E&D projects in its proposal. The projects proposed by Transpower mainly deal with regional capacity and security.

5.47 A review of an initial sample of two E&D projects by Strata raised a number of concerns in respect of the needs identification, options analysis, and selection of the preferred options. Strata also found issues with the demand forecasts used by Transpower. Given the result of the review of the first two projects, Strata proceeded to review each of the remaining 13 E&D projects. This review uncovered substantial issues with a number of projects and these are detailed project by project in the Strata report.[90]

5.48 We agree with Strata's recommended reduction on the basis that Transpower has not satisfactorily demonstrated that the projects are justified. The Strata report raises a number of issues concerning demand forecasting, needs identification, and options analysis issues.

We consider $190.9m for ICT Capex is appropriate

5.49 We consider that $190.9m is a prudent and efficient level of expenditure for ICT capex over RCP2. This amount is a reduction of $19.8m from what Transpower proposed.

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88 Transpower "Portfolio Overview Document 29 – HVDC", in Transpower Expenditure Proposal for Regulatory Control Period 2 (2 December 2013), PD29

89 Capex IM, clause 1.1.5.

90 Strata report, paragraphs 628-721.

5.50 The reduction comprises the proposed removal of the new TPM system ($15.1M) and a further 2.5 % reduction on the remaining balance. Strata concluded that the expenditure for the TPM system was uncertain in terms of scope and timing.[91]

5.51 The reduction of $4.7m relates to the application of a further 2.5% downward adjustment arising from the limited benefits analysis undertaken by Transpower for RCP2 projects and the uncertain recognition of RCP1 benefits in the RCP2 expenditure forecast.[92]

We consider $33.4m for business support capex is appropriate

5.52 We consider that the $33.4m that Transpower proposed for business support capex is a prudent and efficient level of expenditure and have not proposed any reductions. This expenditure was adequately justified by Transpower.

The base capex allowance can increase for 'listed projects'

5.53 Transpower has predicted that a number of condition-based reconductoring projects will start in RCP2. As there is considerable uncertainty about the timing and the cost of these projects, Transpower excluded them from the expenditure proposal.

5.54 As discussed in Chapter 3, we propose to allow for annual resets of the forecast MAR by way of changes to the base capex allowance for specified listed projects. Listed projects will have a defined approval process. Table 5.5 sets out the listed projects for RCP2 and their estimated costs for the project in RCP2 and for the project in total.

Table 5.5: Proposed listed projects and estimated costs

Line for reconductoring (and section)	Estimated cost in RCP2 ($m)	Estimated total project cost ($m)
BPE-WIL A (WIL-JFD section)	49	49
OTB-HAY A (Churton Park section 45A-68)	28	28
CPK-WIL B (complete line)	26	26
BRK-SFD B (complete line)	11	65
BPE-WIL A (BPE-JFD section)	4	107
Total estimated costs	**118**	**275**

Note: Details of the reconductoring projects can be found in Transpower "Fleet Strategy 3 – Transmission Lines Conductors and Insulators," in Transpower "Expenditure Proposal for Regulatory Period 2" (2 December 2013) section 4.1.2.

91 Ibid, paragraph 475.

92 Ibid, paragraphs 505-507 and 517-523.

Our proposed opex allowance

5.55 This section sets out the supporting reasons for our draft decision on the opex allowance. Transpower proposed opex of $1309.3m for RCP2 2012/13 constant prices). We discuss the proposed adjustments for groupings of portfolios that were used to build up Transpower's proposed opex allowance. We also set out our analysis for the following areas not addressed by Strata.

5.55.1 Indemnity payments under the Consumer Guarantees Act 1993.

5.55.2 Demand response (DR).

5.55.3 Insurance premiums.

5.55.4 Self-insurance.

5.56 A summary of adjustments proposed for each grouping and the specific areas that we have assessed are set out in Table 5.6.

Table 5.6: Adjustments to Transpower's proposed opex (2012/13 constant prices)

Opex category	Transpower's proposal ($m)	Proposed adjustments ($m)	Adjusted totals ($m)
Grid Opex- Routine maintenance and maintenance projects	491.8	-	491.8
ICT business support projects	241.2	- 4.8	236.4
Corporate opex (excluding insurance and self-insurance)[1]	488.4	- 48.8	439.6
Consumer Guarantees Act indemnity payments	-	-	-
Demand response	-	1.5	1.5
Insurance	75.8	- 7.6	68.2
Self-insurance	12.1	- 12.1	0
Total	**1,309.3**	**- 71.8**	**1,237.5**

Note: [1]These figures differ from those presented in the Strata report.[93]

[93] Strata recommend a 10% downward adjustment for corporate opex, see Strata report, paragraphs 592 to 594. This equates to an adjustment of $57.6m in 2012/13 constant prices from Transpower's proposed corporate opex allowance of $576.4m. We have removed Transpower's proposed allowance for self-insurance. This consequently decreases Transpower's proposed corporate opex allowance by $12.1m to $563.7m. 10% of the remaining corporate opex allowance (excluding insurance and self-insurance) now equates to $56.4m which is the $48.8m adjustment to corporate opex (excluding insurance and self-insurance) plus the $7.6m adjustment to insurance as shown above.

5.57 As for base capex, the adjustments expressed for each grouping are not specific directions or requirements for Transpower; rather they are used to calculate the overall opex allowance. Transpower can reprioritise its work programme and corresponding expenditure as it sees fit.

We consider $491.8m for Grid Opex - Routine maintenance and maintenance projects is appropriate

5.58 We consider that $491.8m is a prudent and efficient level of expenditure for routine maintenance and maintenance projects over RCP2. We have therefore not proposed a reduction.

5.59 During RCP1 Transpower initiated a maintenance efficiency study of its grid opex, and has developed a model to help optimise the maintenance. This resulted in potential efficiency gains being identified, and Transpower has stated that these efficiency gains have been taken into account when preparing the expenditure forecasts.

5.60 From the information that Transpower provided in its proposal, subsequent information requests, and meetings with Transpower, it is evident that Transpower has made a significant investment in improving the efficiency of its grid opex.

5.61 Balancing off these reductions are increases in the transmission line maintenance projects such as tower steel replacement.

5.62 Strata's analysis indicates that the volume and cost of work forecast seem to be prudent and efficient.[94] Although there are concerns with Transpower's cost estimation accuracy, which we have noted in Chapter 6. Strata did not recommend any additional adjustment to the proposed grid opex. We agree with Strata's conclusions and recommendations.

We consider $236.4m for ICT business support projects is appropriate

5.63 We consider that $236.4m is a prudent and efficient level of expenditure for ICT opex over RCP2, a reduction of $4.8m from what Transpower proposed.

5.64 Transpower has provided little evidence to indicate that operational efficiencies are aggressively being pursued, and there appear to be potential opportunities to reduce costs. We agree with Strata's recommendation for a downward adjustment of 2% be applied to IST opex.

94 Strata report, paragraphs 549-563.

We consider $439.6m for corporate opex is appropriate

5.65 We consider that $439.6m is a prudent and efficient level of expenditure for corporate opex over RCP2, a reduction of $48.8m from what Transpower proposed.

5.66 Transpower is improving its asset management processes and modelling of asset criticality to better target work and reduce the cost of delivery. There is an expectation that it would also look to make reductions in the cost of its corporate operations. As MEUG suggested in their submission on the Issues paper, Transpower should have company specific "stretch" targets to transition the company from its current performance to best practice, and reduce the cost of delivering the service.[95]

5.67 Strata identified a number of potential opportunities for cost reductions in corporate opex and we agree with the recommendation to reduce corporate opex by 10%.[96] This is to reflect the reduction in opex that should be available from:

5.67.1 extracting the full benefits of business improvement initiatives and investment in staff capability, retention and recruitment that were made in RCP1;

5.67.2 a more rigorous focus on activity that enhances and improves the performance of the existing asset base compared with non-grid activities;

5.67.3 eliminating the average vacancy rate from the Departmental cost assumption on the basis that there will always be a 3–5% active vacancy level;

5.67.4 disallowing the proposed $6m opex for the proposed Wellington Head Office relocation and consolidation, as it is not supported by a business case; and

5.67.5 reducing corporate services investigations allocation by 20% to $43.5m.

We do not consider a productivity adjustment on opex is appropriate

5.68 Unlike capex, Transpower did not propose a top-down productivity adjustment for opex. In the Issues paper we asked whether there was agreement that it is inappropriate to make a similar productivity adjustment for opex as Transpower had proposed for capex.[97]

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95 Major Electricity Users' Group "Transpower RCP2 submission" (3 March 2014), response to question 11.

96 Strata report, section 8.4.2.

97 Commerce Commission "Invitation to have your say on Transpower's individual price-quality path and proposal for the next regulatory control period – Issues paper" (10 February 2014), page 30, question 7

5.69 In its submission, MEUG stated that businesses in workably competitive markets expect their competitors will in the future achieve productivity gains in both capex and opex and that to survive each business must strive to achieve productivity gains.[98]

5.70 We agree with MEUG, but consider that our proposed price-quality path, including the IRIS mechanism, provides incentives for Transpower to innovate and achieve productivity gains to outperform the assumptions used to set this path.

5.71 We have agreed with Strata's assessment for adjustments to ICT and corporate opex. We can monitor how the IRIS mechanism incentivises efficiency over the course of RCP2. This may provide opportunities to review if the price-quality path and the suite of incentive mechanisms can be improved to further encourage efficiency.

We do not propose an allowance for Consumer Guarantees Act indemnity payments

5.72 The Consumer Guarantees Act (CGA) was amended recently such that Transpower indemnifies retailers for payments that the retailers make to their customers to remedy breaches of an 'acceptable quality guarantee'. The indemnity applies if the event giving rise to the breach arose on Transpower's network.[99] The amendment will come into effect on 17 June 2014.

5.73 Transpower has stated that the statutory indemnity creates a new and difficult to quantify commercial risk for Transpower, and that it is unable to reliably forecast its exposure as there is no suitable evidence base. Transpower has also stated that it is unable to purchase effective insurance for this risk.

5.74 Transpower proposed that the indemnity payments under the CGA should be treated as a recoverable cost for RCP2 or included as an additional self-insurance allowance.

5.75 In our Issues paper we specifically asked for views on the materiality of Transpower's exposure to the new indemnity obligations arising under the CGA and whether there were any preferred views on how Transpower's exposure to the (at this time) unknown cost impacts of the amendment to the CGA should be treated for RCP2.

5.76 We received submissions from Transpower and MEUG and cross-submissions from Transpower, Powerco and Genesis on this matter.

5.77 In its submission MEUG commented that in a workably competitive market environment no business could immunise itself from some risk of exposure to CGA indemnity obligations. This therefore creates an incentive on managers of those businesses to be cognisant of that risk and decide how best to manage it accordingly.

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98 Transpower "Response to IPP Issues Paper", 3 March 2014; and Major Electricity Users' Group "Transpower RCP2 submission", 3 March 2014.

99 The indemnity applies to the Transpower's grid management and system operator functions.

MEUG commented that it saw no reason why Transpower should be treated any differently, and that the onus to forecast the number of claims and likely aggregate value should be on Transpower.[100]

5.78 This position was supported by Genesis in its cross-submission. [101] Transpower and Powerco both argue that the risk is hard to quantify and that the cost of any claims should be a pass-through or recoverable cost. [102]

5.79 We agree with MEUG's comments and we do not consider that treating these as a recoverable or pass-through cost is appropriate for matters that should be under Transpower's control. We propose to observe how the operation of the new provisions develops in practice, and may consider an allowance for material claims that are outside of Transpower's control for future regulatory periods.

We consider $1.5m for demand response is appropriate

5.80 We consider that $1.5m is prudent and efficient for DR over RCP2, an increase of $1.5 from what Transpower proposed.

5.81 Transpower did not include a specific allowance for DR in its proposal. Transpower requested DR be added to its opex allowance for RCP2 in its submission on our Issues paper, and provided an estimate of $10.3m over RCP2 for these activities.

5.82 Transpower states that during RCP1 it has advanced its ability to procure cost-effective DR for use as a transmission alternative. This involved a programme which included successful development of a technology platform, organisational capability, commercial arrangements and an understanding of the achievable price points for DR products.

5.83 Transpower states that the DR programme has potential economic benefits beyond deferring major capex projects. Demand response may also be economic for deferring base capex projects and for other operational purposes.

5.84 The Electricity Authority has some specific concerns about the uses of DR, especially where it can affect market outcomes. These concerns are expressed in a letter to the Commission dated 14 April 2014.[103]

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100 Major Electricity Users' Group "Transpower RCP2 submission", 3 March 2014, response to questions 37 and 38.

101 Genesis Energy "Issues paper for setting Transpower's individual price-quality path from 2015-2020" (11 March 2014).

102 Powerco "RE: Cross submission on the Issues Paper on Transpower's individual price-quality path and proposal for the next regulatory control period" (10 March 2014).

103 Letter from the Electricity Authority to the Commerce Commission of the 14th April 2014 titled "Transpower's Demand Response Programme."

5.85 The Electricity Authority has suggested that these concerns could be mitigated by the Commission approving funding for DR with the following conditions.

5.85.1 Before Transpower plans to first use its DR programme for any purpose including for the deferral of transmission investment, it must obtain the Electricity Authority's approval. This process could be further improved by Transpower developing and publishing a protocol on its overall approach to the use of its DR management tool.

5.85.2 Transpower must report its use of DR in its monthly report to the Electricity Authority (which the Electricity Authority publishes on its website).

5.85.3 Transpower must work with the Electricity Authority during RCP2 to develop a mechanism to incorporate its DR programme into the spot market and other DR schemes, such as work to be prioritised with Transpower and Electricity Authority work.

5.86 Transpower propose to continue to enhance and develop its DR capability during the rest of RCP1 using pre-existing approved funding, but expect to exhaust that funding at around the time RCP2 starts.

5.87 Transpower provided an estimate of approximately $2m per year for DR in its submission to our Issues paper. Subsequently Transpower provided a breakdown of the annual costs. The cost breakdown is set out in Table 5.7

Table 5.7: Breakdown of costs for demand response allowance proposed by Transpower (2012/13 constant prices)

Cost category	Annual expenditure ($m)	Total for RCP2 ($m)
Staff	0.5	2.3
Operating and development costs	0.3	1.5
Programme costs	1.3	6.5
Total	**2.1**	**10.3**

Notes: Figures may not add exactly due to rounding.

5.88 We have considered the estimates that Transpower provided and concluded that only the operating and development costs should be included in the opex allowance.

5.89 We consider that the staff costs have already been included in Transpower's proposed departmental costs. We also consider that DR will likely be used primarily for non-transmission solutions or used as enabling works for other projects with the allowance for DR included in the estimates for these project's costs.

We consider $68.2m for insurance is appropriate

5.90 Our draft decision is to allow $68.2m that Transpower proposed for insurance.

5.91 Transpower operates its own captive insurer Risk Reinsurance Limited (RRL). We are satisfied, from the information that Transpower has supplied on RRL and its operations, that it is subject to the same or similar prudential tests as provided for in the Insurance (Prudential Supervision) Act 2010

5.92 RRL is a wholly-owned subsidiary of Transpower New Zealand Limited Transpower that is incorporated under the laws of the Cayman Islands, Monetary Authority Law (MAL).

5.93 Although RRL is not licenced as an 'insurer' in New Zealand under the Insurance (Prudential Supervision) Act 2010, Transpower has confirmed to us that RRL would currently be capable of complying with most of the prudential requirements for a licenced 'insurer' under the Insurance (Prudential Supervision) Act 2010. The two areas where Transpower does not comply are:

5.93.1 the disclosure of overseas policyholder preference; and

5.93.2 the appointment of an actuary and an actuarial review.

5.94 The actuarial review is of most relevance and we would be more comfortable if Transpower could meet the actuarial review requirements.

We do not support provision of an allowance for self-insurance

5.95 Our draft decision is to disallow $12.1m that Transpower included in its proposed allowance for self-insurance.

5.96 Transpower has stated that the self-insurance would not be placed with RRL and would instead be retained as a Transpower risk. A common definition of self-insurance is a risk management method in which a calculated amount of money is set aside to compensate for the potential future loss.

5.97 In the documentation provided by Transpower there is no information about how this self-insurance would be set aside and the funds managed. In addition the self-insurance is not subject to the same or similar prudential tests as provided for in the Insurance (Prudential Supervision) Act 2010. [104] Based on the information provided we consider that it would be inappropriate to provide an allowance for self-insurance.

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[104] This is consistent with our past decisions on whether to allow a self-insurance allowance in a supplier's opex allowance. We consulted on this matter when we reset the electricity distribution default price-quality path in 2012. See Commerce Commission "Resetting the 2010-15 Default Price-Quality Paths for 16 Electricity Distributors" (30 November 2012), p. 84.

The nominal allowances we propose to set

5.98 We set Transpower's allowance on a nominal basis. Transpower has converted its proposed real expenditure into nominal expenditure by applying real price effects and CPI. Our proposed nominal allowances are shown below in Table 5.8.[105]

Table 5.8: Total proposed opex and base capex allowances for RCP2 (nominal allowance)

	Transpower's proposal ($m)	Our proposed adjustments ($m)	Proposed allowances ($m)
Opex	1,469.7	-95.1	1,374.6
Base capex	1,250.6	-153.6	1,096.9

5.99 We are satisfied that Transpower has applied CPI and real price effects in an appropriate and consistent way.

5.100 CPI and real price effects are calculated independently at portfolio level. The real expenditure is then escalated by the sum of the two inflationary effects.

5.101 The real price effect for each portfolio is calculated as a weighted average of exposures to each cost input. The weightings for the exposures are derived by Transpower from their cost estimation systems. Although we have some reservations about the quality of data in the system, we are confident that these weightings would not lead to an overstated level of the real price effects inflator.

[105] The proposed allowances shown in Table 5.8 have been calculated by Transpower. We have published the spreadsheet detailing the calculations on our website.

6. Our view on Transpower's proposal and initiatives that we propose Transpower implements

Purpose of this chapter

6.1 This chapter contains our views on areas that Transpower should develop in RCP2. It suggests possible business improvement initiatives for each of these development areas and measures to monitor development. The objective of these business improvement initiatives is to improve Transpower's investment decisions and delivery, which will benefit consumers in the long-term.

6.2 Transpower will submit its next proposal in 2018. The business improvement initiatives should also help to improve the quality of Transpower's proposal, so we can best understand what Transpower believes it needs to spend and set the best path for consumers. Transpower is already working towards this.

6.3 The chapter discusses:

6.3.1 Transpower's positive progress toward completing its business improvement initiatives for RCP1;

6.3.2 our observations on Transpower's processes used to develop its work programme and expenditure forecasts for RCP2; and

6.3.3 the business improvement initiatives that we suggest Transpower undertake during RCP2.

6.4 The detailed reasons for the business improvement initiatives and suggested monitoring measures are set out in Attachment G

Transpower has made positive progress on its RCP1 business improvement initiatives

6.5 Transpower has made a number of improvements to its business processes in RCP1. This is evidenced in Transpower's proposal for RCP2 and the supporting information that we have received. Specific improvements are commented on in the next section.

6.6 In part these were driven by the business improvement initiatives that Transpower committed to making for RCP1. These initiatives cover the following areas:

6.6.1 safety

6.6.2 asset management (PAS 55)

6.6.3 asset management information systems

6.6.4 asset risk management, and

6.6.5 asset health indices and criticality.

6.7 A large number of the initiatives have either been completed or are substantially complete. In the remaining part of the current period it is expected that Transpower will continue to make the improvements that it committed to make in RCP1, and will start work on planning and implementing the initiatives for RCP2.

6.8 Our observations on Transpower's proposal for RCP2, however, highlight that more refinement or extension is needed in applying some of the initiatives. These are discussed in the following section.

Our observations on Transpower's processes used to develop its work programme and expenditure forecasts for RCP2

6.9 This section discusses our observations on the processes that Transpower has used to develop its work programme and expenditure forecasts for RCP2. We have relied on multiple sources in forming our views, which include our own analysis of Transpower's proposal and supporting information, and advice from Strata and Partna.

6.10 Our comments broadly fall into three categories:

6.10.1 how Transpower's proposal for RCP2 has been positively affected by the improvements that it has made in RCP1;

6.10.2 areas where we expect improvements before Transpower submits its next proposal; and

6.10.3 other areas for potential development to explore before Transpower submits its next proposal.

Customer engagement on development of service performance measures was positive

6.11 Transpower submitted proposed grid output measures as part of the proposal for RCP2. As part of the process for developing its proposed measures, Transpower consulted with its customers and took their feedback into account when finalising the measures. There has generally been positive feedback from customers about the consultation process and the proposed measures for assessing service performance.

Transpower has developed models to optimise its maintenance activities

6.12 Transpower has developed a model to optimise its maintenance activities. Transpower is using the information from the model to reduce the overall cost of its maintenance activities.[106] The development and application of the model is positive, as well as Transpower's plans to enhance the model and asset criticality framework.

[106] Strata report, paragraph 212.

We expect to see further development of asset health models

6.13 Transpower has completed asset health models for three asset fleets with the models being used to forecast the expenditure for those fleets for RCP2.[107] These models have positively supported Transpower's proposed expenditure.

6.14 We expect that Transpower will continue to develop its asset health models for the majority of its assets, as signalled in its proposal. We would also expect some refinements to these models as they are tested and better information becomes available. For example, we noted potential issues with the calculations in the transformer model, which appear to provide a pessimistic view of asset condition.[108] The consequence is that Transpower may replace transformers earlier than is possibly necessary. We discuss this further in Table 6.1 and in Attachment G.

We expect to see further development of the asset criticality framework

6.15 Transpower has developed an asset criticality framework that it has used as an input to its asset health models. As indicated above, these models have positively supported Transpower's proposed expenditure.

6.16 We expect that Transpower will continue to develop its asset criticality framework. At present these models provide relatively coarse results. Transpower has indicated it plans to improve the asset criticality framework during the rest of RCP1 and during RCP2. We discuss this further in Table 6.1 and in Attachment G.

Potential development of measures to assess economic impact of interruptions

6.17 Transpower has proposed grid output measures that use categorisations predominantly based on the size of the load or generation and the significance (national importance) of the service at a particular connection point. This provides a relatively coarse measure of service performance. We consider there may be opportunities to develop grid output measures that better account for the economic impact of interruptions at a connection point level. This may provide a more granular assessment of service performance. We discuss this further in Table 6.1 and in Attachment G.

We expect further development of policies and processes that underpin expenditure forecasts

6.18 Transpower performed an internal challenge process to improve the robustness of its expenditure forecasts. Including this challenge process has positively influenced Transpower's proposal and we acknowledge the work that Transpower has done on this.

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[107] Asset fleets refer to a grouping of like assets or components, eg, towers, poles, conductors and insulators.

[108] Strata report, paragraph 378.

6.19 The information provided by Transpower provides clear evidence that the various challenge stages have resulted in material changes as the forecasts have matured.

6.20 Even so, a number of decisions appear to be made outside of the asset health models, and it is unclear how these decisions are being fed back into the models to improve them. For example, the asset health models provided by Transpower did not reflect the proposed expenditure. For the RCP3 proposal, we expect that Transpower would document any challenge process interventions and any systematic interventions would be reflected in its models. We discuss this further in Table 6.1 and in Attachment G.

We expect to see further development of cost estimation processes

6.21 Transpower has implemented a standard cost estimation tool, which it has used to inform its expenditure forecasts. While noting we have not audited the cost accumulation models in detail, the cost accumulation processes and methodologies described by Transpower appear to be prudent and efficient. Based on the information that we considered, the cost estimation tools and processes are tracking towards good practice.

6.22 We have observed, however, some issues with the processes and cost estimation models. As a result, we have reservations about the outputs from the cost estimation models in a number of areas.

6.22.1 There is insufficient evidence to show that Transpower is using the system for the majority of its projects.

6.22.2 Manual adjustments have been made to the outputs of models because of perceived issues with the models.

6.22.3 We have identified issues with reviewing actual costs and feeding changes back into models.

6.23 We therefore expect that Transpower will continue to develop its cost estimation processes. We discuss this further in Table 6.1 and in Attachment G.

We expect further consideration of how decisions are supported by economic assessments

6.24 Transpower uses policies and models to provide justification for expenditure in many areas. There is an expectation that Transpower do appropriate economic assessments to ensure it is making optimal decisions are being made. Transpower has done economic assessments for some areas. However, there are a number of other areas where there is insufficient evidence to show that Transpower has done such assessments. This lack of economic analysis could lead to investment decisions that are less than optimal.

6.25 We expect that Transpower will give further consideration to what economic assessments are appropriate to support its policies and models. We discuss this further in Table 6.1 and in Attachment G.

We expect further consideration of how resource availability risks may be mitigated

6.26 Lack of resource has been cited as a reason for inability to deliver some capex and opex work in RCP1. This is a general issue, but there are some specific areas such as tower painting where this is a significant issue. Transpower has taken steps to address the shortfall. Even so, Transpower has indicated there still may not be enough resource to deliver its planned work programme for RCP2.

6.27 We expect that Transpower will give further consideration to how best mitigate potential resource shortfalls. We discuss this further in Table 6.1 and in Attachment G.

Potential development of measures to assess market impact when planning outages

6.28 We consider there is potential for Transpower to develop market impact measures to assist in optimising the timing of planned outages to minimise the economic impact on its consumers. Market impacts of outages caused by Transmission Network Service Providers are monitored in some overseas jurisdictions. We discuss this further in Table 6.1 and in Attachment G.

Our suggested business improvement initiatives for RCP2

6.29 In the previous section, we identified areas where we expect Transpower to make improvements before submitting its next proposal, and other areas for potential development. Some of these areas overlap with the areas that Transpower has stated that it will develop during RCP2.

6.30 This section provides a summary of suggested business improvement initiatives for the areas that we have identified for development. We also suggest measures for monitoring development. These are summarised in Table 6.1.

6.31 What we propose is for Transpower to take the next steps to determine what initiatives it advances in RCP2, which may include initiatives that are not identified in this paper. This is because Transpower is best placed to determine where it focuses its efforts.

6.32 We propose to set a requirement for Transpower to identify by 1 July 2015 those business improvement initiatives it will undertake in RCP2, including those already in progress. Transpower will be required to report yearly in RCP2 on progress in developing against any improvements it plans to make. We are keen to engage with Transpower on the initiatives it plans to advance and it how it plans to monitor these initiatives.

Table 6.1: Summary of suggested business improvement initiatives

Identified area	Suggested initiatives	Suggested monitoring measures
Asset Health Modelling	• Develop and roll out asset health models across all fleets • Continuous improvement of existing and new models • Asset health models for all fleets rollout and used for developing RCP3 proposal	• Annual report on development and roll out of asset health models
Asset Criticality	• Implement asset criticality framework for all circuits and branches • Asset criticality framework for all circuits and branches in place and used for developing RCP3 proposal	• Annual report on development of asset health models
Economic Impact of Interruptions	• Investigate viability of implementing economic impact measure • If viable, develop data and assessment models	• One-off viability report, preferably before the end of RCP1 • Plan for implementation, if viable
Process, Policy and Data Maturity	• Develop guidelines for quantitative analysis • Document manual decision-making interventions used to develop forecast expenditure • Processes for developing expenditure forecasts (from asset management models to TM1) tested for reproducibility	• Document completed processes
Cost Estimation	• Update and review cost estimation system (TEES) • Assess effectiveness of cost estimation process (from BC1 to BC3 to actual)	• Annual report on progress • Annual report on accuracy of cost estimations for each project
Economic Assessment	• Identify policies that directly affect expenditure (eg, in Fleet Strategies and Design Standards) • Complete appropriate economic assessments for policies that directly affect expenditure	• Implementation plan • Document completed assessments.
Resource Availability	• Forecasting resource requirement vs availability • Develop mitigation plan to address resource shortfalls	• Annual report on variance against requirements, effectiveness of mitigation, and economic impact
Market Impact of Outages	• Develop measures to assess market impact of forecast vs actual outages	• Annual report on market impact of forecast vs actual outages

Attachment A: Rules and processes we followed

Purpose of this attachment

A1 This attachment sets out:

A1.1 what we are required to do under the Commerce Act 1986;

A1.2 the methodologies we followed to make our decisions; and

A1.3 how we have evaluated Transpower's forecasts against the methodologies.

A2 We also comment on the extent that Transpower's proposal provided us with all necessary information.

What we are required to do under the Commerce Act 1986

A3 Part 4 of the Commerce Act provides for the regulation of the price and quality of goods or services in markets where there is little or no competition and little or no likelihood of a substantial increase in competition. [109]

A4 Transpower is subject to individual price-quality path regulation[110] under the Part 4.

A5 We have proposed a draft individual price-quality path for Transpower, for the period commencing on 1 April 2015, that sets out:

A5.1 the maximum revenue which Transpower can charge, based on an unsmoothed building blocks approach–see Chapter 3;

A5.2 the quality standards that will apply, based on the revenue-linked grid output measures we anticipate determining under the Capex IM[111]; and

A5.3 the regulatory period, in this case five years.[112]

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109 Commerce Act 1986, s 52.

110 The individual price-quality path provisions of s 53ZC apply to Transpower by way of an Order in Council under s 52N of the Commerce Act. The Order in Council came into force on 1 October 2010 and expires 20 years later, on 30 September 2030.

111 Capex IM, clause 2.2.1.

112 Section 53M of the Commerce Act sets out the necessary components of a price-quality path.

A6 The Commission has a broad discretion to determine the individual price-quality path under section 53ZC:

> 53ZC Price-quality path for individual businesses
>
> (1) If individual price-quality regulation applies to goods or services supplied by a supplier, the Commission may set the price-quality path for that supplier using any process, and in any way, it thinks fit, but must use the input methodologies that apply to the supply of those goods or services.
>
> (2) The following provisions of subpart 6 apply (with all necessary modifications) where individual price-quality regulation is imposed:
>
> (a) sections 53M and 53N:
>
> (b) section 53ZB.

A7 In exercising this discretion, we are bound to:

A7.1 apply the relevant input methodologies:

A7.1.1 Transpower IMs–see Chapter 3; and

A7.1.2 Capex IM (discussed below);

A7.2 make decisions that promote the purpose of Part 4 of the Commerce Act.[113]

A8 The purpose of Part 4 is set out in s 52A of the Commerce Act. In essence, in the absence of workable competition, Part 4 seeks to promote outcomes consistent with outcomes in workably competitive markets, by providing suppliers with certain incentives (eg, incentives to innovate, invest, and improve efficiency), while limiting excessive profits.[114]

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113 Individual price-quality regulation does not have its own express purpose statement under the Commerce Act, unlike other forms of Part 4 regulation.

114 In our previous determination processes we have developed our understanding of the Part 4 purpose in some detail. See for example Commerce Commission, *Input Methodologies (Electricity Distribution and Gas Pipeline Services) Reasons Paper*, 22 December 2010.

The methodologies we followed to make our decision

Transpower IM

A9 Consistent with our approach to setting Transpower's individual price-quality path for RCP1, we applied the input methodologies set out in Part 3 of the Transpower IM[115] in determining key inputs to the calculation of maximum revenue under the individual price-quality path for RCP2. A description of how those input methodologies apply when calculating Transpower's MAR is set out in Attachment B.

Capex IM

A10 We applied the Capex IM when setting Transpower's base capex allowance for RCP2–see chapter 5.[116] This forecast of base capex during the regulatory period feeds into Transpower's RAB calculation, which is then used to calculate the return on and from capital components of Transpower's MAR for RCP2.[117]

A11 We also applied the Capex IM when setting quality standards (which are based on Capex IM grid output measures) and incentives for Transpower in the draft individual price-quality path determination.

Base capex

A12 We set Transpower's base capex allowance consistent with the evaluation criteria in the Capex IM.

A13 The general criteria that we must follow are:[118]

A13.1 evaluating whether the proposal is consistent with all applicable input methodologies;[119]

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115 The specification of price, cost allocation, asset valuation, treatment of taxation, cost of capital, incremental rolling incentive scheme, and reconsideration of an individual price-quality path in case of a catastrophic event, a change event or an error.

116 Capex IM, clause 2.2.2(1). Note that the Capex IM was not in place at the time Transpower's individual price-quality path was set for RCP1.

117 The Capex IM also sets out the process for Transpower seeking approval for major capex proposals. These proposals are made and determined during the course of a regulatory period, with any approved major capex expenditure then impacting Transpower's maximum allowable revenue under the individual price-quality path via periodic adjustments. Transpower may seek the Commission's approval to transfer a project that was originally accounted for in the base capex allowance to become a major capex project, eg if forecast scope or cost variations means it exceeds the base capex project threshold of $20 million. The components of the base capex expenditure adjustment calculation allow any such transfer to be reflected by removing any portion of the base capex allowance to which the base capex incentive rate applies. Major capital expenditure cannot be transferred to base capital expenditure.

118 Capex IM, Part 6.

119 Capex IM, clause 6.1.1(2)(a).

A13.2 evaluating the extent that the proposal will promote the purpose of Part 4 of the Commerce Act;[120] and

A13.3 whether the data, analysis and assumptions in the proposal are fit for the purpose of the Commission exercising its powers under Part 4 of the Commerce Act.[121]

A14 Further specific evaluation criteria include:[122]

A14.1 general factors we must have regard to when evaluating the proposal, such as reasonableness of key assumptions, overall deliverability of the proposed base capex during the current regulatory period, and the extent that grid output targets were met in the previous regulatory period;

A14.2 a non-exhaustive list of criteria we may use when evaluating each identified programme set out in the base capex proposal, such as reviewing Transpower's process to determine the identified programme's reasonableness and cost-effectiveness; and

A14.3 a list of evaluation techniques we may employ, such as process benchmarking and process and functional modelling.

A15 The specific evaluation criteria are not exhaustive. The weighting of different criteria is at the Commission's discretion.

A16 While Transpower is required to submit a base capex proposal to us,[123] the final decision on Transpower's base capex allowance ultimately rests with the Commission: we are not required to agree with Transpower about any aspect of the allowance.

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120 Capex IM, clause 6.1.1(2)(b).

121 Ibid, clause 6.1.1(2)(c).

122 Ibid, Schedule A.

123 Ibid, clause 2.2.1(3) and Part 7.

Proposed grid output measures–quality standards and reporting requirements

A17 We have set a number of grid output measures under the Capex IM:

> **grid output measure** means measure that quantifies the output or benefit (where 'benefit' may include reduction in risk) delivered by the grid or investment in the grid

A18 The Capex IM provides for two types of grid output measures: revenue-linked and non-revenue-linked.

A18.1 Revenue-linked grid output measures: these are the proposed quality standards for Transpower under section 53M of the Commerce Act.[124]

A18.2 Non-revenue-linked grid output measures: these are not quality standards. However, we propose to put reporting requirements in place to better understand Transpower's performance.

A19 In setting the grid output measures, we are primarily seeking to provide Transpower with incentives to provide services at a quality that reflects consumer demands, in line with the Part 4 purpose. We also apply the criteria in Schedule A of the Capex IM, including for example:

A19.1 the extent that each measure is a recognised measure of either or both of:

A19.1.1 in the supply of electricity transmission services; and

A19.1.2 performance of the supply of electricity transmission services;

A19.2 the relationship between the grid output measure and expenditure by Transpower.

A20 For the revenue-linked grid output measures, Transpower will be rewarded for outperforming the performance targets, while being penalised for underperforming, as a quality incentive under section 53M(2) of the Act. We have proposed:[125]

A20.1 Grid output target;

A20.2 Cap–to limit the amount of positive revenue adjustment;

A20.3 Collar–to limit the amount of negative revenue adjustment; and

A20.4 Grid output incentive rate–the quantum of money at risk for each unit of output between the cap and the collar.

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[124] While are able to set other non-Capex IM quality standards for the individual price-quality path, we have elected not to for RCP2.

[125] Capex IM, clause 2.2.2(1)(d).

A21 The Commission is also able to seek pecuniary penalties from or have criminal sanctions placed on Transpower where Transpower breaches the quality standards under sections 87 and 87B (Statutory Penalties) of the Commerce Act.

A22 The Commission considers that any Statutory Penalties are different to section 53M quality incentives, and that it is not barred from seeking a Statutory Penalty by section 87(5) simply because a negative revenue adjustment has already occurred under the revenue-linked grid output measure.[126]

Opex

A23 There is no input methodology that sets out rules about how we should determine forecast opex for RCP2.

A24 Where appropriate we have used the criteria applied to base capex under the Capex IM to make our decision on opex.

How we have evaluated Transpower's expenditure forecasts and proposed quality standards against the methodologies

A25 While base capex, grid output measures and incentives are determined as separate items under the Capex IM, in practice they combine with opex as an integrated quality and expenditure proposal for Transpower. For example:

A25.1 decisions on one aspect of the path (eg, quality) have a direct impact on the other decisions we make (eg, base capex); and

A25.2 some opex and capex decisions are, to some extent, substitutable.

A26 We have therefore not made any of these decisions in isolation.

A27 Further, the assessment of forecast expenditure and proposed quality standards is not a mechanistic process. The process necessarily involves the exercise of judgement. In assessing Transpower's proposal, we have focused particularly on the asset management framework under which Transpower both developed its proposal and relied on the input assumptions.

A28 Achieving the required levels of service, at least-cost, over the full life of the network assets requires expenditure to be planned and implemented through business processes that are based on sound grid strategies, asset management principles and methodologies. Figure A1 represents such an approach as a flowchart through which output forecasts and key performance measures are produced from a range of input assumptions and policy parameters.

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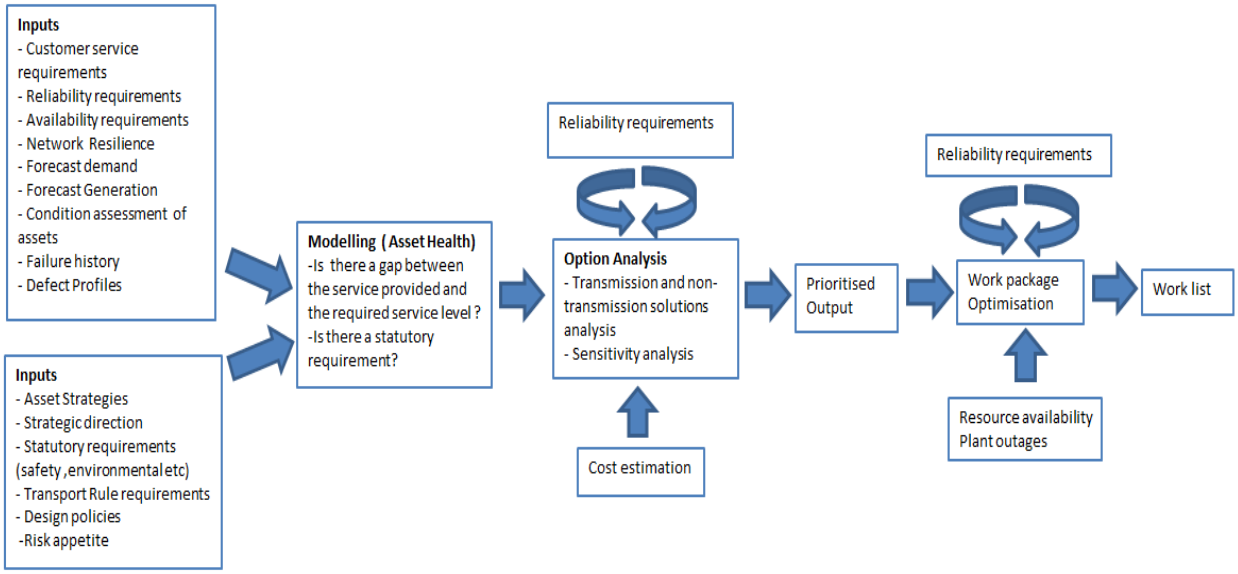
[126] The Commission's policy view on how the section 53M quality incentives and the Statutory Penalties will operate together is set out in Chapter 4.

Figure A1: Asset management approach



A29 In evaluating the proposal against the evaluation criteria we assessed the quality of the framework used and the extent that Transpower applied its framework in practice. Good Electricity Industry Practice (GEIP) provides a useful reference for the sound grid strategies, asset management principles and methodologies that a prudent transmission operator could be expected to have in place.[127]

A30 We consider this approach is appropriate, as the extent to which Transpower's expenditure forecasts are prudent and efficient will depend upon the quality of its asset management framework and the appropriateness of the input assumptions.

A31 We did not do detailed reviews of each project and programme. An assessment of Transpower's proposal can be achieved through an assessment of a representative sample of projects and programmes. However, the extent to which the underlying strategies, policies and assumptions were robust and consistent with the Capex IM evaluation criteria determined the extent to which we performed detailed reviews of project/programme expenditure and made our own judgements about what level of expenditure is appropriate.

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127 A useful definition of GEIP, in relation to electricity transmission services, is found in the Electricity Authority's "The Electricity Industry Participation Code [2010]", 3 October 2013: "The exercise of that degree of skill, diligence, prudence, foresight and economic management, as determined by reference to good international practice, which would reasonably be expected from a skilled and experienced asset owner engaged in the management of a transmission network under conditions comparable to those applicable to the grid consistent with applicable law, safety and environmental protection. The determination is to take into account factors such as the relative size, duty, age and technology status of the relevant transmission network and applicable law."

A32 As an example of how this works, in its proposal Transpower stated that it considers that its expenditure forecasts are prudent. In reaching this conclusion Transpower stated that it has relied on the application of a top-down review and challenge of its expenditure forecasts. We consider that a top-down challenge to forecasts produced on a bottom-up basis is very important and if done rigorously provides some assurance that expenditure forecasts are reasonable and prudent. Where we saw evidence that Transpower had applied these challenges have been applied with appropriate rigour, this reduced the extent and depth of direct testing that we performed to conclude that the forecast expenditure is appropriate.

A33 We also make these points about available information, opex and base capex, and grid output measures.

A33.1 Our consideration of efficiency took into account the information available at the time Transpower developed its proposal. We expect Transpower to mitigate risks that lead to cost inefficiencies to the extent they are foreseeable and controllable. For risks that are not within Transpower's control, it should seek to minimise costs through planning and implementing a reasonable mitigation strategy. However, we also recognise that some of these risks may not be foreseeable at the time of approval.

A33.2 We did not assess opex and base capex in isolation. Capex should be directed towards achieving cost-effective and efficient solutions, which implies some level of potential cost trade-off between capex and opex.

A33.3 Partna reviewed the grid output measures that Transpower developed. Partna reviewed them against international practice in Australia and in the UK.[128]

Transpower has provided us with the necessary information

A34 Transpower's proposal, together with its responses a further information request, provided us with the information necessary to meet the process and content requirements of the Capex IM.

A35 The further information we required related to the Integrated Transmission Plan.

[128] Partna is also the secretariat for the ENA Quality of Supply and Incentives Working Group. The Commission is an observer on this group.

Attachment B: How we propose to calculate maximum revenues

Purpose of this attachment

B1 This attachment provides details supporting our draft decisions on how Transpower's forecast MAR will be calculated and how any over- or under-recovery of revenue by Transpower in RCP2 will be washed-up each year.

What compliance with the price path means

B2 There will be a single point of compliance with Transpower's price path each year:

B2.1 the total revenues used by Transpower in setting its prices for the pricing year under the TPM, less any pass-through costs and recoverable costs (as defined in the Transpower input methodologies), must not exceed the calculated forecast MAR for the equivalent disclosure year.[129]

B3 This form of required compliance continues the approach adopted in RCP1.[130] We have found that the *ex ante* approach in setting the price path has been effective. We did not receive any submissions in response to our Issues paper to suggest a switch to an *ex post* approach to setting maximum revenues.

B4 The issues raised by submitters related more to the accuracy of the forecast MAR and the smoothing (if necessary) of the results of the MAR wash-up and incentive calculations.[131] We have proposed to address those particular concerns in the cash-flow timing assumptions used in the forecast MAR building blocks (see below in this attachment) and the spreading of EV adjustments (see Chapter 3 for our proposal).

What the price path would look like

B5 The form of calculation of the price path is not specified in Transpower's input methodologies. The 'specification of price' input methodology sets price as a total revenue cap net of pass-through costs and recoverable costs. It does not set out how that cap is to be calculated.[132]

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129 *Commerce Act (Transpower Individual Price-Quality Path) Determination 2010* [2010], Decision No. 714, clauses 3.1 and 3.4.

130 Ibid.

131 See for example, Meridian Energy Limited "Transpower RCP2 submission" (3 March 2014), page 1 "Predictability of annual wash-up process".

132 Transpower IMs, clause 3.1.1.

B6 This is in contrast to the form of calculation for customised price-quality paths which is specified in the input methodologies for electricity distribution businesses and gas pipeline businesses. The form of calculation of the price path is specified in the respective input methodologies.[133]

B7 The form of calculation of the price path for Transpower must therefore be set out in the individual price-quality path determination, which determines the price path in the form of the forecast MAR that Transpower can receive and the way in which forecast MAR is to be calculated (or recalculated, if necessary).

B8 Background on the decisions and reasons for the original setting of the calculation fundamentals of the RCP1 individual price-quality path can be found in our 2010 Reasons Paper.[134]

Key features of the price path

The term of the regulatory period

B9 We will set a regulatory period of five years, comprising the period 1 April 2015 to 31 March 2020. Although this differs from the four years of RCP1, five years is the standard length of each regulatory period as set out in the Commerce Act.[135]

B10 The shorter-term of RCP1 reflected its transitional nature, comprising the Transition Year and the Remainder Period (three years). We have not identified any reasons why the default period of five years should not apply for RCP2.

Unsmoothed building blocks to be used to set maximum revenues

B11 Consistent with the RCP1, Transpower's forecast MAR in the individual price-quality path for RCP2 will be determined using an unsmoothed building blocks approach. [136] The forecast MAR for each year of RCP2 will again be set on a forward-looking (*ex ante*) basis using forecast values for each building block.[137]

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133 See for example the calculation of a customised price path for electricity distribution services; *Electricity Distribution Services Input Methodologies Determination 2012* [2012] NZCC 26 (28 September 2012), clauses 5.3.2 to 5.3.4.

134 Commerce Commission "Individual Price-Quality Path (Transpower) Reasons Paper" (22 December 2010).

135 *Commerce Act 1986*, section 53M(4) and (5). The Act prescribes that the regulatory period is to be five years unless the Commission determines a shorter period.

136 Commerce Commission "Individual Price-Quality Path (Transpower) Reasons Paper" (22 December 2010), Sections 3.4 to 3.7.

137 Transpower will be required to apply the forecast MAR for each disclosure year to the equivalent pricing year ending 31 March when it sets its transmission pricing each year under the Transmission Pricing Methodology (TPM). The Electricity Authority is currently consulting on the form of the TPM and it is possible that the way the price path compliance in the individual price-quality path determination is described may need to be amended at some later stage.

B12 This building blocks approach closely follows the method used to measure Transpower's return on investment for information disclosure.[138]

Pricing year vs disclosure year

B13 Transpower's disclosure year for the individual price-quality path and information disclosure ends on 30 June. This aligns with its corporate balance date.

B14 All forecast values used in the forecast MAR building blocks are calculated by reference to a disclosure year. The forecast MAR is then applied to calculate Transpower's revenues and prices for the 'relevant pricing year', which is the year ending on 31 March immediately before the end of the disclosure year. For example, the forecast MAR calculated for the disclosure year running from 1 July 2015 to 30 June 2016 (2015-16 disclosure year) will be used to set Transpower's revenues and the prices it charges its customers for the pricing year that runs from 1 April 2015 to 31 March 2016 (2015-16 pricing year).

B15 This alignment with the disclosure year for calculations and reporting was used in RCP1[139] and is intended to:

B15.1 keep to only necessary reconciling adjustments with Transpower's GAAP reporting (in the case of the disclosure year); and

B15.2 align revenues and prices with the period when many of Transpower's customer (eg, the electricity distribution businesses) calculate their prices (in the case of the pricing year).

Building blocks will be used to calculate the forecast MAR

B16 The forecast MAR for RCP1 was set based on the sum of the forecast building block values for each year. The resulting price path over the four years of that regulatory period has not been smoothed. This differs from the default price-quality path that applies to non-exempt electricity distribution businesses. In that case a smoothed price path is calculated.

B17 We consulted publicly on whether the building blocks approach should again be adopted in setting the forecast MAR and asked for comment on whether a 'smoothed' price path similar to the default price-quality path applying to regulated electricity distribution businesses should instead be adopted.[140]

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138 Commerce Commission "Information Disclosure Requirements for Transpower Reasons Paper" (28 February 2014), Attachment D.

139 Commerce Commission "Individual Price-Quality Path (Transpower) Reasons Paper" (December 2010), paragraph 3.4.1.

140 Commerce Commission "Invitation to have your say on Transpower's individual price-quality path and proposal for the next regulatory control period – Issues paper" (10 February 2014), paragraph 3.17.

B18 Our experience in applying the individual price-quality path over the RCP1 has been that a smoothing of the price path is not justified in Transpower's case. The MAR wash-up values to date have not been material to the yearly revenue totals and therefore do not cause issues for consumers with the predictability of prices.

B19 We have therefore concluded that an unsmoothed building blocks approach should again be applied in RCP2.

Pass-through costs and recoverable costs are included in Transpower's forecast revenue

B20 Pass-through costs and recoverable costs are not forecast MAR building blocks. Forecast pass-through costs and recoverable costs will be added to the forecast MAR to arrive at Transpower's forecast revenue that is used in setting its prices each year.

B21 The forecast revenue is converted to prices through the TPM, which is regulated by the Electricity Authority.

Forecast MAR building blocks calculation

B22 The building blocks of the forecast MAR calculation are:

B22.1 a forecast of Transpower's RAB, including a forecast of the opening RAB value and forecast commissioned assets (ie, forecast commissioned major capex and base capex);

B22.2 a forecast capital charge - which is the forecast return on Transpower's forecast RAB at the WACC rate;

B22.3 a forecast of the depreciation of Transpower's forecast RAB;

B22.4 the forecast opex allowance (see below for more details on how we will set and apply the opex allowance building block);

B22.5 a forecast allowance for income tax based on Transpower's transmission revenues;

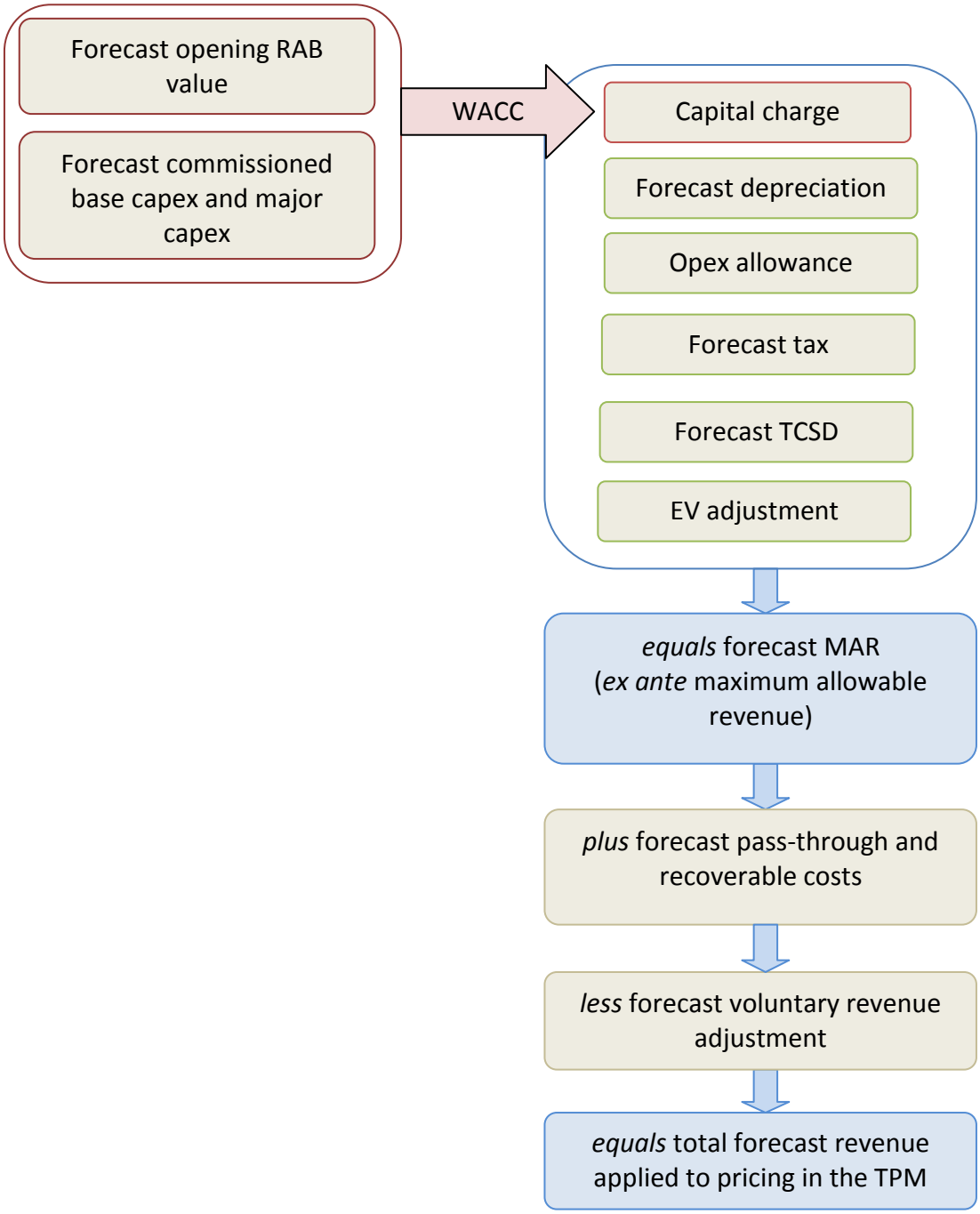
B22.6 an allowance for Transpower's term credit spread differential (essentially an adjustment to the capital charge building block);

B22.7 the EV adjustments covering revenue adjustments for previous MAR wash-up calculations (discussed below); and

B22.8 the EV adjustments covering revenue adjustments resulting from the incentive mechanisms in the input methodologies (discussed below).

B23 Figure B1 illustrates how the forecast MAR and Transpower's total forecast revenue will be calculated based on the building blocks. Each of these components is discussed further below.

Figure B1 - Forecast MAR building blocks



Setting the values of the building blocks

Input methodologies that will apply in setting the values of the building blocks

B24 The input methodologies that are in place when the individual price-quality path is determined for RCP2 will apply for the entirety of RCP2. Any amendments to the input methodologies during the regulatory period will not generally flow through to the setting of price, revenue caps or grid output measures during the period.[141]

B25 Each building block is calculated by applying relevant input methodologies. The input methodologies that will apply in setting the forecast MAR for each pricing year in RCP2 are:

B25.1 specification of price,[142] which specifies that the price path is set by a revenue cap and that pass-through and recoverable costs may be recovered in revenues in addition to the forecast MAR;

B25.2 capital expenditure,[143] which primarily sets out the rules for approval of major capex and base capex;

B25.3 cost allocation,[144] which is the rule for how costs that span both regulated and non-regulated activities are to be attributed between them when calculating the building blocks;

B25.4 asset valuation,[145] which outlines how the RAB roll forward is to be calculated, taking into account the amount of commissioned asset and deprecation in the year;

B25.5 treatment of taxation,[146] which sets out the rules for calculating the taxation allowance building block;

B25.6 cost of capital,[147] which sets out the process for calculating the WACC used in the capital charge building block;

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141 *Commerce Act 1986,* sections 53ZC(2)(b) and 53ZB(1). Although the Capex IM was determined after the individual price-quality path was set for RCP1, there was an allowed timing exception under the Act that allowed it to take effect in some respects during the regulatory period.

142 Transpower IMs, Part 3, Subpart 1.

143 Capex IM.

144 Transpower IMs, Part 3, Subpart 2.

145 Ibid, Part 3, Subpart 3.

146 Transpower IMs, Part 3, Subpart 4

147 Ibid, Part 3, Subpart 5

B25.7 IRIS,[148] the opex incentive mechanism; and

B25.8 reconsideration of an individual price-quality path,[149] which allows for the annual updates of the forecast MAR.

B26 Where the value of a building block is not determined by an input methodology, we seek to calculate the building block using a methodology that results in outcomes that are to the long-term benefit of consumers.

The opening RAB value, commissioned assets and WACC rate determine the capital charge building block

B27 The capital charge is the return on capital. Transpower's capital charge depends on the RAB value at the start of the disclosure year and the value of assets forecast to be commissioned during the disclosure year. This value is multiplied by the WACC rate to arrive at the forecast capital charge.

B28 Forecast commissioned assets comprise base capex and major capex projects forecast to be commissioned during the year.

B29 It is appropriate that Transpower only earns a return on assets once they are commissioned and providing electricity lines services to customers. Consequently, we propose that commissioned assets be forecast monthly. The individual price-quality path for RCP1 assumed a mid-year timing of commissioned assets. We reason that a monthly timing assumption will result in a more accurate forecast capital charge.

B30 The WACC rate used to calculate the capital charge is not part of the draft individual price-quality path decision for RCP2. The process for setting the WACC is specified in the Transpower IMs and will be determined separately.[150]

B31 In March 2014 we issued a notice of intention to do further work on the cost of capital input methodologies for electricity distribution businesses, gas pipeline businesses, Transpower, and specified airport services.

B32 The aim is to address the High Court's comments regarding our use of the 75th percentile WACC estimate when setting regulated price-quality paths. The Court in its 2013 judgment questioned whether empirical evidence and theoretical results justify our use of the 75th percentile.

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148 Ibid, Part 3, Subpart 6.

149 Transpower IMs, Part 3, Subpart 7. Parts of the Capex IM relating to major capex came into effect for RCP1 at the time the input methodology was set in January 2012. The parts relating to the base capex allowance and the setting of the grid output measures come into effect from RCP2.

150 Transpower IMs, Part 3, Subpart 5.

B33 Using the 75th percentile, as we did in the first regulatory period for Transpower, makes a material difference to the WACC, and therefore, the allowed revenues for suppliers subject to price-quality path regulation.

B34 Our final decision on the forecast capital charge and forecast MAR will be made when a final decision has been made on the WACC percentile.

Forecast depreciation allowance building block

B35 The depreciation allowance is a function of the forecast value of the RAB and of the lives of the assets comprising the RAB.

Setting the opex allowance building block

B36 We set an overall opex allowance for each year of the regulatory period. Opex is the costs incurred in the daily operation of the grid and excludes amounts defined in the input methodologies as pass-through costs or recoverable costs.[151]

B37 The opex allowance used in calculating the forecast MAR is the forecast total controllable opex for each disclosure year of RCP2. This allowance is set using the forecast CPI.

B38 Any disparity between the forecast CPI and the actual CPI will later result in an adjustment each year to the opex allowance for the MAR wash-up (see below).

Taxation allowance building block

B39 The taxation allowance is primarily determined by the corporate tax rate, the forecast MAR and the expenditure building blocks. The corporate tax rate is currently 28%.[152]

The term credit spread differential building block

B40 The term credit spread differential (TCSD) is used to adjust cash-flows of suppliers which have issued longer-term debt than that assumed when calculating the WACC rate. Transpower only needs to make a relatively minor adjustment to the forecast MAR.[153]

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151 Commerce Commission, "Transpower Input Methodologies Determination [2012]" NZCC 17, 29 June 2012, clauses 3.1.2 and 3.1.3. Although Transpower proposes its opex allowance by categories and for each year of the regulatory period, Transpower has the ability to transfer its operating expenditure between classifications and years.

152 Transpower IMs, Part 3, Subpart 4; and *Income Tax Act 2007* (as at 1 April 2014), Schedule 1, Part A, paragraph 2.

153 Transpower IMs, clause 3.5.10.

The economic value account is used to transfer revenue adjustments from year to year

B41 We propose to retain use of the EV account. Balances in the EV account brought forward from RCP1 will be applied in setting or updating the RCP2 forecast MAR, as applicable.[154]

B42 The EV account is the mechanism used to transfer positive or negative balances from one year to the next. For example, if Transpower over-recovers from consumers in one year, that amount enters the EV account resulting in the forecast MAR for the next year being reduced.

B43 Any balances in the EV account that are carried forward from one year to a later year will continue to be adjusted at the 75th percentile WACC.

We propose cash-flow timing assumptions that will result in more accurate forecasts

B44 As discussed in Chapter 3, for RCP2 we propose to use cash-flow timing assumptions in the forecast MAR calculations that more accurately reflect the timing of Transpower's forecast cash-flows than those used in RCP1. The cash-flow timing assumptions for each forecast cash-flow are outlined in Table B1.

Table B1: Proposed cash-flow timing assumptions

Cash-flow	Proposed timing assumption
Revenue	Slightly later than mid-year on average, reflecting the fact that revenue is earned on standard contract terms (ie, 20th of the month following supply)
Commissioned assets	Monthly based on forecast commissioning dates
Opex	Mid-year on average
Tax	Mid-year on average
Pass-through costs and recoverable costs	Mid-year on average
Term credit spread differential	Mid-year on average

[154] The MAR wash-up and incentive adjustment entries to the EV account for the 2014-15 year of RCP1 will not be calculated until October 2015 (ie, after the commencement of RCP2), so they will not be factored into the forecast MAR that we set in October 2014. Those later entries will be taken into account in the first update of the forecast MAR and will be recovered or returned in Transpower's 2016-17 updated forecast MAR.

We propose to wash up any over- or under-recoveries of revenues from consumers

The MAR wash-up will apply each year in RCP2

B45 We propose to retain the MAR wash-up approach from RCP1.[155]

B46 Following the end of each disclosure year ending 30 June, Transpower will be required to carry out a revenue wash-up calculation. The wash-up involves replacing in the building blocks the forecast values used to calculate the forecast MAR:

B46.1 with the actual values for that year for RAB, depreciation, and tax, and

B46.2 for the opex allowance, an updated version of the original opex allowance adjusted only for the actual CPI in place of the forecast CPI. This treatment of the opex allowance is the same as for RCP1.[156]

B47 This calculation results in the actual MAR. The wash-up process is referred to as the MAR wash-up.

B48 The MAR wash-up is designed to ensure that, over time, Transpower's actual financial performance reflects the impact of Transpower's incentives.

B49 Any resulting revenue difference between the actual MAR and the actual net transmission revenues received (ie, revenues net of pass-through costs and recoverable costs) is recorded in the EV account. Any balance in the EV account is then applied in the next available pricing year as an 'EV adjustment' to adjust the forecast MAR for Transpower's pricing in that later pricing year. We refer to this as the forecast MAR update.

Wash-ups of pass-through costs and recoverable costs

B50 Transpower's pass-through costs and recoverable costs are excluded from the MAR wash-up. As a result, no entry is made in the EV account for any differences between the forecast pass-through costs and recoverable costs used in setting the forecast revenues each pricing year.

B51 As discussed in Chapter 3, for RCP2 we propose that Transpower may make accrual accounting adjustments for differences between the forecast costs and the actual costs incurred, and for any disparity between the actual costs incurred and the actual revenues recovered from consumers for these costs.

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155 Commerce Commission "Individual Price-Quality Path (Transpower) Reasons Paper" (December 2010), Chapter 3, section 3.9.

156 *Commerce Act (Transpower Individual Price-Quality Path) Determination 2010* [2010], Decision No. 714, Schedule E.

Adjustments of recoverable costs

B52 Transpower has advised us that it is projecting to underspend its RCP1 opex allowance due to scope changes to RCP1 opex projects that have arisen in RCP1. It has indicated that it wishes to voluntarily forgo some of the IRIS benefits that will accrue to it in RCP2 recoverable costs as a result of this underspend of opex.[157]

B53 As the reduction in revenues proposed for RCP2 by Transpower for underspent RCP1 opex is voluntary, we do not propose to set in place any mandatory mechanism in the individual price-quality path determination to give effect to the adjustment. For simplicity we propose that any voluntary revenue reduction made by Transpower in respect of prior underspent opex would be recognised as a further voluntary reduction in the forecast MAR (and/or MAR wash-up) rather than as an adjustment to recoverable costs.

Alignment of the opex allowance for the MAR wash-up with the IRIS

6.33 Under the IRIS input methodology we need to set an amount of allowed controllable opex for each disclosure year of RCP2.[158]

6.34 The term 'allowed controllable opex' as defined in the input methodologies is the allowance specified in the individual price-quality path determination for opex in categories specified as controllable.

6.35 The IRIS measures the difference between the allowed controllable opex and the actual controllable opex, being the difference between the controllable opex amount recovered by Transpower in its revenues and the actual controllable opex incurred.

6.36 Our draft decision is that the allowance for this purpose is the 'washed-up' opex allowance as used in the MAR wash-up calculation.

MAR wash-up process

B54 The MAR wash-up process is described in Figure B2.

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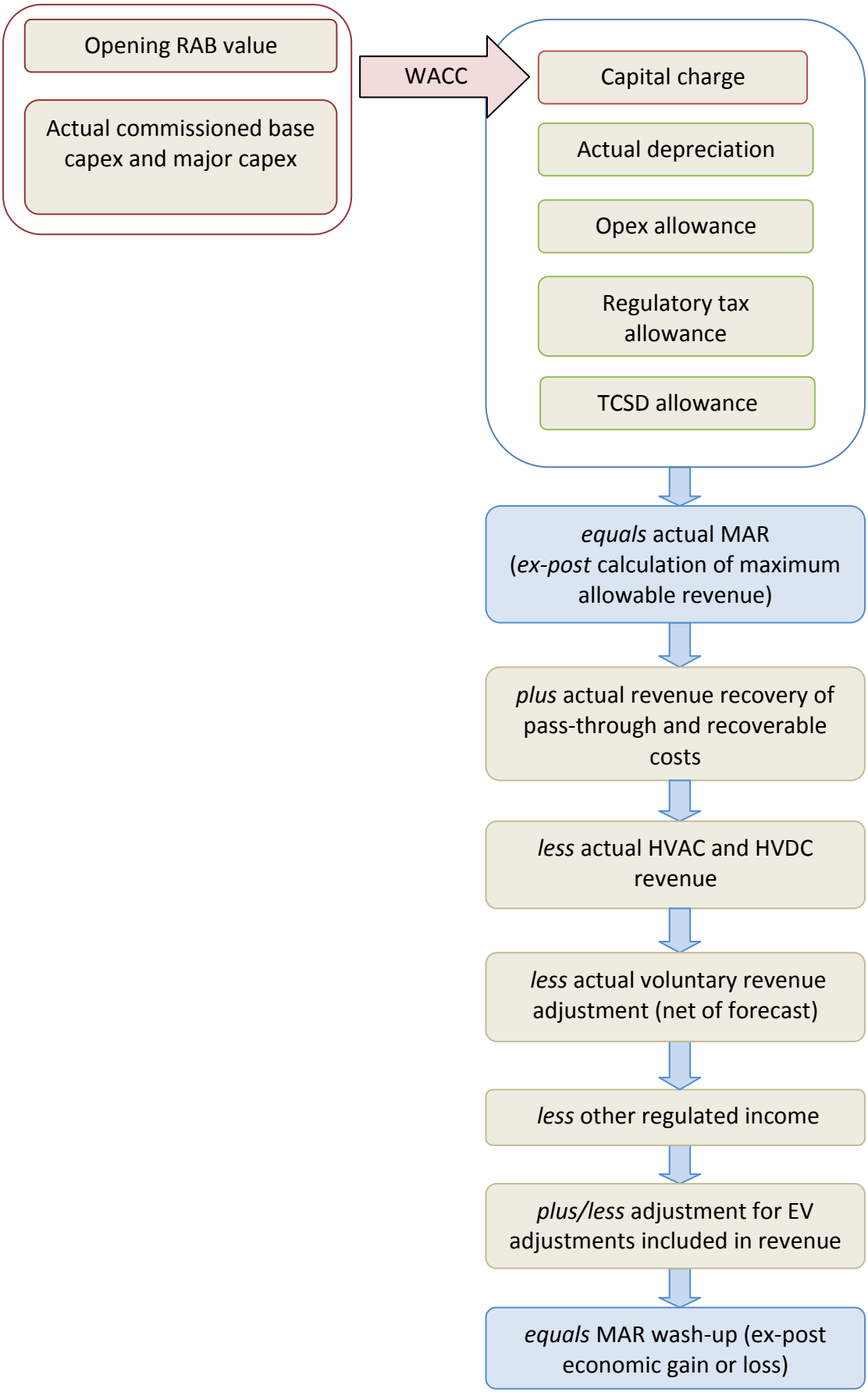
157 Transpower IMs, clauses 3.6.2(2) and 3.1.3(1)(a).

158 Ibid, clause 3.6.1.

Figure B2: MAR wash-up building blocks



When the individual price-quality path may be reconsidered during RCP2

B55 The input methodologies provide only limited opportunities for the price-quality path to be reopened during the course of a regulatory period.[159]

Revenue impact of major capex approved by the Commission

B56 The input methodologies allow the reconsideration of the price path as a result of approval by the Commission of major capex that was not already approved at the start of the regulatory period. This particularly applied for RCP1 due to the significant major capex then in train or about to be initiated during RCP1.

B57 The revenue impact of any approved major capex is given effect through the updates of forecast MARs during the regulatory period. In RCP1 these updates were made yearly.[160]

B58 Our draft decision is to retain the yearly forecast MAR update mechanism in the individual price-quality path for RCP2. While its effect may be less material for major capex approvals due to the levelling off of major capex amounts, such a mechanism would be justified and necessary for the 'listed projects' framework described below.

Change in net costs as a result of a catastrophic event

B59 The input methodologies allow the reconsideration of the individual price-quality path as a result of a catastrophic event that materially impacts the price path or the quality path. The reasons for allowing reconsideration of the individual price-quality path and the threshold for allowing such consideration during the regulatory period are set out in our 2010 input methodologies reasons paper.[161]

B60 See Attachment D for our discussion on how the price-quality path would change if there was a catastrophic event.

Revenue impact of 'listed projects' base capex approved by the Commission

B61 Our draft decision is that the individual price-quality path determination will include a framework for considering increases to the base capex allowance during the course of RCP2. Subject to the outcome of consultation on an amendment to the price path reconsideration input methodology to give effect to this mechanism, any adjustments to the base capex allowance would then feed into the yearly updates of the forecast MAR. This would be similar to the updates allowed in the input methodologies for newly-approved major capex projects.

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159 Transpower IMs, Part 3, Subpart 7.

160 Commerce Commission, "Individual Price-Quality Path (Transpower) Reasons Paper", (December 2010), Chapter 3, part 3.8.

161 Commerce Commission "Input Methodologies (Transpower) Reasons Paper", (December 2010), Chapter 7, part 7.4.

B62 This price path reconsideration provision would require amendments to the Transpower IMs - see Attachment C.

B63 We have excluded a list of the proposed expenditure from the base capex and opex allowances used to set the forecast MAR for RCP2. The expenditure proposed by Transpower for each listed project may be considered by the Commission during the course of the regulatory period if specified trigger conditions and approval conditions are met. Additions to base capex allowances may then flow through to forecast MAR through the yearly price path reconsideration process.

B64 Transpower has identified five large reconductoring projects that would fall within our categorisation of listed projects. Transpower anticipates the projects that would be subject to this framework would total $118 million for RCP2, and $275 million over the life of the proposed projects (see Chapter 5). These proposed amounts are indicative only and would be subject to further refinement and evaluation before they could be considered as an adjustment to the base capex allowance.[162]

B65 Under our draft decision, Transpower would submit an application to the Commission for approval for each project. We would then review the application. If we found the conditions outlined in the individual price-quality path had been met, we would reconsider the individual price-quality path to provide for the revenue impact of the additional base capex allowance for the relevant listed project.

B66 We propose that the following conditions be met before approval for the expenditure is given.

B66.1 Transpower has undertaken a cost-benefit analysis commensurate to the project size and complexity. This is a requirement for any base capex project costing more than $20 million.[163]

B66.2 The cost-benefit analysis must reflect the efficient costs that a prudent supplier subject to individual price-quality path regulation would require to meet or manage the expected demand for electricity transmission services at appropriate service standards during RCP2 and over the longer term, and

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[162] Transpower "Expenditure Proposal Regulatory Control Period 2" (December 2013), p. 45. Transpower indicated that detailed technical studies are yet to be completed to determine whether or not it is economic to enhance capacity. Enhancements to capacity may cause the listed projects to fall outside the definitions of asset replacement or asset refurbishment. If this occurs, the listed projects would no longer be base capex projects and would then appropriately be progressed instead as major capex proposals.

[163] Capex IM, clause 3.2.1. Transpower must undertake a cost-benefit analysis consistent with determining 'expected net electricity market benefit' (see also Schedule D of the Capex IM) and consult with interested persons.

comply with applicable regulatory obligations associated with those services.[164]

B66.3 The cost-benefit analysis must include consideration of alternatives.

B66.4 Transpower has consulted with interested persons. Consultation with interested persons should be of a scope commensurate with the project's nature, complexity, impact and significance.[165]

B66.5 Transpower has demonstrated current and future need with reference to demand and generation scenarios.[166]

B66.6 Transpower has demonstrated that its Board of Directors has considered and approved the business case for the listed project at least at the Transpower BC3 approval gate level.

B66.7 The BC3 approval by the Board must include a fully completed Transpower 'quality assurance checklist'.

B66.8 Transpower's CEO must certify the request for approval, in a form equal to that required for major capex proposals.[167]

B66.9 Where asset enhancement is more than merely incidental as an outcome of the project, Transpower must instead submit a major capex proposal in line with the relevant provisions of the Capex IM.[168]

B67 Our proposed listed project framework would require Transpower to submit an application to the Commission to amend the base capex allowance to accommodate expenditure associated with a listed project.

B68 To provide expenditure forecasts that have dealt with current scope, cost and timing uncertainty, we consider Transpower should meet pre-conditions before making an application. These conditions are set out below.

B68.1 Undertake a cost-benefit analysis and consultation in line with clause 3.2.1(a) and (b) of the Capex IM–where a cost-benefit analysis consistent

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[164] The 'expenditure objective' is that the objective of operating and capital expenditure is to reflect the efficient costs that a prudent supplier subject to individual price-quality path regulation would require to: i) meet or mange the expected demand for electricity transmission services, at appropriate service standards, during the next regulatory control period and over the longer term; and ii) comply with applicable regulatory obligations associated with those services.

[165] Capex IM, clause 8.1.2.

[166] As defined in Capex IM, clause D4(1).

[167] See Capex IM, clause 9.2.1.

[168] See footnote 53.

with determining expected net electricity market benefit is one that applies an expenditure objective such that the proposed capex reflects the efficient costs that a prudent supplier of electricity transmission services would require to-

B68.1.1 meet or manage the expected demand for electricity transmission services, at appropriate service standards, during the regulatory period and over the longer term; and

B68.1.2 comply with applicable regulatory obligations associated with those services.

B68.2 Demonstrate the current and future need for the applicable proposed assets by reference to the demand and generation scenarios in clause D4(1) of Schedule D of the Capex IM.

B68.3 Demonstrate the consideration of alternative options for carrying out the listed project, including non-replacement and demolition, enhancement or development of alternative assets, and non-transmission solutions.

B68.4 Demonstrate that its Board of Directors has considered and approved (subject to Commission approval of additional base capex allowance) the business case for the listed project at least at Transpower's BC03 gate level, in circumstances where the business case includes Transpower's fully completed quality assurance checklist.

B68.5 The application would also need to be accompanied by a certificate from Transpower's CEO, confirming that:

B68.5.1 the information underpinning the application was derived from and accurately represents, in all material respects, the operations of Transpower; and

B68.5.2 the listed project to which the application relates was approved in line with the applicable requirements of Transpower's approval processes of directors and management.

B69 The certification element of the listed project framework would require amendments to the Capex IM. Our general approach for determining pools of expenditure (such as the base capex allowance) is to require certification at director level.

B70 However, the significance of the cost of each listed project (and the project-based nature of the framework envisaged to deal with these costs) led us to a view that certification requirements similar to those for major capex proposals were more appropriate here.

B71 After receiving an application, we would consider and evaluate it in line with the consultation requirements and evaluation criteria in the Capex IM that apply to base

capex. We would then decide whether to approve an amount for inclusion in the base capex allowance, and what that amount might be.

B72 Revenue impacts of increased base capex allowances associated with listed projects would then flow through to the forecast MAR update each year.

B73 This element of the listed project framework would require amendments to the Transpower input methodologies–see Attachment C for further details.

Attachment C: Proposed changes to the input methodologies to implement our draft decisions

Purpose of this attachment

C1 The purpose of this attachment is to identify a number of changes to input methodologies that we consider may be necessary or appropriate to make before setting Transpower's individual price-quality path for RCP2.

C2 These possible amendments will be publicly consulted on separately from the consultation on our draft decisions on the individual price-quality path. Summaries of the possible amendments are included in this draft reasons paper for completeness only.

Determinations affected by the possible amendments

C3 We will consult on proposed amendments to the following input methodology determinations:

C3.1 Transpower Input Methodologies Determination [2012] NZCC 17 (Transpower IMs); and

C3.2 Transpower Capital Expenditure Input Methodology Determination [2012] NZCC 2 (Capex IM).

Overview of proposed amendments

C4 The input methodologies proposed for consultation relate to:

C4.1 'Reconsideration of an individual price-quality path' (Transpower IMs, Part 3, Subpart 7), where a terminology change would be made to align the provision dealing with any reconsideration of the price path for a catastrophic event with the new revenue-linked grid output measures that will apply from the second regulatory period;

C4.2 'Reconsideration of an individual price-quality path' (Transpower IMs, Part 3, Subpart 7), to provide for revenue impacts of the base capex contingent framework proposed for the individual price-quality path to flow through the forecast MAR as part of the yearly revenue update process;

C4.3 'Specification of price' (Transpower IMs, Part 3, Subpart 1), to provide for Transpower to recover the prudent additional net opex costs it incurs in the period between the time of a catastrophic event and a reconsidered individual price-quality path taking effect;

C4.4 'Specification of price' (Transpower IMs, Part 3, Subpart 1), to provide for Transpower to recover its opex incurred in respect of approved major capex projects as recoverable costs;

C4.5 'Capital expenditure' (Capex IM), to amend the definition of 'forecast CPI' to reflect changes to the Reserve Bank of New Zealand's (Reserve Bank's) Policy Targets Agreement (PTA) which would be used, among other things, in setting the base capex allowance for RCP2; and

C4.6 'General Provisions' (Transpower IMs, Part 1), to amend the definition of 'related party' to avoid an overreach of the application of that term in the individual price-quality path and information disclosure.

Aligning reconsideration of the price-quality path with the new quality standards

C5 The input methodologies currently refer to quality targets by reference to a specific clause in the RCP1 individual price-quality path determination. With the implementation of the revenue-linked grid output measures in RCP2, the reference to quality targets will no longer apply for the individual price-quality path determination.

C6 A consequence of this is that references to 'quality targets' in the individual price-quality path reconsideration provisions in the Transpower input methodologies should be supplemented with references to revenue-linked grid output measures that the Capex IM requires to apply from RCP2. We consider the appropriate reference should be the lower bound, ie, the collars of each of those revenue-linked measures.

C7 The input methodology amendments that we consider may be required are to the Transpower input methodology reconsideration provisions for catastrophic events, and to limits on extent of our reconsideration for an individual price-quality path.

Base capex allowance for 'listed' contingent expenditure

C8 Transpower's proposed base capex for RCP2 excludes expenditure associated with five large reconductoring projects. Transpower proposed that these projects be submitted to the Commission for separate approval.[169]

C9 The proposed expenditure totals $118 million for RCP2 and totals $275 million over the life of the proposed projects. These proposed amounts are indicative only and would need to be subject to further refinement and evaluation before they could be included in the base capex allowance.

C10 To allow for approval of the base capex on these projects after we have determined the base capex allowance for RCP2, Transpower asked us to consider an input methodology amendment to allow R&R projects that have a high cost, broad scope and/or uncertain timing (such as line reconductoring) to be included as part of the major capex approval process.

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[169] Transpower, "Expenditure Proposal Regulatory Control Period 2" December 2013, p. 45.

C11 We consider instead that expenditure on R&R projects fall appropriately into the base capex portfolio and should be subject to the evaluation criteria and incentive mechanisms that apply to base capex. However we accept that until Transpower has done further assessments and detailed technical studies (as its proposal indicates it intends to do), the five projects identified by Transpower currently have high scope, cost and timing uncertainty.

C12 We consider it appropriate to exclude that proposed expenditure from the initial determination of the expenditure allowances in setting the forecast MAR for RCP2 that the need, timing or cost of each project was uncertain when Transpower submitted its proposal. However, we do not consider excluding the expenditure for the full term of RCP2 would meet the purpose of Part 4 (ie, exclusion would not incentivise Transpower to invest in replacement assets and improve efficiency).

C13 The projects relate to a number of reconductoring requirements that we consider might justifiably need to be carried out in RCP2. Delaying the projects to the third regulatory period for inclusion in the base capex allowance for that regulatory period may not be in the interests of consumers.

C14 We therefore propose that the RCP2 individual price-quality path determination includes a framework for considering increases to the base capex allowance during the course of RCP2. Including this framework in the individual price-quality path determination rather than proposing a permanent amendment to the Capex IM reflects our expectation that Transpower will be in a position to comprehensively propose a base capex allowance for RCP3 that would include all forecast R&R projects. Our expectation is that the framework would not be required for RCP3 or beyond.

C15 Subject to the outcome of consultation on an amendment to the price path reconsideration input methodology to give effect to this mechanism in the individual price-quality path determination, we propose that any adjustments to the base capex allowance in RCP2 would feed into the annual updates of the forecast MAR, similar to the price path reconsideration allowed in the input methodologies for newly-approved major capex projects.

C16 Our draft decision is that the individual price-quality path will contain a framework where:

C16.1 these base capex projects with a value greater than $20 million and that currently have high uncertainty on forecast cost, scope and timing will be identified as listed projects in the individual price-quality path determination at the start of the regulatory period;

C16.2 if certain defined pre-conditions are later met during the regulatory period (ie, requirements aimed at reducing the cost, scope and timing uncertainties), Transpower may apply to the Commission for an increase to the base capex allowance for the remaining years of the regulatory period to take account of the proposed expenditure on a listed project;[170]

C16.3 the Commission will evaluate any application in line with the relevant base capex criteria and processes set out in the Capex IM and determine a monetary amount for any increase in the base capex allowance; and

C16.4 revenue impacts of the increased base capex allowances associated with the approved listed projects will flow through to the forecast MAR as part of the yearly update each year in the same way as newly-approved major capex projects.

Additional net opex incurred as a result of a catastrophic event

C17 Our 'in principle' view is that Transpower may recover any additional prudent opex that arises in the period between a catastrophic event and a reconsidered individual price-quality path taking effect, at our discretion.

C18 We propose that any such costs approved by the Commission would be a recoverable cost. However, this would require a variation to the input methodologies.

Treating forecast major capex as actual opex during the regulatory period

C19 The individual price-quality path for RCP2 aims to provide greater accuracy in its reflection of expenditure on major capex projects between capex and opex. This is intended to reflect that there may be some circumstances where the expenditure amounts we approve in the major capex allowance may implicitly include items that, in the course of the project, may ultimately be required to be accounted for as opex (such as project feasibility costs) or treated under GAAP accounting as opex rather than capex.[171]

C20 A similar issue arose in setting the individual price-quality path for the first regulatory period, where we needed to address the treatment of transmission alternative costs, which are clearly not accounted for as capex for GAAP purposes.

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[170] See Attachment B for our proposed detailed specifications for the content and CEO certification of an application for approval of a listed project in RCP2.

[171] External Reporting Board "New Zealand Equivalent to International Accounting Standard 16 Property, Plant and Equipment (NZ IAS 16), issued November 2004 and amended up to 28 February 2014. This accounting standard sets out examples of various situations where project expenditure may not be capitalised into a capital asset for GAAP accounting purposes. In those cases, the expenditure would be treated for GAAP accounting purposes as opex.

We concluded that allowing those costs to be treated as recoverable costs is the most appropriate treatment under the individual price-quality path.[172]

C21 This has the effect of taking the resulting opex outside the IRIS opex incentive calculations and is intended to be neutral with respect to the incentives.

C22 A key issue supporting that same treatment for major capex that ends up getting accounted for as opex, is to again ensure that the accounting treatment does not impact on the neutrality of the incentive mechanisms between the two different types of expenditure. The major capex overspend adjustment incentive in Schedule B of the Capex IM is asymmetric (i.e. it only penalises overspends and does not reward underspends). The IRIS incentive for opex is currently asymmetric, but we are currently consulting on whether to make it symmetric (which is our preferred approach).

C23 If our preferred approach of making the IRIS symmetrical is adopted, this would mean that the effective substitution arising from the GAAP accounting classification of expenditure that was originally forecast in the major capex allowance as capex, but then actually gets accounted for as opex under GAAP, could have the effect of incentivising Transpower to spend on projects in a way that does not encourage efficiency.[173]

C24 No similar classification mechanism would be required between base capex and opex, as the respective expenditure incentives are both symmetrical and the incentive rates are approximately aligned. Any classification of forecast base capex across to actual opex that might happen in the course of any project for accounting reasons should not weaken those incentives when they are considered as a package.

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172 Commerce Commission "Input Methodologies (Transpower) Reasons Paper" (December 2010), paragraphs 7.3.65 to 7.3.67.

173 Under the current incentive mechanisms Transpower would be penalised for exceeding its opex allowance, but receive no benefit for underspending its major capex allowance. The natural incentive is therefore not to strive to reduce the spending against the major capex allowance and may have the effect of rewarding spending up to the major capex allowance. The net result may be that the overall spend on the combined opex and major capex may exceed the major capex allowance with a negligible or negative incentive effect.

C25 Maintaining incentive neutrality would require an adjustment mechanism to allow actual expenditure against the approved major capex allowance (that ends up being accounted for as opex) to be recovered in revenues in the course of the regulatory period as recoverable costs. This would:

C25.1 allow Transpower to recover the total costs incurred in completing the project on a timely basis, irrespective of whether they are capex or opex;

C25.2 continue to apply the major capex allowance for the project when assessing the major capex overspend adjustment, and so preserve the integrity of that incentive; and

C25.3 take the opex outside the IRIS incentive and therefore not affect the integrity of that incentive, which could otherwise potentially impact if the opex was treated as controllable opex for that incentive.

Forecast CPI for the purposes of setting capex and opex allowances

C26 The input methodology for forecasting CPI for electricity distribution businesses has recently been amended.[174] This amendment ensures that the method of forecasting CPI reflects the recent change in the Reserve Bank's PTA. The recent change in the PTA is that the Reserve Bank of New Zealand is to target a 2% rate of CPI inflation. This is the mid-point of the target band of 1-3%.

C27 The Capex IM currently applies the older definition of 'forecast CPI' in setting base capex allowances and major capex allowances. This is also used (for consistency reasons) in setting the opex allowance.

C28 We consider that our updated approach to setting the forecast CPI for electricity distribution businesses is also appropriate for Transpower's individual price-quality path.

C29 We conclude that the mid-point of the Reserve Bank's range is the appropriate long-term reference point in setting the forecast CPI. This approach assumes that:

C29.1 there are no shocks to inflation after the end of the Reserve Bank's forecast period; and

C29.2 any monetary policy that the Reserve Bank may undertake results in inflation moving to the mid-point of the target range after two years, before remaining constant at that level.

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[174] Commerce Commission "Specification and Amendment of Input Methodologies as Applicable to Default Price-Quality Paths" (28 September 2012), paragraphs 35 and 36.

C30 We do not propose the exact same approach as for the electricity distribution businesses amendment. That amendment updated the definition of 'forecast CPI' to address matters concerning the 2012 default price-quality path reset.[175] The definition references the time of setting the WACC so that it takes account of the fact that the WACC applying to electricity distribution businesses at that time had been set some time before the reset (ie, three years before) and not set contemporaneous with the setting of the price path.

C31 Implementing that updated definition for the Transpower individual price-quality path is not required from a policy point of view, because the CPI forecast at the time the WACC is set for Transpower's next regulatory period will be a close approximation of the actual CPI assumed in the WACC (ie, no long time gap that could cause material inconsistencies).

C32 The same timing issues do not apply to Transpower. If the full updated definition was applied to Transpower it would cause practical problems in coordinating the setting of the WACC and the forecast MAR in time for Transpower to set its pricing for the first year of RCP2.

C33 In Transpower's case, the tail of the forecast CPI series is more of an issue. It has a more material impact on the setting of the opex and base capex allowances under the individual price-quality path than on the start of the series. We consider the Transpower definition of 'forecast CPI' must change to trend the forecast CPI to the mid-point of the Reserve Bank target after the series in the Monetary Policy Statement runs out, which is currently 2%.

Definition of 'related party'

C34 We have identified a problem with the current definition of related party in the input methodologies. This will apply to both the application of the individual price-quality path and to information disclosure.

C35 The issue is that the GAAP reporting standard indirectly referred to in the existing definition has the effect of including all Government-related entities as related parties to Transpower.[176] This includes Transpower's shareholder (the Crown), the arms of the Crown (ie, Government departments) and State Owned Enterprises such as Meridian Energy Limited, which is an unintended consequence.

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175 Commerce Commission "Resetting the 2010-15 Default Price-Quality Paths for 16 Electricity Distributors" (30 November 2012), paragraph 4.19.

176 External Reporting Board "New Zealand Equivalent to International Accounting Standard 24 Related Party Disclosures (NZ IAS 24)" paragraph 9. Issued November 2009, and including amendments to 31 December 2012.

C36 The intent is that the definition only captures the activities of Transpower's subsidiaries and Transpower's non-grid activities, rather than those of entities outside the immediate Transpower group.

C37 We developed information disclosure requirements for the disclosure of related party transactions. For the purpose of information disclosure, related parties are any business units of Transpower that supply services other than electricity lines.[177] The same requirements are to apply to the individual price-quality path RCP2.

C38 Related party transactions must be valued based on, or linked to, specified objective and verifiable information. The terms (especially price) and conditions agreed between the related parties can influence the information disclosed by the regulated entity. This in turn can hinder an interested person's ability to assess profitability.

C39 For this reason, different considerations apply to the disclosure of related party transactions, as compared to other transaction values, so it can be clearly demonstrated that the transaction prices approximate what could be expected in arm's length transactions. As a result, the disclosed transaction value may differ from the actual transaction value.

C40 Rather than apply a limitation on our interpretation of the existing definition or provide Transpower with an exemption from the definition in the accounting standard, our preferred approach is to make a corrective amendment to the input methodologies.

Request for consideration of 'expenditure' basis for recognition of base capex incentives

C41 Transpower requested us to consider amending the basis on which the base capex expenditure adjustment will be calculated from a 'commissioned' basis of project recognition to an 'expenditure' basis. This would only apply to the calculation of the incentive for RCP2 and not to the initial calculation or updates of the forecast MAR in that regulatory period. They would remain on a 'commissioned' basis of recognition and calculation.

C42 We have considered this request based on our experience working with Transpower and its advisors in the first regulatory period to apply the similar major capex overspend adjustment.

C43 The practical concerns that Transpower described to us by relate to the adjustments for the disparity between the forecast CPI and the actual CPI. They also relate to the disparity between the forecast foreign exchange rates and the actual foreign exchange rates that apply to base capex projects commissioned in a year.

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[177] Commerce Commission "Information Disclosure Requirements for Transpower Reasons Paper" (28 February 2014), paragraphs

C44 Because the base capex allowance for a year is a fungible pool of allowable expenditure, it is not possible to make those disparity adjustments to the degree of accuracy that can be achieved for the individually approved major capex projects.

C45 We consider these practical implementation issues can be overcome by treating the base capex commissioned in any one year as one large project and to then carry out the necessary disparity adjustments on a commissioned basis. This may require some form of extrapolation of an expenditure basis adjustment for the forecast CPI and forecast foreign exchange rates.

C46 Our draft decision is that the matter does not require the Capex IM to be amended and can feasibly be handled by working with Transpower on a practical protocol for applying the base capex expenditure adjustment.

Attachment D: How the price-quality path would change if there was a catastrophic event

Purpose of this attachment

D1 This attachment sets out our conclusions on why we do not consider that any additional expenditure allowance or new price-quality path mechanisms are required for Transpower's price-quality path for the next regulatory period to compensate Transpower for any potential additional net costs or lower-than-forecast revenues resulting from a future catastrophic event.

Transpower's price-quality path may be reconsidered in the event of a catastrophic event

D2 Under the Transpower input methodologies, an individual price-quality path may be reconsidered if there is a catastrophic event that imposes material costs. If, as a result of a catastrophic event, Transpower expects to earn below-normal returns under its existing individual price-quality path, a reconsidered individual price-quality path allows for Transpower to have an alternative path determined on an *ex ante* basis, based on the best information available at that time. This would require a reconsideration of Transpower's opex and base capex allowances for future years of the regulatory period.

A catastrophic event will have a more material impact on Transpower's costs than its revenues

D3 Transpower is subject to a revenue cap. This means that it faces limited exposure to the risks associated with lower-than-forecast revenues due to a future catastrophic event. Transpower's revenue risks are limited to the timing of cash-flows and not to its ability to recover the full building blocks revenue amount for each year.

D4 A catastrophic event is therefore likely to have a more material impact on Transpower's costs. This includes Transpower's opex and base capex, which are capped *ex ante* under the individual price-quality path determination and major capex.[178]

We propose to allow Transpower to recover any prudent additional net expenditure incurred in the intervening period

D5 Transpower may incur additional costs between the time of the catastrophic event and the reconsidered individual price-quality path taking effect. Consistent with our decision for Orion,[179] we would allow Transpower to recover prudent net additional

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178 We note that the input methodologies allow for the value of assets that are damaged beyond repair, but not disposed of, to remain in the RAB. Transpower will therefore be able to continue to recover the return on and of these assets (net of any insurance proceeds).

179 Commerce Commission "Setting the customised price-quality path for Orion New Zealand Limited – Final reasons paper", 29 November 2013, Attachment C.

costs that arise in the period between a catastrophic event and a reconsidered individual price-quality path taking effect. This would occur through:

D5.1 an adjusted base capex allowance; and

D5.2 the recoverable costs included in the reconsidered individual price-quality path.

D6 We consider it appropriate to provide compensation for additional net costs incurred in responding to future catastrophic events because:

D6.1 allowing compensation for additional net costs helps strengthen incentives for Transpower to focus on restoring its network in the aftermath of a catastrophic event (without necessarily maintaining the same level of planning and oversight as it would for business as usual expenditure); and

D6.2 additional expenditure following a catastrophic event may be vital to meet demand in a region. Consumers benefit from this expenditure because it helps mitigate any deterioration in quality of service.

Additional base capex

D7 Under the 'asset valuation' input methodology, any additional base capex incurred as a result of a catastrophic event gets added to the RAB at the time of commissioning of the resulting asset, whether that is a replacement asset or a new asset. This has the effect under the MAR wash-up of allowing Transpower to increase future revenues to allow it to recover that expenditure over the life of the asset.

D8 To disincentivise Transpower overspending relative to the approved base capex allowance, the base capex expenditure adjustment ordinarily penalises Transpower for any amount that it overspends on base capex. This has the effect of neutralising the increased revenues described above.

D9 However, the Capex IM's base capex expenditure adjustment also provides for the Commission to make a discretionary adjustment to the amounts it applies to. This mechanism is intended to provide the Commission with the flexibility to exclude or include values that the Commission considers should correctly be classified as base capex.[180] We consider using the existing adjustment mechanism would provide an effective way of allowing Transpower to recover its prudent net additional base capex costs. Although the only example provided in the 2012 Capex IM reasons paper contemplated a different purpose, we consider that the Commission could use the discretionary element of the base capex expenditure adjustment to reduce any

[180] Commerce Commission "Transpower Capital Expenditure Input Methodology Reasons Paper" (31 January 2012), paragraph 3.3.9. The example provided contemplated flexibility to accommodate the movement of base capex to major capex.

additional net base capex that Transpower has prudently incurred as a result of a catastrophic event. This would occur by adjusting the amount included in the yearly base capex expenditure adjustment, which would allow Transpower to retain the higher revenue allowance resulting from the wash-up mechanism.[181]

D10 In deciding what adjustment to make we would take into account, among other things, the extent to which Transpower has appropriately considered substitution of any base capex already allowed for in the base capex allowance.

Additional opex

D11 There is no similar mechanism for recovery of any prudent net additional opex incurred before the reconsidered individual price-quality path takes effect and that Transpower incurs as a direct result of the catastrophic event.

D12 Our 'in principle' view is that Transpower may recover in its revenues any net additional prudent opex that arises in the period between a catastrophic event and a reconsidered individual price-quality path taking effect, at the Commission's discretion. We propose that one way to allow recovery of net additional opex is for any such costs to be recovered as a recoverable cost under the reconsidered individual price-quality path. But this would require an amendment to the input methodologies for Transpower.

D13 In deciding what adjustment to make we would take into account, among other things, the extent that Transpower has appropriately considered substitution of any opex already allowed for in the opex allowance.

Additional major capex

D14 Any additional major capex required as a result of the catastrophic event would similarly be dealt with through the major capex overspend adjustment if it related to further prudent expenditure on an existing project, or through Transpower submitting a major capex proposal to the Commission if the event caused a new project to be initiated.[182]

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[181] Capex IM, Schedule B, clause B1, item 'g' in the adjustment formula.

[182] Any additional prudent expenditure on major capex projects as a result of catastrophic event may be recovered by Transpower applying to the Commission for a major capex amendment for any additional major capex incurred as a result the catastrophic event (Capex IM, clause 3.3.4). The Commission also has discretion to reduce the amount of major capex to which the overspend adjustment would otherwise automatically apply, if this is considered appropriate (Capex IM, clause B4). Transpower would otherwise bear 100% value of the after-tax revenue for costs in excess of the total approved costs for a given major capex project.

Attachment E: Supporting analysis for proposed grid output measures

Purpose of this attachment

E1 In this attachment we present additional detail that supports our draft decision in setting the grid output measures.

How we evaluated the grid output measures and targets

E2 We have considered Transpower's proposed grid output measures and targets in line with the requirements and criteria specified in the Capex IM.[183]

- E2.1 the quality of service that reflects consumer demands;
- E2.2 the extent to which the measures are recognised measures of performance or measures of risk, in supplying electricity transmission services;
- E2.3 the extent to which a revenue-linked measure is a recognised measure of grid outputs that are valued by customers;
- E2.4 the strength of the relationship between the measures, base capex and opex;
- E2.5 whether the measure was prepared in line with policies and processes in the base capex proposal;
- E2.6 the extent to which the measures align with business processes;
- E2.7 the extent to which the proposed measures comply with the Capex IM; and
- E2.8 whether the revenue-linked measures are quantifiable, controllable by Transpower, auditable and replicable over time.

The quality of service that consumers demand and the adequacy of the proposed grid output measures

Transpower's proposed measures and aspects of performance consumers value

E3 Transpower identified in its proposal various aspects of performance that it considers are important to customers.[184] These are summarised Table E1. This table also compares these important aspects of performance with the measures of performance that Transpower proposed for RCP2.

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183 Specific criteria for considering grid output measures that we must take into account are set out in clauses A4 and A6 of Capex IM.

184 Transpower 'Expenditure Proposal for Regulatory Control Period 2' (2 December 2013), p. 122.

E4 However, we consider two aspects are not adequately covered by the proposed measures. These include the impact of outages on the electricity market and the financial impact of interruptions. This view was supported by Partna, who also came to similar conclusions.[185]

Table E1: Proposed measures and consumer requirements

Consumer requirements – aspects of Transpower's performance that consumers value	Proposed measures that meet consumer requirements
Transpower's ability to provide service without interruption	GP1, GP2 and GP3
The impact that outages of Transpower's assets can have on the electricity market	Partly, by targeting the availability of circuits that significantly affect market prices
The need to provide accurate communications during unplanned interruptions	OM1, OM2 and OM3
The financial impact that interruptions have on consumers	Partly through GP1 and GP2
Power quality issues such as voltage quality	Partly through OM6

The view of consumers on the proposed measures and targets

E5 To establish grid output measures that are valued and useful to customers, Transpower consulted widely with its customers. Transpower's customers appear to be very positive about the manner in which Transpower engaged with them in developing the measures for RCP2.[186, 187] Likewise, there appears to be a good level of support from stakeholders for the approach that Transpower has taken, as well as general support for the overall outcomes.

185 Partna report, p. 7.

186 Major Electricity Users' Group 'Transpower RCP2 submission' (3 March 2014), p. 1.

187 Powerco 'RE: Cross submission on the Issues Paper on Transpower's individual price-quality path and proposal for the next regulatory control period' (10 March 2014), p. 1.

E6 In response to the questions that we published in our Issues paper, consumers submitted additional feedback. In particular, feedback included that the following would be valuable:

E6.1 a measure of performance and reliability of notifications for planned interruptions;[188]

E6.2 improved reporting on interruptions after an event;[189]

E6.3 quarterly reporting on GP1, GP2, OM5 and OM6;[190]

E6.4 reporting on the financial impact of interruptions on customers;[191]

E6.5 investigations on power quality measures and momentary interruption targets.[192]

E6.6 market-based measures included, particularly for HVDC and HVAC;[193]

E6.7 a link to some of the other measures to revenue;[194]

E6.8 refining the VOLL with the Electricity Authority;[195]

E6.9 a refined report of time on N-security to include the number of times special protection schemes are activated.[196]

E7 Having considered this feedback, and considered what is feasible to introduce for RCP2 we have:

E7.1 included three additional performance-based grid output measures (OM7, OM8 and OM9) that are not linked to revenue;

E7.2 revised the targets for three categories of points of supply in the GP1 measure;

E7.3 accepted all other targets proposed by Transpower.

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188 Meridian 'Transpower RCP2 submission' (3 March 2014), p. 2.

189 Carter Holt Harvey 'Transpower RCP2 submission' (3 March 2014), answer to Q30.

190 Ibid.

191 Ibid.

192 Ibid.

193 Meridian 'Transpower RCP2 submission' (3 March 2014), p. 2.

194 Ibid.

195 Carter Holt Harvey 'Transpower RCP2 submission' (3 March 2014), answer to Q30.

196 Ibid, answer to Q24.

Details on the three new performance-based grid output measures

E8 Grid output measure OM7: Under this measure Transpower will report the estimated energy not supplied, in MWh, due to unplanned interruptions. The report shall disclose the estimated energy not supplied, the date, time and duration of the interruption for each point of service. This new measure allows consumers to estimate the financial impact of interruptions, using the VOLL applicable to them.

E9 Grid output measure OM8: Transpower will report the number of times it does not meet the start times of planned outages, and the reasons for the delay or postponement. We are mindful that market requirements are one of the main reasons for Transpower not being able to start its planned outages on time. For this reason, OM8 is likely to continue to be a reporting measure in the foreseeable future and not linked to the revenue. We note that in Australia, transmission operators are rewarded, with an incentive of up to 2% of revenue, for scheduling planned outages that reduce the impact of the outage on the electricity market.[197]

E10 Grid output measure OM9: This grid output measure will incentivise Transpower to provide reports on interruptions to supply to affected parties within a reasonable timeframe following an interruption. Consumers indicated that they wanted Transpower to regularly report on how it was performing in terms of GP1, GP2, OM5 and OM6.[198] We consider that regular additional reporting on these measures is not very productive. Instead we consider that it is more useful to consumers and interested parties for Transpower to report, in a timely manner, the reasons for any interruptions and the corrective actions that Transpower has taken or plans to take. We expect that this will assure affected consumers that Transpower is focused on resolving supply issues that affect them.

The extent that the measures are recognised measures of performance, or of risk in supplying electricity transmission services

E11 To evaluate their appropriateness, we reviewed Transpower's proposed measures with those used by transmission network owners in Australia and the United Kingdom.[199] We found that some measures used by other transmission network owners are not fully addressed by Transpower's suite of measures. In particular, measures that signal the economic impact of interruptions and the market impact of outages had not been included.[200]

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197 Partna report, pp. 31 and 39.

198 Carter Holt Harvey 'Transpower RCP2 submission' (3 March 2014), Q22 and Q30.

199 Partna report.

200 Ibid, p. 6.

E12 Our draft decision is to include an additional measure (OM7) for energy not supplied for RCP2. This measure should enable consumers to assess the economic impact of interruptions. We note that Transpower has stated that it will develop the asset performance measures to be more market-based. Transpower has included this as a business improvement initiative during RCP2.

The strength of the relationship between the measures, base capex, and opex

E13 We consider there to be only a weak link between expenditure forecast and the grid asset and service performance measures that Transpower proposed. We observe the following:

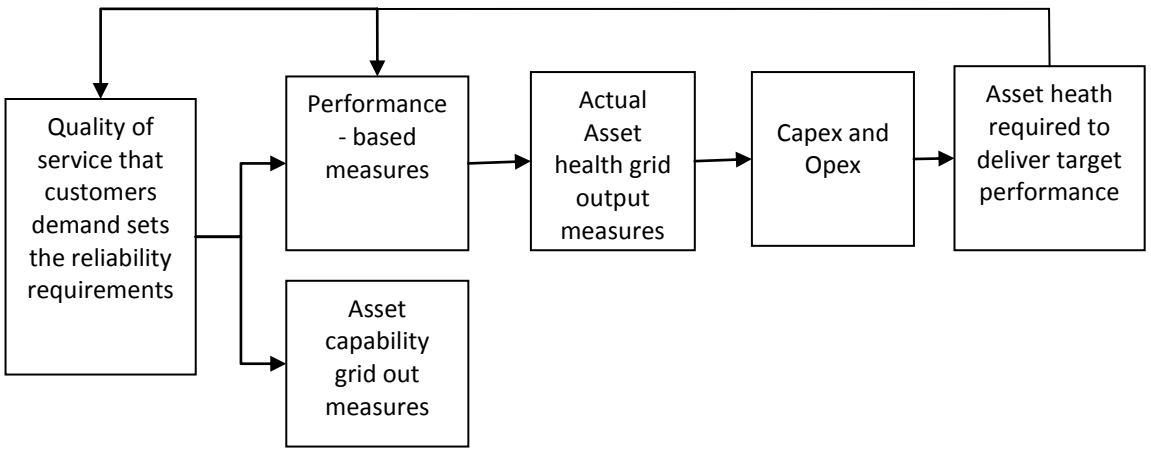
E13.1 It is not clear to us whether Transpower has correctly targeted its expenditure for improving performance at 'high priority' points of supply. The manner in which Transpower calculated the targets for GP1 predicted that Transpower needed to focus on improving its performance at 'high priority' points of supply. Transpower indicates that it targeted assets directly connected to these points of supply.

E13.2 Our analysis shows that the actual performance of 'high priority' points of supply is close to the long-term targets. Deviations from actual performance were caused by high impact events in parts of the grid not directly connected to the points of supply. This means that expenditure may need to be targeted elsewhere to reduce interruptions cause by the high impact events. On this basis, Transpower may need to revise its priority.

E14 The above observations and concerns also apply for 'important' points of supply. As seen in Figure E5, in the last three years, the performance at these points of supply has been close to or even below the long-term targets.

E15 As part of its initiatives Transpower will be developing a better model to link performance with expenditure. At a high level we expect the model to be able to demonstrate the effect shown in Figure E1.

Figure E1: Link between performance and expenditure



The proposed measures comply with the requirements of the Capex IM

E16 We are satisfied that the revenue-linked measures are quantifiable, controllable by Transpower, auditable and replicable over time.

E17 The Capex IM also requires the Commission to determine one revenue-linked measure of asset performance and one revenue-linked measure of grid performance.[201] Transpower proposed and we accepted three revenue-linked measures for grid performance and two for asset performance. We are satisfied that Transpower has met the requirements of the Capex IM in relation to grid output measures.

E18 An asset performance measure quantifies the performance, reliability or availability of the grid at either the level of individual assets, substations or the whole grid.[202] Transpower has proposed the number of interruptions, average duration of interruptions and P90 duration of interruptions as three grid output measures. We are satisfied that these three measures comply with requirements of Capex IM.

E19 A grid performance measure is not defined explicitly in the Capex IM. Transpower has proposed the availability of the HVDC system and availability of selected critical HVAC circuits as grid performance measures. We are satisfied that these measures quantify the level of service provided by the core grid.

E20 Clause F11 of the Capex IM sets out the information Transpower is required to provide for grid output measures. However, in our view, Transpower has not clearly described the relationship between the measures and the key purpose of the investment, or the effect that the base capex would have on the measures. To be able to provide this information for RCP3, Transpower has agreed to further develop these measures, as set out in Chapter 6.

The extent to which the proposed targets for revenue-linked measures are reasonable

E21 One of our concerns with Transpower's proposed targets is that they remain constant over RCP2, and as such, do not continue to challenge Transpower to improve its performance over the five year period.

E22 Transpower's main approach to setting its targets has been to use historical averages. It had not linked the relationship between forecast performance of the grid and the investments made since 2012. Many of these investments, as well as those in Transpower's RCP2 forecasts are being undertaken to improve performance. For this reason we expected to see a larger impact on grid performance than is provided in Transpower's proposed targets.

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201 Capex IM, clause 2.2.2.

202 Capex IM, clause 1.1.5, definitions.

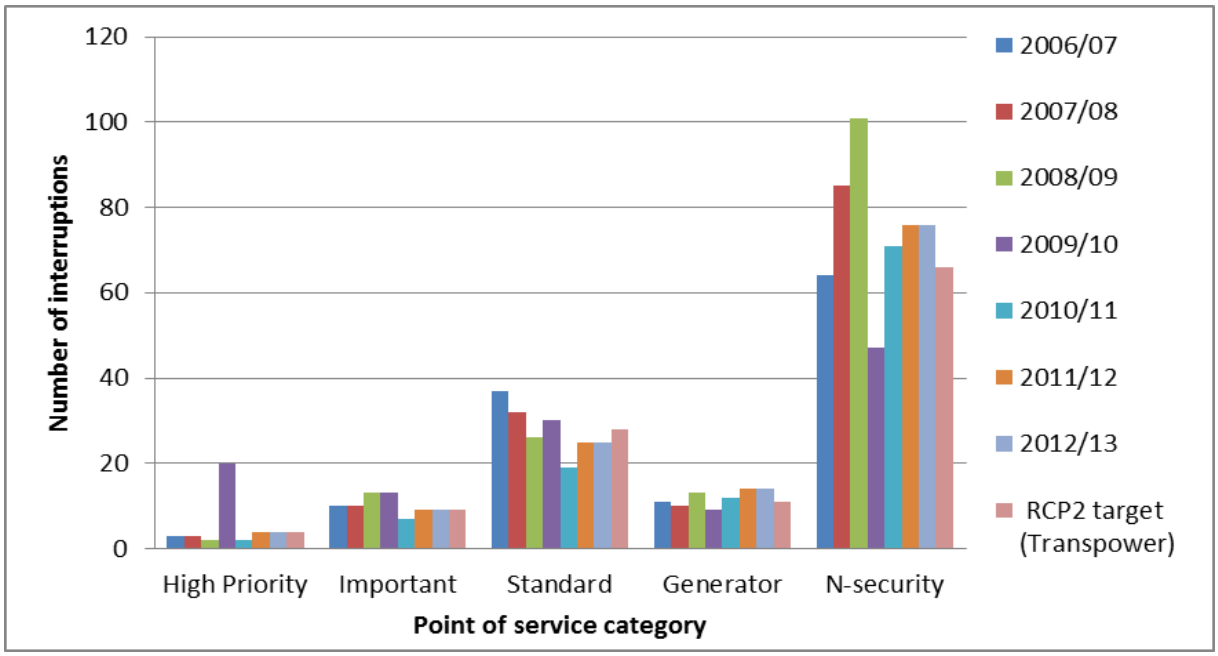
E23 On examination of the information provided by Transpower, we concluded that the proposed targets for high priority, standard and N-security points of service appeared to be easily achievable. Given the focus of investment, we examined this further.

E24 One of the reasons we found for the soft targets is that Transpower had based its RCP2 target on the average of its historical performance. AUFLS events had caused a proportionately large number of interruptions and has biased the average away from underlying performance particularly for 'high priority', 'important' and 'standard' points of service. These, in turn, had made the targets for these points of supply less challenging.

E25 A problem with including AUFLS in the data when setting targets is that there is a potential that such targets may provide an incorrect focus for investments to improve performance. This is because AUFLS events are not generally caused by the failure of assets at points of service but are normally due to events, often remote from the points of service, that disconnect significant generation from the system.

E26 In order to make the targets more appropriate, we asked Transpower to revise its targets, caps and collars by removing AUFLS interruptions from the data. The results are shown in Figure E2 below.[203]

Figure E2: Amended historic performance and revised targets for GP1



[203] Transpower 'RLPM without AUFLS Calculations' (28 March 2014).

E27 For example Transpower proposed a target of five for the 'number of interruptions' in high priority points of supply. Actual performance in six out of the past seven years was below Transpower's proposed target of five.

E28 Transpower did not exclude outliers caused by other events, such as the one in 2009/10 for high priority points of supply shown in Figure E2. We agree with Transpower that in order to improve performance of a point of service, it needs to improve the performance of all the assets supplying that point of service. Therefore we are satisfied with Transpower including high impact incidents and using averages to set targets for the grid performance measures, except when the effect of such events is disproportionately worse than the underlying performance.

E29 Table E2 shows the historical performance by the category of point of supply and Transpower's proposed targets.[204] The tables also demonstrate the impact of the removal of AUFLS events from Transpower's data, and show our draft decisions.

E30 In making our draft decisions, we did the following:

E30.1 we removed interruptions due to AUFLS from the historic data used to set the targets for the grid performance measures, GP1, GP2 and GP3;

E30.2 we used the median of the historic data with AUFLS removed to set the GP1 target for high priority points of service;

E30.3 we amended that target for standard points of service in line with the observed trend of improving performance;

E30.4 we amended that target for N-security points of service to allow for improvements in performance due to recent investments to improve reliability such as auto-reclose. We intend to review this draft decision/target once we have seen actual performance in 2013/14;

E30.5 we have provisionally accepted the targets for important points of service but intend to confirm our draft decision/target once we have seen actual performance in 2013/14; and

E30.6 we have accepted the targets for GP1, GP2, AP1, AP2 and GP1 for generator points of supply.

[204] Transpower 'Expenditure Proposal for Regulatory Control Period 2' (2 December 2013), p. 125.

Table E2: Proposed targets for GP1 (number of interruptions)

Point of supply category	Transpower's long-term target	Historic average with AUFLS interruptions	Transpower's proposed targets	Historic average without AUFLS interruptions	Transpower's revised targets without AUFLS	Commission's draft targets
High Priority	2	7	5	5	4	**2**
Important	8	13	11	10	9	9
Standard	39	33	33	28	28	**26**
Generator	11	11	11	11	11	11
N-security	63	69	67	68	66	**50**

Table E3: Proposed targets for GP2 (average duration of unplanned interruptions - minutes)

Point of supply category	Transpower's long-term target	Historic average with AUFLS interruptions	Transpower's proposed targets	Historic average without AUFLS interruptions	Transpower's revised targets without AUFLS	Commission's draft targets
High Priority	30	89	65	97	70	70
Important	30	161	100	155	100	100
Standard	60	72	65	66	65	65
Generator	60	177	130	177	130	130
N-security	60	93	80	93	80	80

Table E4: Proposed targets for GP3 (minutes)

Point of supply category	Transpower's long-term target	Historic average with AUFLS interruptions	Transpower's proposed targets	Historic average without AUFLS interruptions	Transpower's revised targets without AUFLS	Commission's draft targets
High Priority	60	137	100	165	120	120
Important	90	341	240	334	240	240
Standard	130	131	130	135	130	130
Generator	240	436	350	436	350	350
N-security	215	215	215	215	215	215

Why we consider that some of the GP1 targets are not challenging

E31 As shown in Table E2 and Figure E3, Transpower's revised targets for high priority, standard and N-security points of supply were still not sufficiently challenging. This is primarily because the RCP2 targets are based on averages, which are either distorted by one-off events (high priority point of service) or do not allow for the improving trend in performance (N-security and standard points of service).

E32 The reason for the high target is that interruptions caused by high impact faults are significantly higher than the underlying performance without such events, resulting in an asymmetrical distribution of historical performance.[205]

E33 Data where the distribution is asymmetric, such as for the high priority site, historic median can be a better indicator of the underlying trend than historic average. We have therefore used the median to set the GP1 target for high priority points of service.

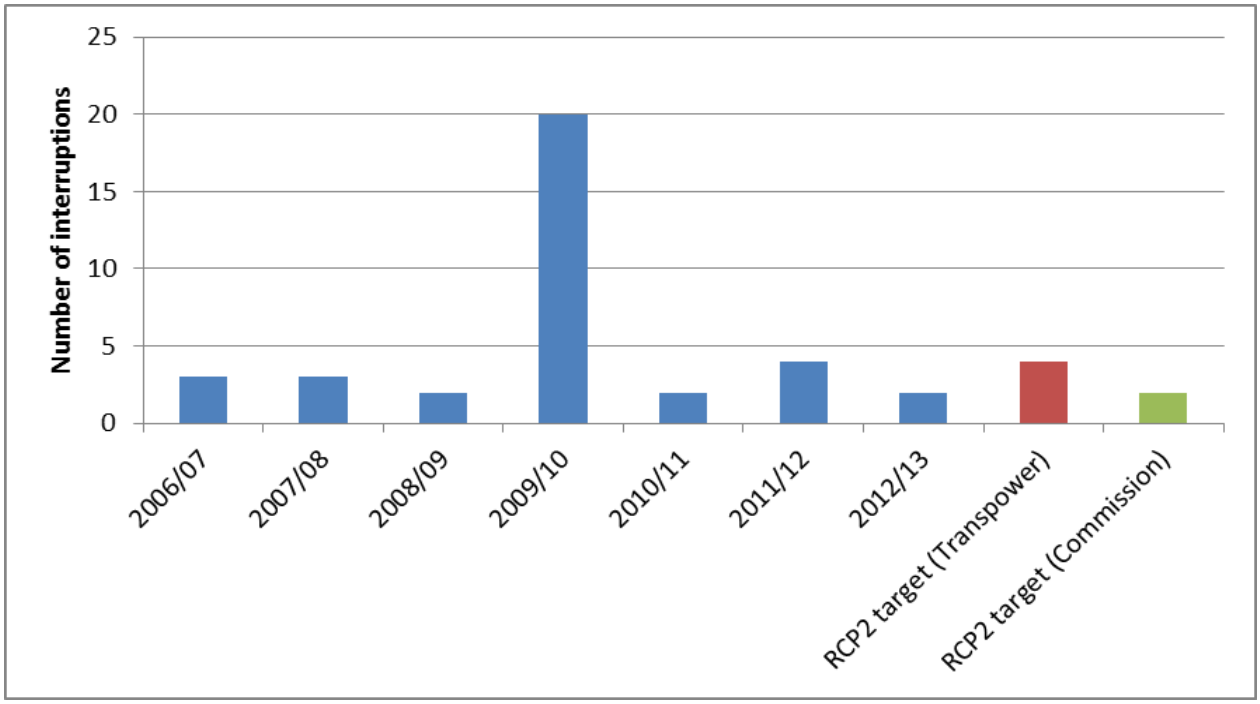
E34 For these reasons, and that Transpower's expenditure priority is to improve performance at high priority points of service,[206] we consider it appropriate to revised the GP1 targets for high priority points of service down to two interruptions per annum.

E35 Setting this measure at two interruptions per annum appears reasonable to the Commission because historical performance, over the past seven years, shows that Transpower has already achieved this target in three of those seven years.

[205] In 2009/10 HILP events combined with underlying performance resulted in 20 interruptions.

[206] Transpower 'Expenditure Proposal for Regulatory Control Period 2' (2 December 2013), p. 4.

Figure E3: Amended historic performance and revised targets for 'high priority' POSs



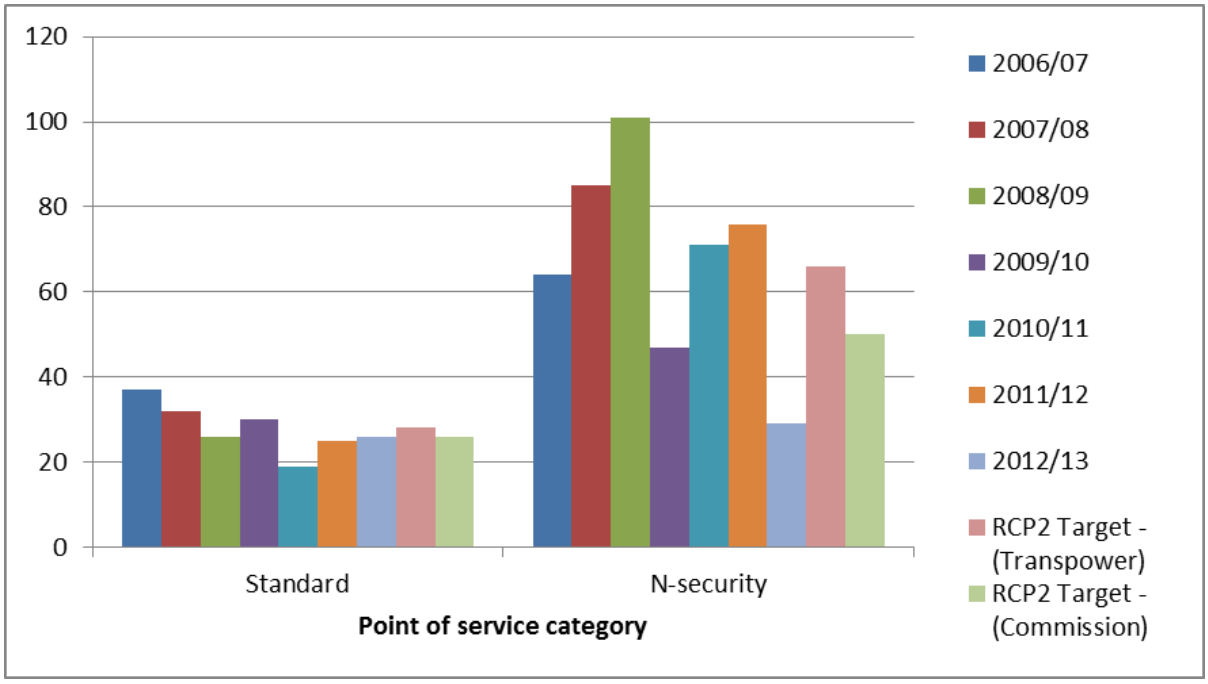
We have revised the GP1 targets for standard sites to reflect current trend

E36 We have revised the GP1 target for the standard points of supply to 26 from Transpower's proposed target of 28. We consider that, for this measure, a target set on the average of seven years of historic performance does not represent the current trend in performance.

E37 As seen in Figure E4, performance for 'standard' points of supply has been improving since 2006. We have set a target that, in our view, more accurately reflects Transpower's current level of performance. Our draft target of 26 is the average of the historical performance since 2007/08.

E38 We notice that Transpower has set a long-term target of 39 interruptions for standard points of service. This signals that Transpower plans to reduce its level of service to standard points of service which is inconsistent with the current trend we observe in Figure E4. We suggest that Transpower reconsiders this as part of its review of the long-term targets.

Figure E4: Historic performance and revised targets for 'standard' and 'N-security' points of supply



We have amended the GP1 targets for N-security sites to reflect on-going investments

E39 Figure E4 also shows the historic performance and our draft decision on the GP1 targets for standard points of service.

E40 We also assessed whether Transpower's proposed targets for N-security sites reflect the recent investment Transpower is making in the grid. Based on Transpower's response and historical data, we are not satisfied that Transpower's proposed target for N-security sites is reasonable, so we have amended them.

E41 In particular, Transpower undertook recent initiatives to improve performance in the grid. These include including investing in auto-reclosers, replacing failure-prone transformers and general renewal of ageing assets. We do not think that Transpower has taken these initiatives into account in setting its targets.

E42 For these reasons, we consider that the GP1 targets for N-security sites should be revised to allow for the effect of these initiatives.

E43 We have revised the targets from 66 as proposed by Transpower to 50, bearing in mind that Transpower's priority is to maintain the level of performance at such sites. 50 interruptions represent a balance between the performance achieved in 2012/13 (29 interruptions) and additional interruptions due to bad weather like the ones in 2011/12 (23 interruptions).

GP1 targets for important and generator points of supply are reasonable

E44 We are satisfied that GP1 targets for important and generator points of service and all the GP2 and GP3 targets are challenging. Our assessment of these targets is below.

E45 We reviewed these targets by considering:

E45.1 Transpower's priority of improving performance at 'high priority' and important sites and maintaining service performance at other points of supply;[207]

E45.2 Transpower's proposed long-term targets,

E45.3 the best, worst and average of historical performance since 2007; and

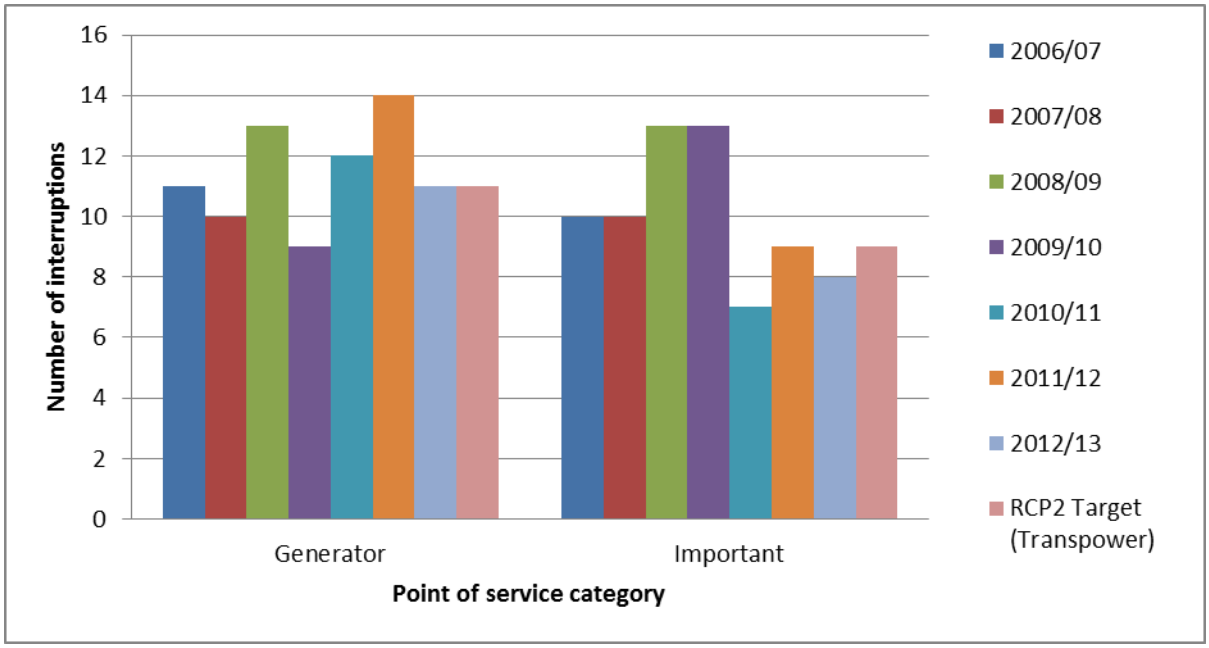
E45.4 trend in historical performance where applicable.

E46 Figure E5 shows the historic performance and our draft decision on the GP1 targets for generator and standard points of service.

E47 For generator points of service, Transpower has set a long-term target of 11 interruptions. In two years since 2006, however, historical performance has been better than the proposed long-term target, as seen in Figure E5. Since the target of 11 appears reasonable, and as generators did not submit otherwise, we consider that this level of service reflects customer demand. Therefore our draft decision is to accept Transpower's proposed targets RCP2.

[207] Transpower 'Expenditure Proposal for Regulatory Control Period 2' (2 December 2013), p. 4.

Figure E5: Historic performance and GP1 targets for generator and important points of service



E48 For 'important' points of supply, our draft decision to accept Transpower's proposed target of 9 is tentative, subject to actual performance in 2013/14. We recognise that Transpower's proposed target is higher than the average performance since 2010/11. The target is the same as the performance in 2011/12 but higher than that in 2010/11 and 2012/13. We will review our draft decision after assessing the actual performance in 2013/14.

GP2 targets are reasonable

E49 We are satisfied the GP2 targets are challenging. Our assessment of these targets is below.

E50 Figure E6 shows the historical performance and Transpower's proposed targets for GP2. Figure E7 shows the historic number of interruptions.

E51 We observe that the distribution of average duration of interruptions is random and does not correlate with the number of interruptions. For this reason we are satisfied with Transpower using historical performance as the basis for setting targets for GP2, provided Transpower makes allowance for outliers.

E52 For the GP2 measures, Transpower's proposed targets are below the seven year historical levels, except for 'standard' points of supply which is close to the historical average. We also note that the difference between historical average and the targets Transpower is proposing accounts for any outliers in the data. For these reasons, we are satisfied with the targets that Transpower has proposed for GP2 measures.

Figure E6: Historic performance and GP2 targets by category of points of supply

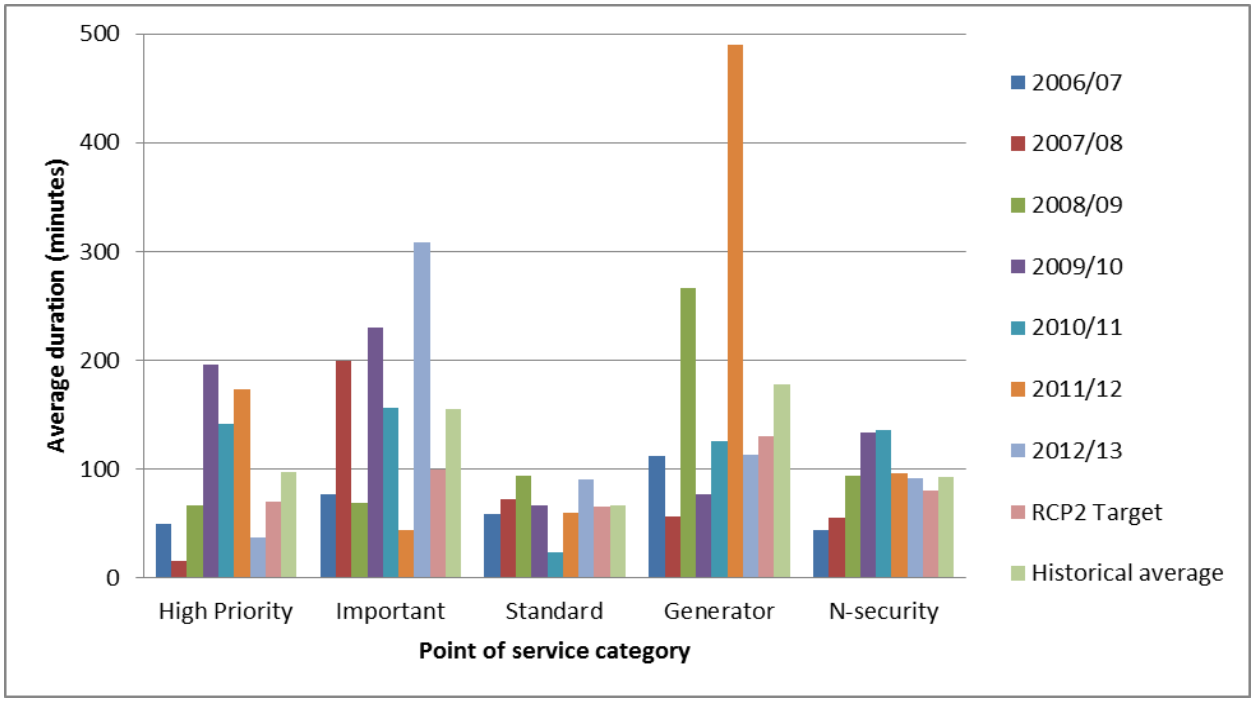
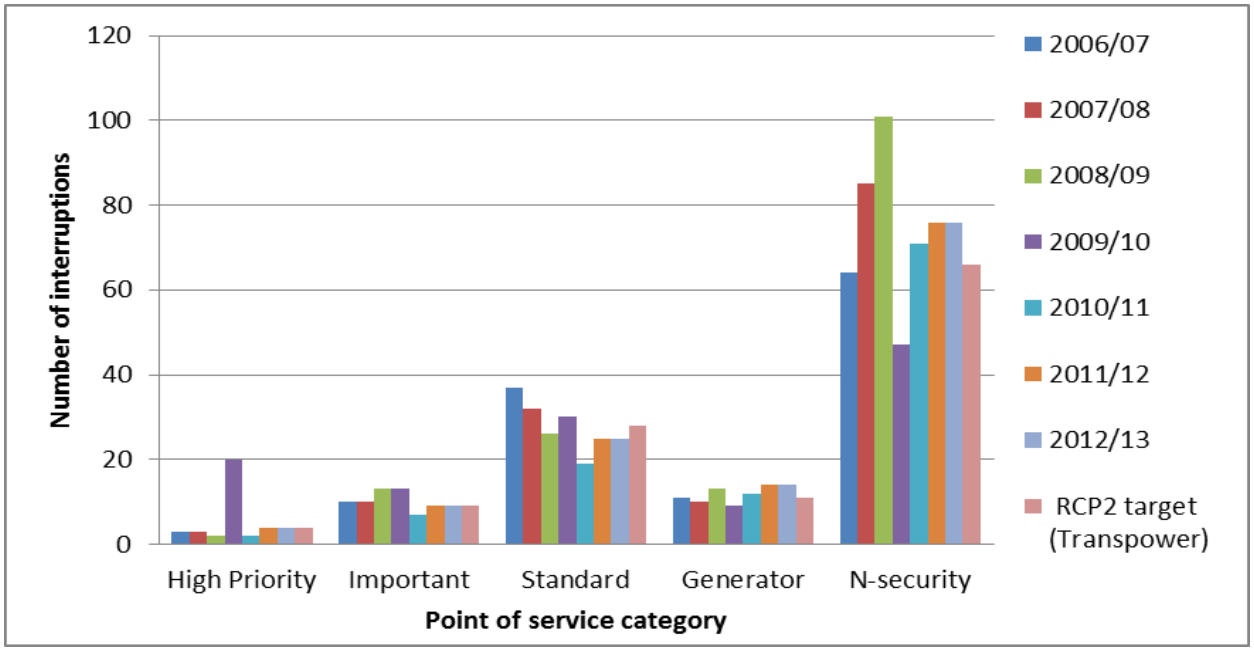
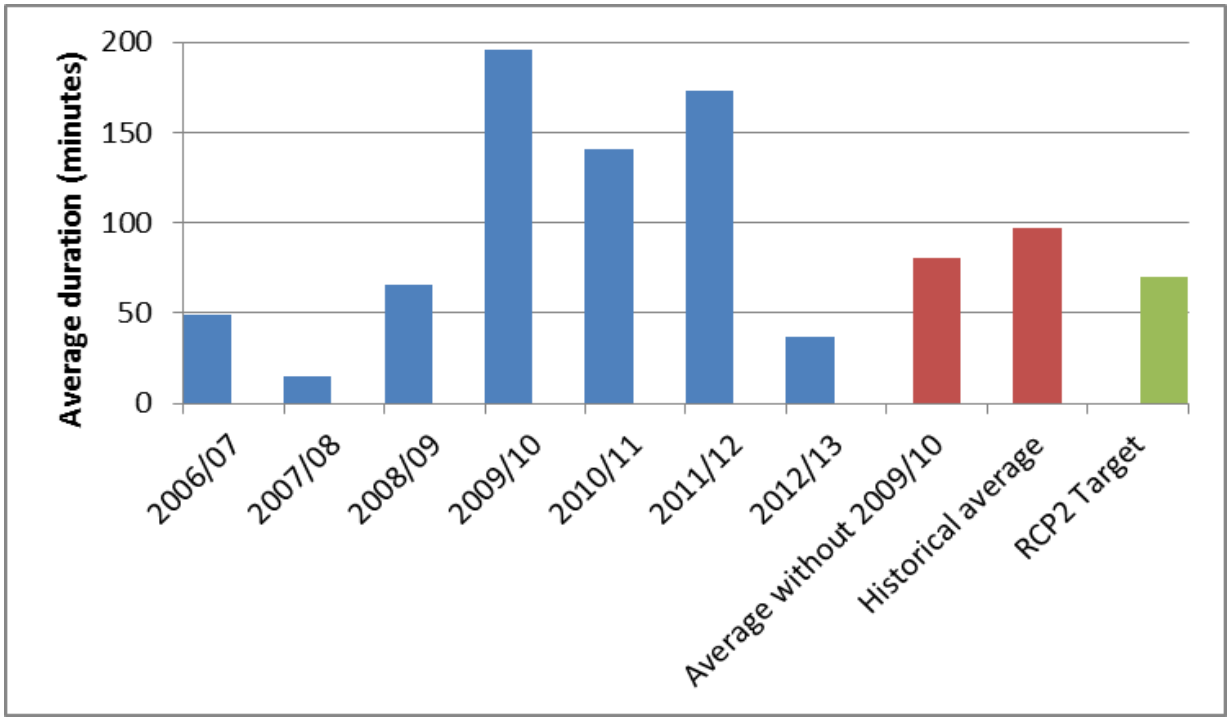


Figure E7: Historic number of interruptions by category of points of supply



E53 Transpower has proposed targets for GP2 below its historical average performance. Major incidents during 2009/10, however, had significant effects on underlying data used to calculate the targets. The result is that the overall average is raised considerably. As shown by Figure E8, Transpower has already beaten this target in four of the seven historical years. However, the approach of using historical averages seems reasonable, and our draft decision is to accept Transpower's target. We are interested in submissions on this point.

Figure E8: Historical averages and target for GP2 for high priority POSs



GP3 targets are reasonable

E54 Figure E9 shows the historical performance and Transpower's proposed targets for GP3. Figure E7 shows the historic number of interruptions.

E55 We observe that the distribution for the P90 duration of interruptions is random and does not correlate with the number of interruptions. For this reason we are satisfied with Transpower using historical performance as the basis for setting targets for GP3, provided it makes allowance for outliers.

E56 We observed that for categories of supply that have outliers, Transpower has proposed targets less than the historical averages and for other categories Transpower has proposed targets close to the historical average. We are satisfied with the manner in which Transpower has set the targets for GP3.

Figure E9: Historic performance and GP3 targets by category of points of supply

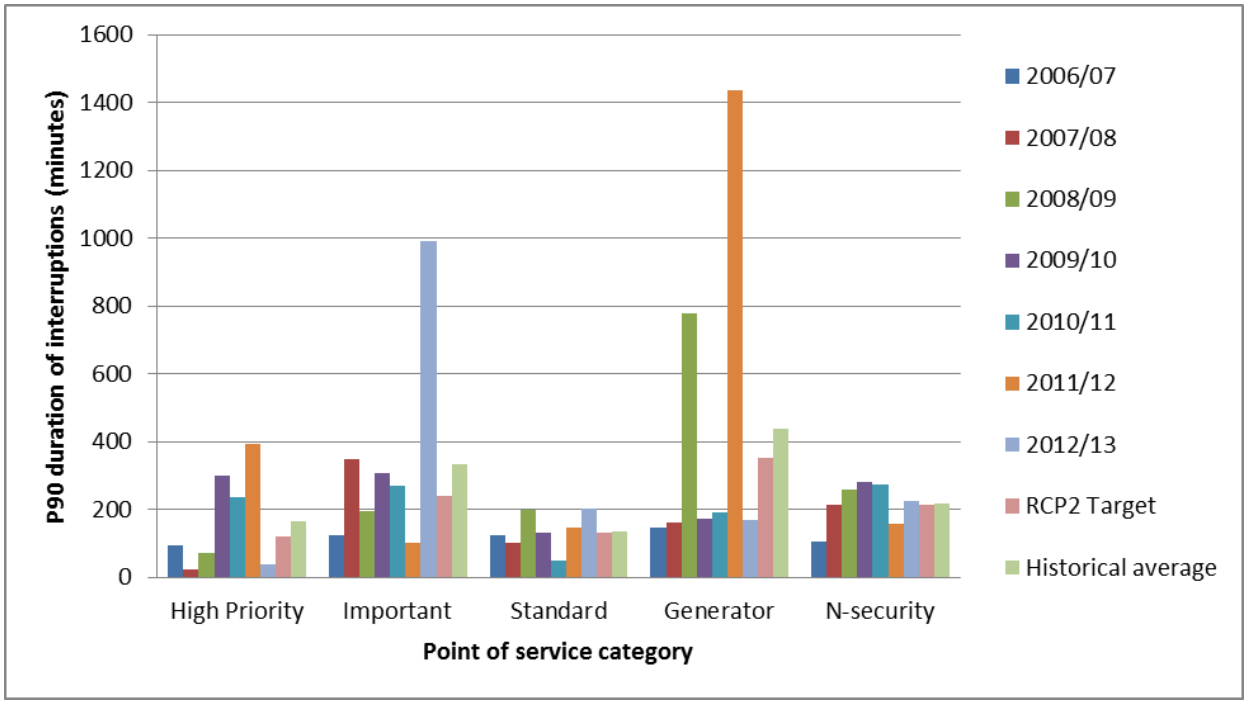
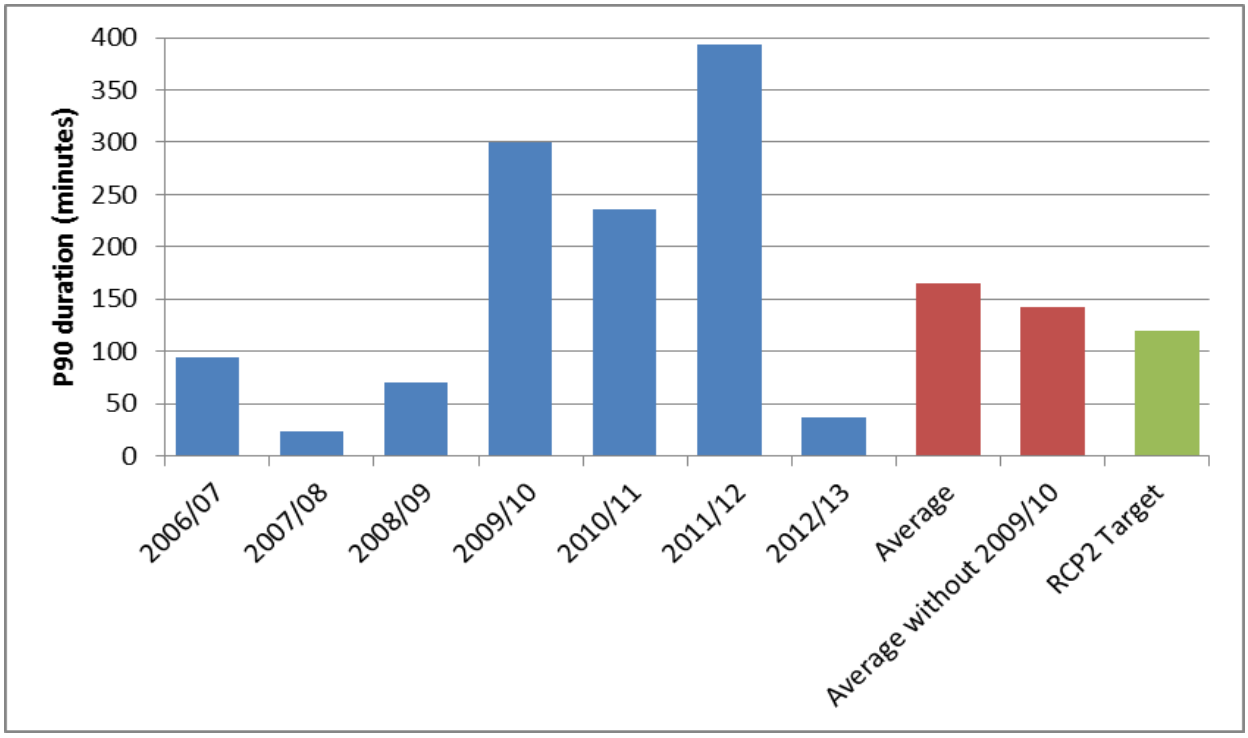


Figure E10: Historic performance and GP3 target for high priority POSs



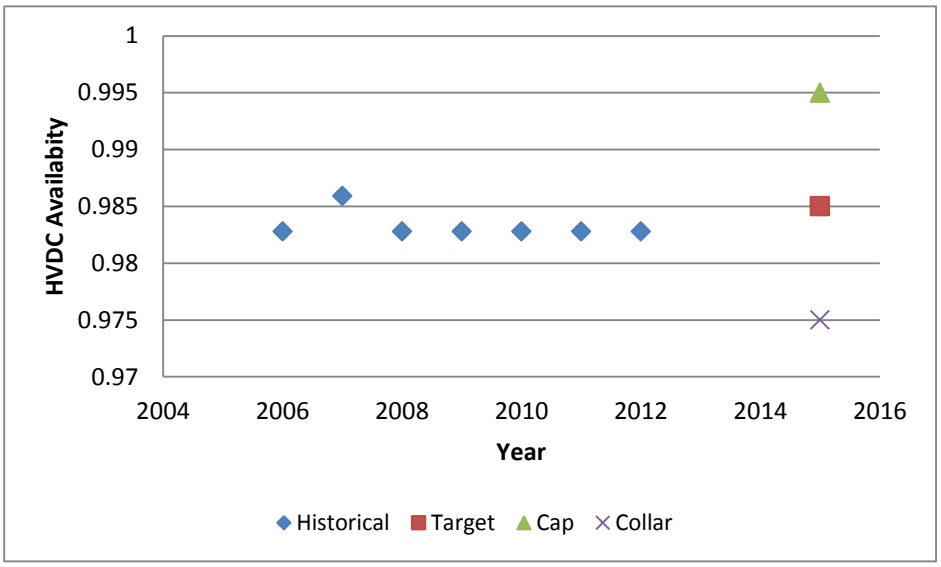
E57 We also considered whether the major incidents in 2009/10 had significant effects on the targets for GP3. In our assessment, while these incidents had an effect on underlying data used to calculate the targets, Transpower has proposed reasonable targets, which have been set below the historical average. This target has also, however, been beaten by Transpower in four of the seven previous years as seen in Figure E10. We are interested in submissions on this point.

The target for HVDC availability is reasonable

E58 We are satisfied that the AP1 and AP2 targets are challenging.

E59 Figure E11 shows the historical availability for pole 2, and the targets, caps and collars.

Figure E11 Historical availability of HVDC for pole 2, targets, caps and collars for AP1



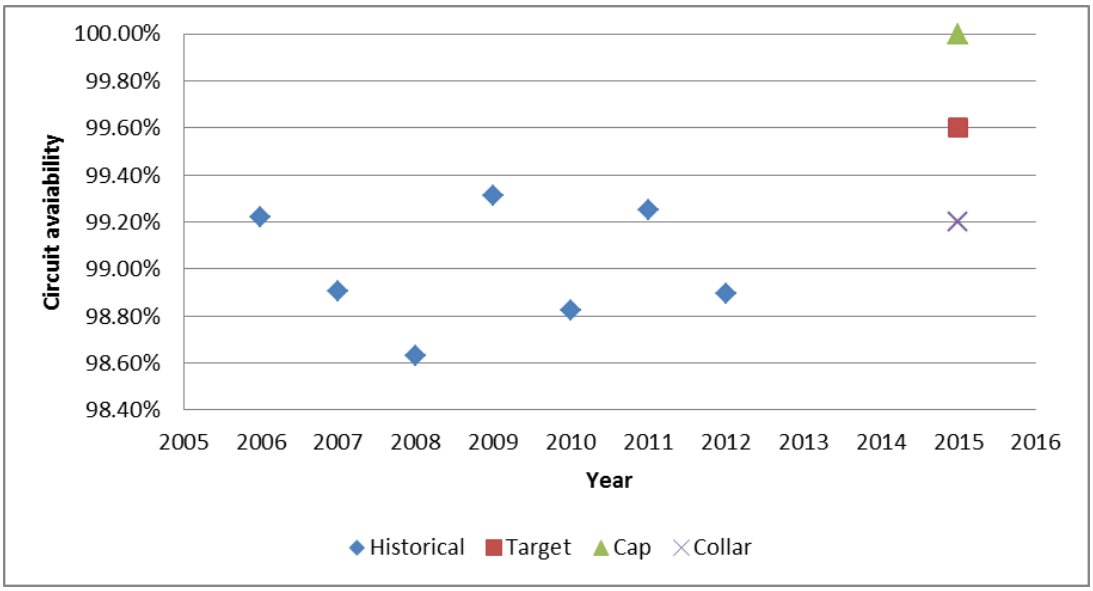
E60 We are satisfied that the HVDC targets are reasonable. Meridian also submitted that the HVDC target is an appropriately challenging target based on historical performance.[208]

The target for HVAC circuit availability is challenging

E61 Figure E12 shows the historical availability for the HVAC circuits and the targets, caps and collars. The graph shows that Transpower has set a very challenging target for HVAC circuit availability.

[208] Meridian 'Transpower RCP2 submission' (3 March 2014), p. 2.

Figure E12: Historical availability of HVAC circuits, targets, caps and collars for AP2



E62 There is a risk that targeting a high level of availability could incentivise Transpower to reduce maintenance on these circuits, which may not be to the long-term benefit of consumers. To test the appropriateness of Transpower's targets, we compared Transpower's target with those of transmission network owners in Australia. Table E5 compares the availability targets for HVAC transmission circuits of Transpower with transmission network owners in Australia.

Table E5: Transmission line availability targets for Australian transmission network owners and Transpower

TNO	Measure	Collar	Target	Cap
Transpower	Critical HVAC circuits	99.2	99.6	100
SP AusNet[209]	Total transmission circuit	98.4	98.8	99.1
ElectraNet[210]	Total transmission circuit	99.1	99.5	99.6
Powerlink[211]	Transmission circuit	97.6	98.8	99.9
Transcend[212]	Critical transmission circuits	97.9	99.1	99.8
TransGrid[213]	Transmission circuits	99.1	99.3	99.4

E63 As seen in the above table, Transpower's target, cap and collar are higher than those of any of the Australian transmission network owners, although the collars and targets for ElectraNet and TransGrid are close to Transpower's. In response to our enquiry, Transpower responded that it was comfortable with these targets.[214] For these reasons, we have accepted Transpower's proposed targets, caps and collars for AP1.

209 Australian Energy Regulator 'SP AusNet transmission determination 2008-09 to 2013-14' (January 2008), p. 174. http://www.aer.gov.au/sites/default/files/AER%20Final%20decision.pdf.

210 Australian Energy Regulator 'ElectraNet transmission determination 2008-09 to 2012-13' (11 April 2008), p. 91. http://www.aer.gov.au/sites/default/files/Final%20decision%20%2811%20April%202008%29.pdf.

211 Australian Energy Regulator 'Powerlink Transmission determination 2012-13 to 2016-17' (April 2012), p. 229. http://www.aer.gov.au/sites/default/files/Powerlink%20-%20Final%20decision%20-%20April%202012.pdf.

212 Australian Energy Regulator 'Transend Transmission Determination 2009-10 to 2013-14' (14 October 2009), p. 3. http://www.aer.gov.au/sites/default/files/Amended%20Transmission%20determination%20%2814%20October%202009%29.pdf.

213 Australian Energy Regulator 'TransGrid transmission determination 2009-10 to 2013-14' (28 April 2009), p. 117. http://www.aer.gov.au/sites/default/files/TransGrid%20final%20decision.pdf.

214 Meeting between Transpower and the Commission on 14 March 2014.

Attachment F: Cost escalation factors

Purpose of this attachment

F1 This attachment discusses our draft decision on the cost escalators that we propose to use to convert real expenditure into nominal expenditure allowances. This includes:

F1.1 the NZD/USD exchange rate

F1.2 the foreign exchange exposure in IST

F1.3 forecast CPI inflation, and

F1.4 metals real price effects.

Our proposed allowances have had cost escalators applied to them

F2 Transpower has compiled its proposed expenditure allowances in constant prices, expressed in 2012/13 dollars. To convert its real expenditure forecasts into nominal amounts, Transpower has used cost escalators on identified costs.

F3 Cost escalators are used for capex and opex and are comprised of:

F3.1 changes in the general rate of inflation as measured by the CPI, and

F3.2 real price effects representing changes in specific cost inputs (such as copper, steel or labour) that are influenced by factors other than the general rate of inflation (such as foreign exchange rates or labour market conditions).

F4 We have assessed the escalators proposed by Transpower against the following criteria:

F4.1 the extent that the data, analysis and assumptions used in developing them are robust, and

F4.2 the extent that the application of cost escalators reflect the underlying characteristics of costs.

F5 Overall, Transpower's approach to developing cost escalators was appropriate. However, while we agree with the overall approach, we have used several assumptions that differ to those proposed by Transpower. We are also seeking submitter's views on forecasting metals costs.

F6 To ensure that the cost escalators are as accurate as possible, we will request that forecasts be updated before the final decision where relevant.

Our draft decision on cost escalation

F7 Our draft decision is to accept Transpower's proposal subject to the following changes to:

F7.1 replace Transpower's proposed NZ dollar/ US dollar exchange rate forecast with forward exchange rates from Bloomberg, and

F7.2 remove the foreign exchange exposure assumption to IST hardware and software cost escalation.

F8 We also propose to amend the Capex IM definition of forecast CPI to allow us to use a different forecast CPI assumption than that used in the proposal. We are consulting separately on the necessary amendment to the Capex IM for the forecast CPI.

F9 We seek submitters' views on forecasting metals costs.

What Transpower proposed

F10 Transpower commissioned the New Zealand Institute of Economic Research (NZIER) to forecast both the rate of CPI inflation and real price effects.[215] In producing these forecasts for Transpower, NZIER:

F10.1 identified cost items for escalation based on, among other things, cost materiality,[216] assessed in terms of the value at risk from cost escalation;

F10.2 selected indices or reference prices to understand how cost inflation has occurred historically and how it might then change over RCP2, with the chosen indices or reference prices for each cost item then being forecast to derive the cost escalation factors; and

F10.3 used different methodologies to forecast different types of cost escalation, including, in some instances choosing to use third-party forecasts of cost escalation.[217]

F11 Transpower's proposed cost escalation factors are summarised in Table F1. We note that Transpower has given 'IST other (hardware and software)' a foreign currency exposure which is absent in NZIER's report.

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215 For further details see: CR02 – Cost Escalation Forecasts – Frameworks, Forecasts and Forecast Methods

216 NZIER also considered Transpower's RCP1 proposal, costs commonly escalated by Australian transmission operators, and the perceived likelihood of cost inflation, as well as the views of Transpower.

217 For metals prices NZIER used futures prices, market consensus and World Bank forecasts. For Labour Cost Indices (LCI) and the Producer Price Index (PPI) NZIER used econometric models. NZIER forecasts the USD/NZD exchange rate over RCP2 by taking an average of NZ banks forecasts. The banks forecasts reach out to 2017, and NZIER extrapolates the 2017 forecast of the USD/NZD rate out to 2020. NZIER notes its CPI forecasting approach is consistent with the requirements of the Capex IM.

Table F1: Summary of NZIER's proposed cost escalation and foreign exchange forecasts (2013-2020)

Cost item	Applied to	Forecast measure	Methodology/source	Average yearly growth (USD) (%)	Average yearly growth (NZD) (%)
Labour					
Grid opex labour	Labour for routine maintenance and maintenance project portfolios	Labour Cost Indices (LCI) all groups	Econometric time series model	n/a	2.2
Grid base capex labour	Labour for grid base capex portfolios	LCI Construction	Econometric time series model	n/a	2.2
IST labour	Labour for IST base capex and opex portfolios	LCI Professional and technical Services industry	Econometric time series model	n/a	2.5
Departmental labour	Departmental labour–excludes labour capitalised to projects	LCI for Electricity, Gas and Water industry	Econometric time series model	n/a	2.2
Metals					
Copper	Base capex and maintenance projects	London Metal Exchange (LME) Copper price (USD)	Futures prices and average of market forecasts	-1.4	1.2
Aluminium	Base capex and maintenance projects	LME Aluminium price (USD)	Futures prices and average of market forecasts	3.4	6.1
Steel	Base capex and maintenance projects	Hybrid of World Bank steel price index and Asia Hot-Rolled Coil (USD)	Median of market forecasts	4.8	7.6
Other metals	Base capex and maintenance projects	World Bank Metals and Mineral Price Index (USD)	World Bank forecast	0.5	3.2
Other					
Construction	Base capex and maintenance projects	Producer Price Index (PPI)–Outputs, for Heavy and Civil Engineering industry	Econometric time series model	n/a	3.9
IST other (hardware and software)	IST base capex and opex portfolios	All groups CPI	Extrapolation of RBNZ forecast	n/a	2.0
Foreign exchange	Used to Convert USD forecasts into NZD forecasts	USD/NZD market exchange rate	Average of forecasts and extrapolation by NZ banks	n/a	-2.5

We agree with Transpower's method of applying the cost escalation factors

F12 Transpower has converted its real expenditure forecasts into nominal expenditure forecasts by applying real price effects and CPI.[218]

F13 We are satisfied that Transpower has applied CPI and real price effects to its forecasts of 2012/13 real expenditure in an appropriate and consistent way.

F14 CPI and real price effects are calculated independently at portfolio level. Real expenditure is then escalated by the sum of the two inflationary effects.

We have replaced Transpower's forecast of the exchange rate with forward exchange rates

F15 We consider that Transpower's approach to forecasting the NZ dollar/US dollar exchange rate is inappropriate. We have replaced Transpower's forecast with forward exchange rates from Bloomberg.[219]

F16 There is no single prevailing method for forecasting foreign exchange rates. Forecasting exchange rates is often a problematic and uncertain exercise.

F17 We view the forward exchange rate as an objective measure that is internally consistent across the forecast period. The use of forward exchange rates avoids arbitrary extrapolation.

F18 The use of forward exchange rates is broadly consistent with that used for Transpower in its opex capex review for the period 2012/13 to 2014/15[220] and for Orion in its customised price-quality path determined in 2013.[221]

F19 Table F2 below shows our proposed forecast for the NZ dollar/US dollar exchange rates and compares this to Transpower's proposal.

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218 For further details see: RT04 – Inflation and Price Input Model

219 Bloomberg is a recognised provider of business, financial and economic information.

220 See www.comcom.govt.nz/regulated-industries/electricity/electricity-transmission/transpower-price-path-compliance/opex-capex-review-2012-13-2014-15/

221 See http://www.comcom.govt.nz/regulated-industries/electricity/cpp/orion-cpp/

Table F2: Comparison of Transpower's proposed and our draft decision for NZ dollar/US dollar exchange rates

	2013	2014	2015	2016	2017	2018	2019	2020
Transpower's proposal (Bank average and extrapolation)	0.82	0.82	0.75	0.70	0.69	0.69	0.69	0.69
Draft Decision (Bloomberg forward exchange rates)	0.82	0.85	0.82	0.79	0.77	0.75	0.73	0.72

Note: The draft decision exchange rates are based on the forward NZ dollar/US dollar rates provided by Bloomberg's professional data services on 27 March 2014 and the Reserve Bank's historical arithmetic monthly exchange rate. We calculated the forward exchange rate (for 2014-2020) as the arithmetic average of the bid and the offer rates at that time. The settlement date for the forward rates is the middle of each calendar year, ie the first week of July in each of the forecast years. Because of data limitations, the forward rate in 2020 has a settlement date in the first week of March. The 2013 exchange rate is the arithmetic average monthly exchange rate over July 2012 to June 2013 provided by the Reserve Bank.

We have removed the exposure of the 'IST other (hardware and software)' real price effects to foreign exchange

F20 We consider that Transpower's proposed IST other (hardware and software) real price effect is unjustified. Transpower has included in this cost category an unexplained foreign currency exposure.

F21 Transpower has not provided sufficiently detailed reasoning to allow for foreign currency exposure in this cost category.

F22 In the absence of suitable justification we propose to remove the foreign currency exposure. Under our approach the real IST other (hardware and software) costs will be escalated by forecast CPI inflation, consistent with NZIER's report to Transpower.[222]

We propose a change to the calculation of the forecast CPI

F23 Under the current definition in clause 1.1.5 of the Capex IM, which Transpower has applied in its expenditure proposal, forecast CPI is taken from the Reserve Bank's Monetary Policy Statements. Beyond the term of the latest forecast, forecast CPI is calculated using the arithmetic average of the final four quarters of the Reserve Bank's forecast.

F24 This definition means that long-term CPI forecasts have the potential to vary significantly depending on the different points in the cycle at which Monetary Policy Statements are produced.

222 For details, see *CR02 – Cost escalation forecasts.*

F25 We have previously expressed a view that forecast CPI beyond the term of the Reserve Bank forecast should move toward the mid-point of the Reserve Bank's inflation target, given the modifications made to the PTA under which the Reserve Bank operates at the time of the current Governor's appointment.[223] This view is reflected in the definition of forecast CPI in the Electricity Distribution Services IM.[224] We think this consideration applies equally to Transpower's proposal.

F26 Our proposed change to forecast CPI would result in a change to forecast CPI (using the June RBNZ MPS), summarised in Table F3.

Table F3: Proposed amendment to definition of forecast CPI

	2013	2014	2015	2016	2017	2018	2019	2020
Transpower's proposal	0.9%	1.4%	1.9%	2.1%	2.1%	2.1%	2.1%	2.1%
Draft Decision (proposed consequential amendment)	0.68%	1.40%	1.87%	1.91%	1.96%	2%	2%	2%

F27 This proposed approach would require an amendment to the definition of forecast CPI in the Capex IM.

F28 The amendment would affect the predictability of Transpower's revenues and prices, but not the actual revenue and prices that eventuate, during RCP2. The forecast CPI assumptions for the base capex and opex allowances are 'washed-up' for actuals during the regulatory period. Therefore, improved forecast CPI assumptions improve the predictability of Transpower's revenue and prices, but will have no impact on actual revenue and prices during RCP2 as these are based on actual CPI.

F29 If, after consultation, we do not amend the Capex IM, the forecast CPI will be updated using the existing methodology for our final decision on the base capex and opex allowances.[225]

F30 See Attachment C for further details on this proposed Capex IM amendment.

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223 The current Policy target Agreement sets as an objective that inflation should average around the mid-point of the target range (which is 2%, between the lower limit of 1% and the upper limit of 3%).

224 For a background on this decision refer to Commerce Commission "specification and Amendment of Input Methodologies as Applicable to Default Price-Quality Paths Reasons Paper" (28 September 2012), paragraph 37-39.

225 We note that NZIER proposes a forecast CPI inflation rate of 0.9% in CR02 – Cost escalation factors, but Transpower applies the calculated rate of 0.68%.

We have concerns about the forecasts real price effects for metals

F31 We provisionally agree with Transpower's proposed metals real price effects (US dollar denominated).

F32 Transpower forecasts copper and aluminium real price effects though the use of futures markets prices one to two years ahead, with consensus forecasts used to make up the rest of the regulatory period. Real price effects for steel are forecast using consensus forecasts only.[226]

F33 We are concerned that, for some commodities, sharp changes in real price effects are forecast with limited explanation.

F34 We are aware that commodity price forecasts are notoriously volatile and variable between forecasting agencies, raising doubts on the usefulness of forecast averaging (ie, consensus forecasts).

F35 We welcome submissions from parties, including on their experience in forecasting metals costs.

F36 If industry forecasts are subject to wide uncertainty, we seek views on whether appropriate guidance can be had from commodity pricing theory. For example:

F36.1 On the use of futures markets prices, what is the expected relationship between such forward contract prices and forecast spot prices (allowing for the 'convenience yield' effects associated with storable commodities)?

F36.2 Absent information on convenience yields, would the current spot price be an effective indicator of the relevant present value of future commodity purchases?

[226] The other metals category is based on the World Bank Metals and Mineral Price Index.

Attachment G: Initiatives that we suggest Transpower implements during RCP2

Purpose of this attachment

G1 This attachment contains the detailed description of the suggested business improvement initiatives for Transpower that are discussed in Chapter 6. Each section contains the suggested initiatives and the reasons that the initiatives have been suggested.

Improving links between expenditure and service performance

G2 We suggest an initiative that is targeted at strengthening links between expenditure and service performance; and better targeting where expenditure is needed. This initiative has three dimensions:

G2.1 continuing Transpower's development of its asset health modelling

G2.2 improving Transpower's asset criticality framework

G2.3 developing a better understanding of the economic impact from interruptions.

G3 We have proposed monitoring measures for these three dimensions. These are discussed under separate headings below.

G4 Over RCP1 we have observed progress in Transpower's development of its risk-based asset management approach. The inputs into the asset risk framework are the asset health measure and the criticality rating. Asset health is a proxy for the likelihood of asset failure, while criticality is the proxy for consequence of asset failure. Transpower has implemented selected asset health models and introduced a criticality framework based on point of supply, but the links between expenditure and service performance needs are not yet well developed.

G5 The proposed initiative aims to strengthen the quality of asset risk assessment and therefore improve the basis on which expenditure decisions are made. Transpower has identified that the regular review and monitoring of the risk profile of its assets is essential to achieving its asset risk management objectives.[227] This allows for better understanding of anticipated issues and therefore improved justification for proposed expenditure. Measures that better reflect the economic impact of interruptions will enhance the asset criticality framework.

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227 Transpower "Business Improvement Initiatives" (March 2012).

G6 The key benefits of this initiative are:

G6.1 more robust and explainable decision-making that provides improved justification for expenditure

G6.2 better targeting of expenditure that will result in long-term benefits to consumers

G6.3 determining a level of confidence in justification for expenditure

G6.4 providing a consistent and appropriate risk-based approach to prioritisation of investments across the Grid

G6.5 improved predictability of decision-making and results over time.

Continuing to develop asset health models

G7 We suggest the following.

G7.1 Transpower should develop a programme for asset health modelling for each asset portfolio. The development programme for each asset portfolio should include milestones with clear deliverables. Where Transpower is not going to develop models for any asset fleets, it should be clearly explained.

G7.2 Transpower should provide annual reports on the progress against the development programme, including the reasons for any significant changes in the programme.

G8 The target for completion is before the submission of Transpower's quality and expenditure proposal for RCP3. That is, all the models should be completed, populated, and used by Transpower in developing its proposal for RCP3.

G9 We consider that this suggested initiative will address areas of concern that were identified with the RCP2 documentation.

G9.1 Asset health models did not cover all assets.

G9.2 The asset health models provided by Transpower did not reconcile with the proposed expenditure. This is because the models did not reflect the challenge stages by Transpower's management and were not updated to reflect any changes.[228]

G9.3 Existing models were untested; over time these models should be developed and use most recent data.

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[228] Strata report, paragraphs 246-248.

G9.4 Confidence in asset health indicators is reliant on the quality of models. For example, we have noted potential bias issues with Transpower's transformer model owing to pessimistic views for condition.[229] The consequence of such bias would result in shorter asset lives and replacing them earlier than is possibly necessary.

G10 Our proposed initiative is consistent with Transpower's proposal for RCP2. Transpower proposed the continued development of asset health modelling by extending asset health modelling across the majority of Transpower equipment and by continuing to improve asset health models, including improved confidence in existing health indicators [230] Transpower had developed asset health models for eight asset fleets before submitting its proposal.

Improving the asset criticality framework

G11 We suggest that:

G11.1 Transpower should develop a programme for improving its asset criticality framework, including having asset criticality assigned to all circuits or network branches (the programme should include milestones with clear deliverables); and

G11.2 Transpower should provide annual reports on the progress against the development programme, including the reasons for any changes in the programme.

G12 The target for having asset criticality assigned to all circuits or branches is for completion before Transpower submits its quality and expenditure proposal for RCP3. That is, the revised asset criticality framework should be used by Transpower in developing its quality and expenditure proposal for RCP3.

G13 We consider that this proposed initiative would address an issue identified with the RCP2 documentation that asset criticality at point of service level only captures consequence of failure at a very high level. Transpower appears to be using this measure as a proxy for the criticality of individual circuit or branches in the grid.

G14 Our suggested initiatives are consistent with Transpower's proposal for RCP2. Transpower has indicated that it intends to improve the criticality framework by developing performance requirements for each circuit or branch in the grid and then feeding this into the asset management models.[231]

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229 Ibid, paragraph 378.

230 Transpower "Expenditure Proposal for Regulatory Control Period 2" (2 December 2013), section 2.7.2.

231 Ibid.

Understanding the economic impact of interruptions

G15 We suggest that:

G15.1 Transpower report on the viability and benefits of developing measures that better account for the economic impact of interruptions; and

G15.2 subject to the outcome of the report on viability and benefits, Transpower provides a development programme for economic impact measures, including milestones with clear deliverables.

G16 The suggested initiatives aim to enable Transpower to develop better targeted service performance requirements that can be used to inform its asset criticality framework.

G17 Transpower has proposed grid output measures that use categorisations predominantly based on the size of the load or generation and the significance (national importance) of the service at a particular connection point. This provides a relatively coarse range of service performance requirements. Including the economic impact of interruptions at a connection point level would help create a more granular view of level of service performance requirements.[232]

Improving processes, policies and data maturity that underpin expenditure forecasts

G18 We suggest the following.

G18.1 Transpower continue to develop its systematic business processes as part of implementing its Maximo asset management information system to enhance its risk-based approach to asset management.

G18.2 Transpower should document unsystematic interventions in decision-making, the reasons for the interventions and subsequent changes made yearly to models or data. Further, changes in risk profile from such interventions should be identified, justified and reported on the same basis.

G18.3 Transpower should develop processes to verify the inputs for its models, both source data and modelled data.

G18.4 Transpower should develop a set of guidelines for quantitative analysis that are used in the development of forecasts and proposals.

[232] Partna report, paragraphs 42-45.

G19 We consider that suggested initiatives will help address areas of concern identified in the RCP2 documentation.

G19.1 The process on which the forecast expenditure for the proposal was made showed evidence of lacking robustness, appropriateness in places, repeatability and review in some areas. Some of the decision-making appears to have been unsystematic and undocumented.

G19.2 Transpower identified integrated works planning as an initiative for the current regulatory period. This involved implementing formal policies and processes for managing, monitoring and prioritising expenditure.[233] During the review of the expenditure proposal, the degree of formality in integrating work programmes was unclear.

G19.3 The inclusion of a challenge process when setting the expenditure forecasts is a significant improvement. However, a number of decisions appear to be made outside of the asset health models and it is unclear how these decisions are being fed back into the models to improve the models.[234]

G19.4 Transpower has used asset management models to prioritise capital work at the fleet level. However, in the final programme of work, on which the expenditure proposal was based, management appeared to have intervened in the prioritisation process of a number of projects. This intervention was unsystematic. We suggest Transpower reviews the reasons that interventions were made and use that information to change or recalibrate models or review data sources. This should reduce the number of interventions over time.

Improvements in the cost estimating process

G20 We suggest that:

G20.1 Transpower develops a programme for updating and reviewing its cost estimation system, TEES, with the development programme for TEEs to include milestones with clear deliverables;

G20.2 Transpower does regular audits to ensure the programme is being met and the processes are being complied with;

G20.3 Transpower provides annual reports on the progress against the development programme, including the reasons for any significant changes in the programme; and

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233 Transpower "Business Improvement Initiatives" (March 2012)

234 Strata report, paragraphs 243-247.

G20.4 Transpower provides annual reports on the variance between BC1+ and BC3 estimates and between BC3 estimates and the actual cost. This is expected to narrow over time as the estimation process improves.

G21 We consider that these suggested initiatives will address areas of concern that were identified with the RCP2 documentation:

G21.1 We have identified a number of issues with the cost estimation system, and are not very confident in the outputs from the estimating model in a number of areas. There is insufficient evidence to show that Transpower is using the system for the majority of its projects. Also there does not appear to be a consistent approach to reviewing actual costs and recalibrating the models.[235]

G21.2 The majority of expenditure in the current proposal is based on first level business cases. There needs to be confidence that these are reasonable estimates of the actual costs.

G21.3 One of the RCP1 initiatives was the comparison of its business case estimates (ie, BC1(+) and BC3 estimates) against actual costs. This was to be used as a measure of the estimating accuracy and for updating of models if required. From the information it provided, Transpower appears to have only done this on a sporadic basis.

Undertaking economic assessments

G22 We suggest that:

G22.1 Transpower identifies policies and design standards that directly affect expenditure,

G22.2 Transpower develops a programme for economic assessments of the identified policies, standards, and models. The development programme should include milestones with clear deliverables for the initial economic assessment and future reviews; and

G22.3 Transpower documents the completed economic assessments.

G23 We consider that these suggested initiatives will address areas of concern that were identified with the RCP2 documentation.

G23.1 Transpower has strategies, policies, design standards, asset management models and business cases that it uses to determine the need, the timing, and the scope of work. We would expect that these are supported by

[235] Strata report, paragraph 229-233.

appropriate economic assessments to ensure that it is making the optimal decisions.

G23.2 Transpower has done economic assessments in some areas. However, there are a number of areas where there is insufficient evidence to show that Transpower has undertaken such assessments. This could lead to Transpower making less than optimal investment decisions.

G23.3 There are a number of areas where the timing of projects has been set using models or policies, or even subjective decisions. In many cases it appears an economic assessment was not done.

G23.4 Transpower has offered no tangible benefits assessment for its proposed ICT expenditure.[236] It is therefore difficult to be sufficiently certain about what benefits customers will see from the investment in terms of operational savings for the same or higher service levels.

Mitigating resource availability risks

G24 We suggest that

G24.1 Transpower undertakes regular long-term forecasting of resource requirements against availability and develops mitigation plans to address any resource shortfall;

G24.2 Transpower assesses the effects on service levels and the economic effects of changes in forecasts due to resource constraints; and

G24.3 Transpower provides annual reports on resource requirement against availability, any issues that have been identified, the mitigation strategies, and the economic effects of any shortfalls.

G25 We consider that suggested initiatives will help address areas of concern identified in the RCP2 documentation.

G25.1 Lack of resource has been cited as a reason for Transpower's inability to deliver some capex and opex work in RCP1. This is a general issue, but in some specific areas (such as tower painting) the issue is significant.

G25.2 In particular, Transpower has identified lack of labour resource as the main reason for its inability to deliver the optimal programme for tower painting.[237]

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[236] Strata report, paragraphs 500-502, and 512-515.

[237] Strata report, paragraph 363.

G25.3 Steps have been taken to address the shortfall. However, Transpower has indicated to the Commission that in RCP2 it may still not have enough resources to meet the work required to maintain the optimal risk profile in this fleet. This is causing the backlog in required work to grow.

Assessing the market impact when planning outages

G26 We suggest that:

G26.1 Transpower develop processes to optimise the timing of planned outages, taking into account the market impact of the outages, and to include the monitoring of the forecast market impact against actual market impact at the time of outage; and

G26.2 Transpower provides annual reports on the development of the processes to optimise the timing of planned outages, as well as the data on the forecast against actual market impacts.

G27 This was identified as a potential development area by Partna.[238] Market impacts of outages are a metric that is used for other Transmission Network Service Providers overseas.

G28 The timing of outages can have a significant impact on the market and energy costs. Ultimately, consumers will pay for any increases in costs. Optimising the timing of these outages to reduce the impacts on the market will benefit the consumers.

[238] Partna report, paragraphs 42-45.

Attachment H: Terms used in this paper

Term	Meaning
AP	Asset performance
AUFLS	Automatic under-frequency load shedding
Base capex	Base capital expenditure
Capex	Capital expenditure
Capex IM	*Transpower Capital Expenditure Input Methodology Determination* [2012] NZCC2
CGA	Consumer Guarantees Act
Commission, the	Commerce Commission
CPI	Consumers price index
DR	Demand response
E&D	Enhancement and development
EV	Economic value
GAAP	Generally Accepted Accounting Principles
GEIP	Good Electricity Industry Practice
GP	Grid performance
HVAC	High-voltage alternating current
HVDC	High-voltage direct current
ICT	Information and communications technology
IRIS	Incremental Rolling Incentive Scheme
IST	Information and systems technology
LCI	Labour Cost Indices
LME	London Metal Exchange
MAL	Monetary Authority Law
MAR	Maximum allowable revenue
MWh	Megawatt hour
NIGU	North Island Grid Upgrade
NZIER	New Zealand Institute of Economic Research
OM	Other measures
Opex	Operating expenditure
Partna	Partna Consulting Limited
PTA	Policy Targets Agreement
R&R	Replacement and refurbishment
RAB	Regulatory Asset Base
RRL	Risk Reinsurance Limited
Strata	Strata Energy Consulting Limited
TCSD	Term credit spread differential
TPM	Transmission Pricing Methodology
Transpower	Transpower New Zealand Limited
Transpower IMs	*Transpower Input Methodologies Determination* [2012] NZCC 17
VOLL	Value of lost load
WACC	Weighted average cost of capital