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Transpower's individual price-quality path for 2025 to 2030

Our process, decision-making framework, and approach for setting expenditure allowances, quality standards and the price path

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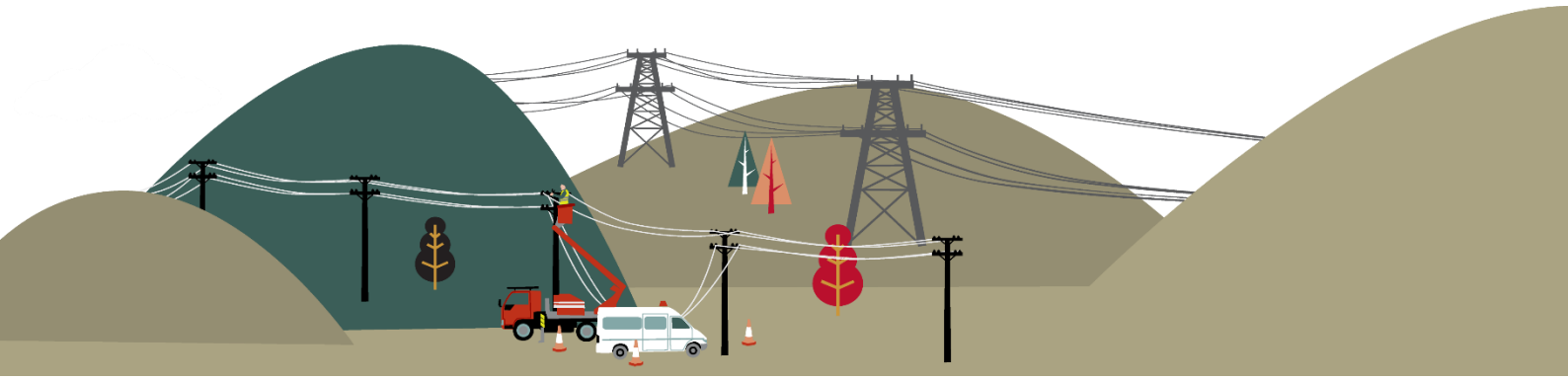

Associated documents

Publication date	Reference	Title
29 January 2020	ISBN 978-1-869457-86-0	*Transpower Capital Expenditure Input Methodology determination 2012* [2012] NZCC 2, as amended and consolidated as of 29 January 2020
29 January 2020	ISBN 978-1-869457-87-7	*Transpower Input Methodologies Determination 2010* [2012] NZCC 7, as amended and consolidated as of 29 January 2020
7 October 2021	ISSN 1178-2560	*Transpower Individual Price-Quality Path Determination 2020* [2019] NZCC 19, as amended and consolidated as of 7 October 2021
10 August 2022	ISSN 1178 – 2560	*Transpower Individual Price-Quality Path Amendment Determination 2023 (No.1) [2023] NZCC 22* *Transpower-IPP-Amendment-Determination-2023-No.1-10-August-2023*
22 November 2022	ISSN 1178-2560	*Transpower Individual Price-quality Path Amendment Determination 2022* (No.1) [2022] NZCC 37
September 2023	ISSN 978-991085-40-5	*Draft 2023 TPM amendment determination* *Draft-Transpower-IPP-amendment-determination-For-TPM-Reopener-September-2023*

Commerce Commission
Wellington, New Zealand

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Chapter 1 Introduction

Background

1.1 Our vision is that New Zealanders are better off because markets work well, and consumers and businesses are confident market participants. In markets with little or no competition, regulation can help create similar outcomes to those experienced in competitive markets.

1.2 Where there is no competition (monopolies), businesses should expect a reasonable return on investments, and short-term rewards for good performance. Equally, excessive profits should be limited, poor performance penalised, and businesses held to account when things go wrong that could, and should, have been avoided.

1.3 Transpower is the sole owner and operator of New Zealand's transmission network. Its role is to ensure electricity is transported from generators to some large electricity users and distribution businesses that deliver it to homes and businesses. Transpower is responsible for building, maintaining, and operating this transmission network.

1.4 Our role is to set the maximum revenue Transpower can recover from consumers to run the transmission network efficiently.

1.5 Since 1 April 2011, Transpower has been regulated by way of individual price-quality regulation. The individual price-quality path governs Transpower's revenues for each pricing year, with the paths being reset either every 4 or 5 years.

1.6 Transpower's present individual price-quality path was reset for the 2020-2025 regulatory period on 14 November 2019, and we are now starting the process of setting Transpower's individual price-quality path for the 2025-2030 regulatory period.

Purpose of this paper

1.7 This paper outlines the process, framework, and approach we intend to follow in setting Transpower's expenditure allowances, quality standards and individual price-quality path (**IPP**) for the 2025 to 2030 regulatory period (**RCP4**).[1]

1.8 The objectives of this paper are to:

[1] Information about RCP4 can be found on our website *here.*

1.8.1 seek your initial views about our intended process, decision-making framework, and approach for setting Transpower's IPP; and

1.8.2 allow you, Transpower and other interested persons to plan for future engagement in the IPP-setting process.

Structure of this paper

1.9 In this paper we present the following chapters and attachments:

1.9.1 **Chapter 2**: **Our individual price-path reset process** – In this chapter we set out the process we intend to follow in setting Transpower's expenditure allowances, quality standards and price path for RCP4.

1.9.2 **Chapter 3**: **Our decision-making framework for RCP4** – In this chapter we explain our regulatory framework, covering the requirements of the Commerce Act 1986 (the **Act**) and the relevant input methodologies, and how we propose to evaluate Transpower's RCP4 proposal (**RCP4 proposal**).

1.9.3 **Chapter 4**: **Transpower's progress over RCP3 and future progress** – In this chapter we set out:

1.9.3.1 Transpower's progress under the 2020 to 2025 regulatory period (**RCP3**);[2] and

1.9.3.2 our current views on progress we may consider from Transpower during RCP4 in preparation for Transpower's IPP in the 2030 to 2035 regulatory period (**RCP5**).

1.9.4 **Chapter 5**: **Our RCP4 expenditure and quality assessment approach** – In this chapter we outline:

1.9.4.1 our process of setting expenditure allowances for base capex and operating expenditure (**opex**) for RCP4;[3]

1.9.4.2 how we intend to apply proportionate scrutiny to Transpower's expenditure proposals, including how we will use the outcomes of the independent verification;

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[2] Information about the RCP3 IPP for Transpower can be found on our website *here.*

[3] The terms 'base capex' and 'base capex allowances' are defined in clause 1.1.5 of the *Transpower Capital Expenditure Input Methodology Determination 2012* [2012] NZCC 2 (Capex IM).

1.9.4.3 the tools we intend to apply in assessing the forecast expenditures; and

1.9.4.4 our approach to assessing and setting the RCP4 quality standards and grid output measures.

1.9.5 **Chapter 6**: **The link between RCP4 expenditure, revenue, and pricing** – In this chapter we set out our proposed approach to:

1.9.5.1 the roles the base capex allowances and opex allowances have in our setting of the forecast maximum allowable revenue (**MAR**);

1.9.5.2 how the forecast MAR will be combined each year with Transpower's forecast pass-through costs, recoverable costs and forecast EV adjustments to derive total forecast revenues;

1.9.5.3 how smoothing of the total forecast revenues will limit volatility of Transpower's pricing, including the effect of RCP3 revenue wash-ups on the first year of RCP4 forecast SMAR;

1.9.5.4 our view of likely drivers of changes in total forecast revenues in RCP4;

1.9.5.5 how expenditure approvals for listed projects, E&D capex, and major capex projects will be factored into the forecast MAR and the total RCP4 revenue cap (ie, forecast SMAR); and

1.9.5.6 how we intend to model total forecast revenues in our setting of the price path and in our pricing sensitivity analyses.

1.9.6 **Attachment A**: **Our approach to testing forecast expenditures against the expenditure outcome** – we outline a set of questions and considerations we intend to apply in testing Transpower's forecast expenditures against the expenditure outcome.

Opportunities to contribute to the IPP reset for RCP4

1.10 We will be seeking formal submissions and cross-submissions on the issues paper (expected to be published February 2024) and draft decisions (expected to be published May 2024). We will also be seeking technical submissions on the draft IPP determination (expected also to be published May 2024).

How you can provide your views

1.11 We welcome your written views on this process paper, which we will use to help inform our Issues Paper, no later than 5pm, Thursday 16 November 2023. You should address your responses to:

Anne Bainbridge (Project Manager, Transpower and Gas) c/o infrastructure.regulation@comcom.govt.nz

1.12 Please include "Transpower IPP 2025 – Process, Decision-making framework, and Approach" in the subject line. We prefer responses to be provided in a file format suitable for word processing in addition to PDF file format.

Requests for confidentiality

1.13 Please note that we intend to publish all submissions on this Process, framework and approach paper.

1.14 The protection of confidential information is something the Commission takes seriously. The process requires you to provide (if necessary) both a confidential and non-confidential/public version of your submission and to clearly identify the confidential and non-confidential/public versions.

1.15 When including commercially sensitive or confidential information in your submission, we offer the following guidance:

1.15.1 Please provide a clearly labelled confidential version and a separate public version. We intend to publish all public versions on our website.

1.15.2 The responsibility for ensuring confidential information is not included in a public version of a submission or cross-submission rests entirely with the party making it.

1.16 Please note that all submissions we receive, including any parts that we do not publish, can be requested under the Official Information Act 1982. This means we would be required to release material that we do not publish unless good reason existed under the Official Information Act 1982 to withhold it. We would normally consult with the party that provided the information before we disclose it to a requester.

Chapter 2 Our individual price-path reset process

Purpose of this chapter

2.1 In this chapter we explain how we regulate Transpower and set out the process we intend to follow in setting Transpower's expenditure allowances, quality standards and IPP for RCP4.

Proposed process and indicative dates

2.2 At a high level, our process for setting the IPP is as follows:

2.2.1 Transpower will propose expenditure allowances and quality standards;

2.2.2 we will evaluate Transpower's proposal; and

2.2.3 we will then set Transpower's IPP.

2.3 Table 1 below sets out more detail on the process we propose to follow and the indicative dates for completion. We will provide updates to our proposed process and dates if these change during the project.

2.4 We are interested in your views on the process and dates set out below.

Table 1 Indicative dates for our RCP4 IPP setting process

Indicative date	Process step
1 December 2023	Transpower is required to provide us with its proposals on base capex allowances, opex allowances and quality standards, and the report of the Independent Verifier.
December 2023	Transpower's RCP4 proposal and the independent verification report published on our website.
February 2024	Our issues paper on Transpower's RCP4 proposal published.
February 2024	Submissions due on our issues paper.
March 2024	Cross submissions due on our issues paper.
May 2024	Draft decisions on expenditure allowances, quality standards, compliance obligations and the form of Transpower's RCP4 IPP published for submissions. A draft RCP4 IPP determination will also be published for technical submissions.
June 2024	Submissions due on our draft decisions. Technical submissions due on our draft RCP4 IPP determination.
July 2024	Cross submissions due on our draft decisions and our draft RCP4 IPP determination.
August 2024	Final decisions on expenditure allowances, quality standards, compliance obligations and the form of the RCP4 IPP published. A revised draft RCP4 IPP determination published, subject only to price path updates to take account of the Transpower weighted average cost of capital (WACC) in October 2024.
September 2024	Draft information request provided by us to Transpower to calculate the forecast SMAR for each pricing year of RCP4.
October 2024	Information request issued to Transpower to calculate the forecast SMAR for each pricing year of RCP4.
October 2024	Transpower WACC published.
October 2024	Transpower's forecast SMAR for each pricing year of RCP4 due.
November 2024	Final RCP4 IPP determination and a companion paper published.
28 November 2024	Final statutory date to publish the RCP4 IPP determination.

Chapter 3 Our decision-making framework for RCP4

Purpose of this chapter

3.1 In this chapter we describe the high-level framework we intend to apply in setting Transpower's RCP4 IPP proposal (**the proposal**). We explain:

3.1.1 how we regulate Transpower;

3.1.2 context for the RCP4 price path setting; and

3.1.3 how we propose to evaluate the proposal.

How we regulate Transpower

3.2 Transpower is a state-owned enterprise that owns and operates New Zealand's high voltage electricity transmission system (i.e., 'the national grid'). Transpower transmits electricity from generators to substations at grid exit points (**GXPs**) where the electricity is supplied to local electricity distribution businesses (**EDBs**) or large industrial consumers.

3.3 Transpower also manages the real-time coordination of the power system as the system operator. Transpower provides system operator services under its system operator service provider agreement (**SOSPA**) with the Electricity Authority, and according to the requirements of the Electricity Industry Participation Code 2010 (**Code**).

3.4 Transpower is regulated under Part 4 of the Act as it has a natural monopoly in the market for electricity transmission services. The Part 4 regime seeks to promote the long-term benefit of consumers of regulated services; which are electricity line services (including transmission services provided by Transpower), gas pipelines services and specified airport services.

3.5 Section 52A of the Act sets out the purpose of Part 4:

> (1) The purpose of this Part is to promote the long-term benefit of consumers in markets referred to in section 52 by promoting outcomes that are consistent with outcomes produced in competitive markets such that suppliers of regulated goods or services—
>
> (a) have incentives to innovate and to invest, including in replacement, upgraded, and new assets; and
>
> (b) have incentives to improve efficiency and provide services at a quality that reflects consumer demands; and

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

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

3.6 Under Part 4, Transpower is subject to two types of regulation:

3.6.1 Individual price-quality path regulation: The IPP we set under this regulation determines, among other things, the maximum prices/revenues that Transpower can recover from its customers, for each regulatory period, and the minimum quality standards it must meet, for each year within the regulatory period;[4] and

3.6.2 Information disclosure (**ID**) regulation: This form of regulation enables us to set requirements on Transpower to publicly disclose certain information to allow interested persons to assess whether the Part 4 purpose is being met.[5]

3.7 These regulatory mechanisms are supported by Input Methodologies (**IMs**), which set out the underlying rules, requirements, and processes that must be applied to those forms of regulation. The purpose of IMs is to provide certainty to both regulated suppliers and consumers about the rules, requirements and processes applying to Part 4 regulation.[6]

3.8 There are two IM determinations that apply to Transpower:[7]

3.8.1 Transpower IM Determination 2010 [2012] NZCC 17. This determination was reviewed as part of the 2015-2016 IM Review and is being reviewed in 2023. It sets out methodologies for: cost allocation, asset valuation, treatment of taxation, cost of capital, specification of price, Incremental Rolling Incentive Scheme (IRIS), and reconsideration of the price-quality path; and

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4 Commerce Act 1986, s 53ZC.
5 Commerce Act 1986, s 53C.
6 Commerce Act 1986, s 52R.
7 Commerce Act (Transpower Input Methodologies) Determination 2010 [2012] NZCC 17 (29 June 2012, as subsequently amended); Transpower Capital Expenditure Input Methodology Determination [2012] NZCC 2 (31 January 2012, as subsequently amended).

3.8.2 Transpower Capex IM Determination 2012 [2012] NZCC 2. The two major functions of the Capex IM are to provide for the scrutiny of Transpower's proposed and actual investment, and to incentivise Transpower to deliver those investments efficiently.[8]

Context for the RCP4 price path setting

Decarbonisation and resilience

3.9 There are significant challenges in the power sector due to decarbonisation and the predicted electrification of fossil fuel use. Uncertainty surrounds electricity demand increases and generation developments to meet that demand. These issues were most recently discussed in our 2023 IM Review draft Transpower investment topic paper.[9]

3.10 Climate change effects are also focussing electricity suppliers and Transpower to address network resilience issues as weather patterns and risk exposures change. This will affect existing network assets and future plans.

IM Review process

3.11 We released the 2023 IM Review draft decision in June 2023, with the final decision to be determined by us in December 2023. We will accommodate any relevant changes arising from the IM Review, as they relate to the IPP for RCP4.

3.12 We are aware that there may be practical implementation matters to consider due to the timing of our final IM Review decisions relative to Transpower's RCP4 proposal. Once we have Transpower's RCP4 proposal and the final IM Review decisions in December 2023, we aim to set out, in our RCP4 issues paper in January 2024, how we will incorporate these into the May 2024 RCP4 IPP draft decisions.

3.13 Once we have Transpower's RCP4 proposal and the final IM Review decisions in December 2023, we aim to set out, in our RCP4 issues paper in January 2024, how we will incorporate these into the May 2024 RCP4 IPP draft decisions.

3.14 We are aware that Transpower and some industry stakeholders made submissions relevant to the IPP in the 2023 IM Review. We intend to take account of those submissions (to the extent they are relevant) in the RCP4 issues paper we expect we will release for consultation in February 2024.

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[8] Commerce Commission "Transpower capex input methodology review – decisions and reasons" (29 March 2018), *here*, para X9.2.

[9] Commerce Commission, Transpower investment topic paper – Part 4 Input Methodologies Review 2023 – draft decision, (14 June 2023) available *here*.

3.15 Submissions in response to this paper will not be part of the 2023 IM Review, nor will they be taken into account in coming to our final decisions on the IM Review. That is due to stakeholders having sufficient opportunity to comment in the IM Review process and the timing of this paper in relation to the IM Review process.

Key RCP4 price path setting features

3.16 The process of setting the RCP4 price path spans an 18-month period until the final decision is made by November 2024. RCP4 will commence on 1 April 2025 and unless we decide that a shorter period (a minimum of 4 years) would better meet the Part 4 purpose, then the default regulatory period will be five-years.[10]

3.17 RCP4 will also be the first full regulatory period for which Transpower's regulated revenues will flow through to customer prices using the new Transmission Pricing Methodology (**TPM**).[11] While we do not regulate the customer allocation of Transpower's revenues, we will be interested in potential significant revenue increases.

3.18 In its RCP4 consultation documentation, Transpower signalled that there may be a material step change in revenues between the RCP3 and RCP4 smoothed price paths.[12] We are mindful of consumer price shock effects, and we will consider the potential revenue step change into RCP4, in conjunction the revenue impacts of the EDB default price path (**DPP**), that we will set in December 2024.

Independent verification

3.19 While it is not a requirement of the Capex IM, Transpower engaged an independent verifier (**IV**) to review, in advance of us receiving the proposal, the policies, planning standards and assumptions that underpin Transpower's forecast information on proposed capex, opex, quality measures and demand.

3.20 The IV review should assist us to better focus our review of Transpower's proposal on:

3.20.1 areas where forecast expenditures and/or associated grid output measures are less likely to meet the expenditure outcome;[13] and

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[10] Commerce Act 1986, s 53M.

[11] For more information see the Electricity Authority's website *here.*

[12] Commerce Commission webpage regarding Transpower's IPP for RCP4 *here.*

[13] We consider that the expenditure outcome reflects the efficient cost of a prudent supplier having regard to Good Electricity Industry Practice (GEIP). We set out our proposed approach to assessing expenditure against the expenditure outcome in Attachment A.

3.20.2 how Transpower's RCP3 performance initiatives have improved its proposal.

We will test proposed expenditure against the expenditure outcome and evaluation criteria for base capex and opex

3.21 In Attachment A we outline a benchmark set of questions and considerations we will have regard to in testing Transpower's forecast expenditure against the expenditure outcome.

3.22 These are areas that are generally relevant to testing the prudency of expenditure versus areas relevant to testing cost efficiency.

3.23 To some extent, these areas reflect the capex evaluation criteria, but may cover a broader range. This is important, as in our view, the base capex evaluation criteria are principles that we will have regard to, but they may not necessarily capture the full range of specific questions we could ask ourselves in reviewing forecast expenditure.

Assessing Transpower's proposed grid output measures

3.24 The Capex IM defines a 'grid output measure' as:[14]

> a measure that quantifies the output or benefit (where 'benefit' may include reduction in risk) delivered by the **grid**, investment in the **grid**, or expenditure facilitating or enabling future investment in the **grid**

3.25 The Capex IM allows Transpower to propose, and for us to set, certain types of grid output measures, while providing Transpower with the opportunity to also propose other grid output measures.[15]

3.26 In setting the grid output measures as quality standards, 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.

3.27 We must also apply the criteria in Schedule A of the Capex IM relating to grid output measures, which include (for example):[16]

3.27.1 the extent to which a measure is a recognised measure of either or both:

3.27.1.1 risk in the supply of electricity transmission services; and

[14] Capex IM, clause 1.1.5.
[15] Capex IM, clause 2.2.2.
[16] Capex IM, clause A4 - A7.

3.27.1.2 performance of the supply of electricity transmission services; and

3.27.2 the relationship between the grid output measure and expenditure by Transpower.

3.28 The Capex IM distinguishes between revenue-linked and non-revenue linked grid output measures.[17]

3.29 Under any revenue-linked grid output measures, Transpower will be rewarded for outperforming the performance targets and penalised for underperforming the performance targets, as a quality incentive under section 53M(2) of the Act.

3.30 For the revenue-linked grid output measures, we will determine:[18]

3.30.1 grid output targets;

3.30.2 caps – to limit the amount of positive revenue adjustment;

3.30.3 collars – to limit the amount of negative revenue adjustment; and

3.30.4 grid output incentive rates – the amount of money at risk for each unit of output between the cap and the collar.

3.31 We determine how the quality standards we set for Transpower are prescribed, but we must first take into account any quality standards for Transpower as set by the Electricity Authority under the Code.[19]

[17] Capex IM, clause 2.2.2.
[18] Capex IM, clause 2.2.2(1)(d).
[19] Sections 53M(3) and 54V(4) of the Act.

Chapter 4 Transpower's progress over RCP3 and future progress

Purpose of this chapter

4.1 In this chapter we set out:

4.1.1 Transpower's progress in meeting the reporting and compliance initiatives we set over the RCP3 regulatory period (2020-2025); and

4.1.2 future progress initiatives we may set over the RCP4 regulatory period (2025-2030) in preparation for RCP5 (2030-2035).[20]

Transpower's progress over RCP3

4.2 In our RCP3 IPP final decision in August 2019, we provided extensive views on Transpower's progress under the IPP since the 2011,[21] and made decisions, which included:[22]

4.2.1 setting asset health measures as quality standards;

4.2.2 adoption of new and modified features for existing quality standards;

4.2.3 adding a mid-period Enhancement and Development (**E&D**) capex reopener during RCP3;

4.2.4 requiring proposed listed projects to be more accurately quantified;

4.2.5 introduction of normalisation for some grid outputs measures; and

4.2.6 setting no allowance for TPM implementation costs.[23]

4.3 We also made decisions on reporting and compliance requirements that sought to facilitate progress in Transpower's performance, which included:[24]

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[20] As indicated in Chapter 2, Table 1, we plan to publish an issues paper in February 2024 that will set out our analysis of Transpower's RCP4 IPP proposal and our finalised view of the focus areas on which we will base our draft decisions.

[21] Transpower's individual price-quality path from 1 April 2020, Decisions and reasons paper, 29 August 2019, *here.*

[22] Transpower's individual price-quality path from 1 April 2020, Decisions and reasons paper, 29 August 2019, *here* Table 3.1.

[23] We have subsequently made decisions to reopen the RCP3 IPP to allow for costs of development and implementation of the new TPM: see, for example, *here*, 22 November 2022.

[24] Transpower's individual price-quality path from 1 April 2020, Decisions and reasons paper, 29 August 2019 *here* Table 3.2.

4.3.1 enhanced reporting on service performance and asset availability measures to enable understanding of why quality standards are not met;

4.3.2 enhanced reporting features for EV account and price path wash-up calculations;

4.3.3 a requirement to publish updated forecast MAR and forecast SMAR values if Transpower proposes we apply a reopener provision in the Transpower IM determination;

4.3.4 asset health and risk model development reporting;

4.3.5 cost estimation improvement reporting; and

4.3.6 customer consultation improvement reporting.

4.4 Transpower's responsiveness to the key features of the RCP3 reporting and compliance requirements has been positive. We intend to address reporting and compliance requirements further in the Issues Paper, and we may consider that further enhancements can be made to Transpower's RCP4 IPP.

4.5 For example, Transpower has been progressing its asset health modelling and risk understanding since the RCP3 IV identified this as a key area of development. Improved asset health models help analytically underpin expenditure forecasts and a risk understanding allows that asset replacement versus renewal decisions can be made on a risk/cost basis.[25]

4.6 Similarly, Transpower has been developing its customer engagement, which was externally reviewed and found to be effective and improving.[26]

4.7 We will explore Transpower's progress in these areas more explicitly when we publish our RCP4 Issues Paper in January 2024 and how this progress will affect our review of the proposal.

Potential focus areas for RCP4

4.8 We may consider further improvement initiatives for Transpower in our RCP4 decision in preparation for potential improvements over RCP5.

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[25] GHD Advisory, Expert Opinion Progress Review - Report on Asset Health and Risk Modelling, 21 October 2022 available *here*.

[26] Senate shj, Expert Opinion - A review of Transpower's proposed process for customer engagement for RCP4, 3 November 2022, commissioned by Transpower, available *here.*

4.9 We currently consider that by the end of RCP4, Transpower should be in a mature state where:

4.9.1 it is consistently developing and reporting on grid output measures that reflect customer preferences (where appropriate);

4.9.2 there is meaningful engagement by Transpower and its customers on service expectations and the amount of outage risk customers are prepared to accept;

4.9.3 its grid output measures reflect the outputs of Transpower's risk-based asset management framework, using outage risk as a more immediate and forward-looking measure (as opposed to grid output measures that only reflect historic performance);

4.9.4 its calculation of outage risk captures and reflects the value of lost load (**VoLL**) to New Zealand electricity consumers;

4.9.5 its demand forecasting is factoring likely load step changes due to load decarbonisation effects;

4.9.6 resilience risk, particularly climate change related resilience risk, is being identified and quantified systematically; and

4.9.7 its investment decision making framework is underpinned, where appropriate, by a risk-based asset management approach that includes considering both asset health and criticality.

4.10 Our preliminary view is that the following are likely to be our key focus areas for monitoring Transpower's performance over RCP4:

4.10.1 asset health and criticality;

4.10.2 revenue-linked performance measures; and

4.10.3 revenue and pricing impacts.

4.11 Each of these key focus areas is briefly discussed further below.

Asset health and criticality

4.12 We intend to focus on how Transpower is maturing and implementing its risk-based asset management approach and how the modelling is informing expenditure forecasts. Two foundation inputs into an asset risk framework are asset health (or condition) and asset criticality (or impact of failure).

4.13 We consider that a well-functioning transmission asset owner should understand the criticality of its assets and that this understanding should inform investment decision-making. This includes how it is identifying and mitigating resilience risk to address high impact low probability event exposures.

4.14 A risk-based asset management approach should result in more efficient spending over time, as it reduces the scope for premature investment in asset replacement and renewal.

4.15 In its expert opinion about Transpower's asset health and risk modelling, GHD Limited, Transpower's RCP4 IV, noted that while Transpower's asset management was in a "mature state which is well developed" it identified five asset categories where asset health modelling improvement opportunities were available, and six asset categories where there were asset risk improvement opportunities available.[27]

4.16 In our evaluation of Transpower's RCP4 proposal, we intend to:

4.16.1 assess how Transpower is identifying its resilience risk, how it is accounting for climate change effects and accounting for potential changing risk exposures;

4.16.2 assess the extent to which Transpower has appropriately implemented a risk-based asset management approach, in particular how Transpower has tuned its asset health models with asset failure rate data;

4.16.3 identify potential gaps in the approach and its implementation; and

4.16.4 make recommendations about how Transpower could progress further to inform its RCP5 IPP proposal.

Revenue-linked performance measures

4.17 We intend to consult on the performance measures that Transpower will be subject to in RCP4, the direction we would like Transpower to take for RCP5, and how effective the RCP3 performance measures have been.

[27] GHD Advisory, Expert Opinion Progress Review - Report on Asset Health and Risk Modelling, 21 October 2022, p.1-3 available *here*.

4.18 In setting an IPP for RCP3, we considered it appropriate to include a range of quality incentives that linked performance measures to revenue, being mindful that a balance needed to be struck between incentives to reduce inefficient spending, while maintaining existing service quality levels.

4.19 In RCP3, Transpower proposed, and we set, 23 revenue-linked performance measures categorised as Asset Performance (**AP**) measures, Grid Performance (**GP**) measures, and Asset Health (**AH**) measures.

4.20 Each of these revenue-linked incentive measures had targets, caps, collars, and an incentive rate. The cap and collar set the range of performance for which Transpower would be penalised or rewarded, with the cap being the upper bound for rewards. The incentive rate was the dollar amount of revenue loss or gain for each unit of deviation from the target.

4.21 Transpower has been consulting on a range of performance measures as it builds its RCP4 proposal, although these were not finalised at the time this paper was drafted.[28] These are very similar to those proposed for RCP3 in that they are quality-outcome based i.e., they demonstrate a direct or indirect effect on consumer outcomes either via direct outages, or assets not being in service, which may constrain the electricity market and lead to higher prices.

4.22 While setting performance measures on a quality outcome in transmission is common regulatory practice, there are often significant delays between transmission asset investment and quality outcomes. Specifically, a lack of investment may not necessarily manifest in poor quality outcomes for many years, while investment strategies made many years ago may only start to become evident in quality outcomes now.

4.23 We have been encouraging Transpower to develop asset health and risk modelling so that risk-based asset management will analytically underpin asset investment decision making.

4.24 In our RCP3 decision, we proposed that Transpower start contemplating performance measures that reflect the outputs of its risk-based asset management framework as a more immediate and forward-looking measure of quality outcomes.

[28] Transpower consultation on their draft RCP4 proposal *here.*

4.25 Such outputs could demonstrate how much outage risk different asset classes carry in any given year. In addition, performance measures of this sort would show how such outputs would drive investment decision making into the future, and also inform customers of how much outage risk they are likely to face each year.

4.26 Consistent with our expectation that Transpower should explore ways to consult on cost/risk trade-offs with its customers, such performance measures would help customers make more informed decisions about strategies to manage outage risk.

4.27 In our consultation on Transpower's RCP4 IPP proposal, we intend to seek views from interested parties on a range of areas, including the appropriateness and effectiveness of the RCP3 performance measures, to inform our consideration of Transpower's RCP4 performance measures, and whether using a risk-based asset management framework to set quality measures has merit.

4.28 We will also consult on how we propose to link the performance measures to revenue, where appropriate. This revenue linkage will seek to reward Transpower for exceeding targets and penalise it for not meeting targets.

4.29 In setting revenue linkages, we will aim to ensure they strike an appropriate balance with the incentives to achieve cost efficiencies under our expenditure schemes i.e., to avoid a perverse incentive for Transpower to reduce costs in exchange for a deterioration in quality.

Revenue and pricing impacts

4.30 We intend to consult on the impact of Transpower's forecast expenditures in RCP4 on the revenue that Transpower will be allowed to recover from its customers, and, to a lesser extent, the impact Transpower's revenue allowance will have on electricity prices.[29] This includes the effect of interest rates and inflation.

4.31 Our consultation will cover both the immediate impact on revenue and pricing in transitioning from RCP3 to RCP4, as well as the estimated subsequent impact in transitioning from RCP4 to RCP5.

4.32 We propose to largely focus our consultation on transmission charges, as Transpower's revenue allowances will have an immediate impact on the transmission charges that Transpower's customers have to pay.

[29] Higher inflation and interest rates, as a result of changes in macroeconomic conditions, mean that it is likely that RCP4 revenue will be materially higher than RCP3 revenue.

4.33 We discuss this topic in greater depth, as well as the link between forecast expenditures and Transpower revenues and pricing in RCP4 more generally in Chapter 6.

Chapter 5 Our RCP4 expenditure and quality assessment approach

Purpose of this chapter

5.1 We will set expenditure allowances for base capex and opex over RCP4. In setting these, we intend to apply proportionate scrutiny to Transpower's RCP4 IPP proposal following proposal verification.

5.2 In this chapter, we outline:

5.2.1 the process of setting expenditure allowances for RCP4;

5.2.2 how we will use the outcomes of Transpower's verification process in our assessment of Transpower's forecast expenditures and quality; and

5.2.3 the tools we intend to apply in assessing the forecast expenditures.

5.3 We will also outline what we will consider when we review Transpower's proposed quality standards and grid output measures.

Setting RCP4 expenditure allowances

5.4 Our process for setting expenditure allowances for Transpower in RCP4 comprises four stages:

5.4.1 **proposal stage** – Transpower's process of preparing and submitting forecast expenditure proposals as part of its RCP4 application.

5.4.2 **review stage** – involves the IV's and our review of Transpower forecast expenditures. We will form a view on the appropriateness of the IV's conclusions as well as our own targeted reviews of specific forecast expenditure proposals.

5.4.3 **determine stage** – we determine appropriate expenditure forecasts for RCP4 based on the review stage. These forecasts could either be consistent with, or variations of, Transpower's expenditure forecasts, including instances where we may find a nil forecast is appropriate.

5.4.4 **set stage** – we aggregate the expenditure forecasts determined at the determine stage into expenditure allowances.

We will apply proportionate scrutiny in our review of Transpower's proposed expenditures

5.5 In defining the scope, covering both the breadth and depth of our review, we intend applying proportionate scrutiny to Transpower's forecast expenditures in its RCP4 IPP proposal.

5.6 In broad terms, 'proportionate scrutiny' means that we will apply the level of scrutiny that is commensurate with potential price and quality impacts of forecast expenditures on Transpower's customers. We apply the greatest scrutiny where we consider it likely to have the greatest long-term benefit to consumers.

5.7 Where appropriate, we use a process of incrementally higher levels of scrutiny to test whether expenditure is prudent and efficient. We consider that proportionate scrutiny should guide our evaluation of Transpower's expenditure proposals as well as the setting of IPPs more generally.

Our tools in assessing Transpower's proposed expenditures

5.8 We intend to use a range of tools to assess Transpower's forecast expenditures, including:

5.8.1 factors we will consider in assessing the IV's conclusions;

5.8.2 questions and considerations we may refer to in testing forecast expenditures against the expenditure outcome; and

5.8.3 the base capex evaluation criteria to assess capex and to inform our opex assessment, and the additional criteria applying to opex as set out in the IV Terms of Reference.

5.9 It is important to note that scrutinising Transpower's forecast expenditures is not a mechanistic process. The process necessarily involves exercising professional judgement, including, but not limited to, engineering expertise.

5.10 We consider these tools provide us with valuable guidance in exercising our judgement. They are designed to provide transparency, to the extent possible, to interested parties, about our approach to scrutinising forecast expenditures.

5.11 High-level overviews of these tools are provided below.

Factors we will consider in assessing the IV's conclusions

5.12 We use pre-submission independent verification to assist us in our review of the proposal. This pre-submission verification process is intended to promote certainty for Transpower about how its expenditure is likely to be assessed, as well as to assist us to make the most effective use of the statutory timeframe for evaluating the proposal, by highlighting which areas we should focus on.

5.13 In assessing the IV's conclusions, we propose considering the following factors:

5.13.1 the IV's general approach to assessing the proposal, including the depth of the IV's investigation and the process it has undertaken against the Terms of Reference (**ToR**);

5.13.2 the extent to which the IV has tested the proposal's compliance with the relevant IMs;

5.13.3 the extent to which the IV has tested Transpower's proposed expenditure allowances against the expenditure outcome; and

5.13.4 whether there are any relevant areas that point to limitations in the IV's expertise and the extent to which they have been filled appropriately.

5.14 Understanding the extent of our agreement (or disagreement) with the IV's conclusions is an important step in applying proportionate scrutiny to Transpower's expenditure forecasts, and we will carry out our own investigations if this is necessary.

Evaluation of expenditure

How we will evaluate base capex

5.15 In assessing Transpower's base capex proposal, we will be guided by whether the proposal is consistent with an expenditure outcome which represents the efficient costs of a prudent supplier.[30] We consider this concept to be consistent with the Part 4 purpose, which is a required consideration under the capex evaluation criteria.[31]

[30] Commerce Commission "Transpower capex input methodology review – Decision and reasons" (29 March 2018), *here* para A15.

[31] Clause 6.1.1(2)(b) of the Capex IM.

5.16 In applying this concept, we consider that a 'prudent supplier' is a supplier whose planning and performance standards reflect Good Electricity Industry Practice (**GEIP**)[32] which is defined in the Code (and clause 1.1.5 of the Capex IM by reference to the definition in the Code).[33]

5.17 In evaluating a base capex expenditure proposal, we must apply the 'capex evaluation criteria', specifically the 'general capex evaluation criteria';[34] and the 'base capex evaluation criteria'.[35]

5.18 The 'general capex evaluation criteria' are:

5.18.1 whether what is proposed is consistent with the input methodologies in the Transpower IMs and the Capex IM;

5.18.2 the extent to which what is proposed will promote the purpose of Part 4 of the Act; and

5.18.3 whether the data, analysis, and assumptions underpinning what is proposed are fit for the purpose of the Commission exercising its powers under Part 4 of the Act, which includes consideration of the accuracy and reliability of data and the reasonableness of assumptions and other matters of judgement.

5.19 The 'base capex evaluation criteria' are specified in Schedule A of the Capex IM. They include:

5.19.1 general factors we must have regard to when evaluating the RCP4 proposal, such as reasonableness of key assumptions, overall deliverability of the proposed base capex in the current regulatory period, and the extent to which grid output targets were met in the previous regulatory period;

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[32] **good electricity industry practice** in relation to transmission, means 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 technological status of the relevant transmission network and the applicable law.

[33] Electricity Industry Participation Code 2010 *here,* clause 1.1(1), Electricity Authority.

[34] Capex IM, clause 6.1.1(2).

[35] Capex IM, clause 6.1.1(3).

5.19.2 criteria we may use when evaluating each identified programme of work set out in the base capex proposal, such as reviewing Transpower's process used to determine each identified programme's reasonableness and cost-effectiveness;[36] and

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

5.20 In Attachment A we outline a set of particular questions and considerations we will have regard to in testing the forecast expenditures against the expenditure outcome.

5.21 Attachment A aims to delineate areas that are relevant in testing prudency of expenditure versus areas relevant in testing cost efficiency of expenditure. However, these areas overlap, and they are not mutually exclusive.

5.22 To some extent, these areas reflect the capex evaluation criteria, but cover a broader range. This is important, as in our view, the capex evaluation criteria are relevant considerations, but do not necessarily capture the full range of questions we should ask ourselves in reviewing the forecast expenditures.

5.23 Because judgement is involved, Attachment A is not intended to be exhaustive. We may apply other questions and considerations in reviewing the forecast expenditures and/or change scope where we consider the principle of proportionate scrutiny indicates it is necessary.

How we will evaluate opex

5.24 In contrast to base capex, there is no input methodology that sets out how we should determine or evaluate IPP proposal opex.

5.25 However, we consider the criteria to be applied should not be materially different to the criteria that apply to base capex, particularly given the need to direct capex towards achieving cost-effective and efficient solutions, and the potential cost trade-offs between capex and opex that this implies.

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[36] Identified programmes are base capex projects or programmes of work which are forecast to be undertaken by Transpower in the next regulatory period (in this case, RCP4), and they are selected by reference to categories or criteria agreed between the Commission and Transpower under clause 2.2.1 of the Capex IM prior to Transpower submitting its expenditure proposal.

5.26 Therefore, consistent with our approach to assessing base capex, in assessing opex we will be guided by:

5.26.1 the extent to which what Transpower proposes, will promote the purpose of Part 4 of the Act;

5.26.2 where they can be usefully applied to opex, the base capex evaluation criteria; and

5.26.3 how Transpower has performed against the opex incremental rolling incentive scheme (IRIS) which seeks to incentivise opex efficiency.

5.27 In considering the extent to which Transpower's opex proposal will promote the Part 4 purpose, we will be guided by whether Transpower's proposal is consistent with an expenditure outcome which represents the efficient costs of a prudent supplier.

Grid output measures and quality standards

5.28 A grid output measure quantifies the output or benefit (where 'benefit' may include reduction in risk) delivered by the grid, investment in the grid, or expenditure facilitating or enabling future investment in the grid.

5.29 There are three types of grid output measure we can set in RCP4:

5.29.1 quality standards with associated revenue-linked incentive schemes which may include reporting requirements;

5.29.2 quality standards that only include reporting requirements; and

5.29.3 reporting-only grid output measures with no link to revenue and no applicable quality standard.

5.30 The Capex IM requires Transpower to propose grid output measures in its base capex proposal. These must include measures of asset performance, grid performance and asset health, and may include measures of asset capability or any other measure it deems appropriate. These proposed output measures may be proposed to be revenue linked or non-revenue linked.[37]

[37] Capex IM Schedule F clause F11(1)(a) and clause F11(1)(b).

5.31 When we set Transpower's price path at each reset, we also set grid output measures that can include reporting measures and quality standards. We set quality standards, which may be revenue linked, to ensure Transpower maintains a minimum level of asset and service performance.[38]

5.32 When we set the RCP3 quality standards, we set them to reflect Transpower's historical performance and provide a minimum level of quality to consumers in line with that historical performance. The issue with this approach is that setting forward looking quality standard, based on historical performance, does not reflect expenditure on assets and maintenance over the period that the quality standards apply.

5.33 Our RCP3 grid output measures comprised both service performance measures and asset health measures. Service performance measures are directly related to the performance of grid assets such as asset availability, customer supply reliability, and the electricity market, while asset health measures are subjective assessments of asset condition.

5.34 The RCP3 service performance measures we set included measures of grid performance (including the number and duration of interruptions across different grid points of supply), asset performance (the availability of key grid assets) and customer service e.g., provision of information and communication with customers.

5.35 We considered the grid output measures against clause A5 of Schedule A of the Capex IM when setting grid performance measures GP1 and GP2, and asset performance measures AP1 and AP2. In particular, those measures:

5.35.1 are recognised and well understood measures of transmission network performance and availability defined by the number of grid interruptions, interruption durations, and asset availability per annum;

5.35.2 are measures of transmission network performance that are being used increasingly by Transpower to inform risk-based investment decision making – as evidenced by Transpower's asset risk modelling informing the power transformer and outdoor circuit breaker investment strategies; and

[38] The power to set quality standards is set out in section 53M(3) of the Act, which states that we can prescribe these in any way we consider appropriate (such as targets, bands or formulae).

5.35.3 are measures that align with the business processes of Transpower because they reflect Transpower's understanding of how its investment strategies in many asset classes are likely to impact quality outcome.

5.36 We are keen to see Transpower further develop its understanding of the linkage between asset investment and quality outcomes for more asset classes, and to develop a network-wide view of the investment/quality linkage.

5.37 With this in mind, for RCP3 we set quality standards related to selected asset health measures as a proxy for functional asset risk modelling. Additionally, we introduced requirements for Transpower to provide us with updated information about how it is progressing its asset and network risk modelling using the s 53ZD notices.[39]

Setting RCP4 grid output measures

Types of grid output measure

5.38 There are three types of grid output measure we can set in RCP4:

5.38.1 quality standards with associated revenue-linked incentive schemes which may include reporting requirements;

5.38.2 quality standards that only include reporting requirements; and

5.38.3 reporting-only grid output measures with no link to revenue and no applicable quality standard.

5.39 The quality standards we set for RCP3 were designed to provide a minimum level of quality for the performance elements in Transpower's proposed measures. These performance elements are designed at N or N-1 supply security in line with Schedule 12.2 of the Grid Reliability Standards (**GRS)** in the Code.

5.40 In setting the quality standards, we will be primarily seeking to provide Transpower with incentives to provide services at a quality that reflects consumer demands, in line with the Part 4 purpose.

[39] Commerce Commission, RCP3 53ZD notice to Transpower available *here.*

5.41 The Capex IM distinguishes between revenue-linked and non-revenue linked grid output measures. Under any revenue-linked grid output measures, Transpower will be financially rewarded for outperforming performance targets and penalised for underperforming performance targets. Non-revenue-linked measures may be used to better understand Transpower's performance.

5.42 For the revenue-linked grid output measures, we will determine:

5.42.1 grid output targets;

5.42.2 caps – to limit the amount of positive revenue adjustment;

5.42.3 collars – to limit the amount of negative revenue adjustment; and

5.42.4 grid output incentive rates – the amount of money at risk for each unit of output between the cap and the collar.

5.43 Transpower has the option of including quality standards in its proposal, but is not required to do so. The quality standards are ultimately the Commission's decision, so if Transpower does propose quality standards, we can agree with them or set different ones.

Our consideration of Transpower's proposed quality measures

5.44 When we review Transpower's proposed grid output measures and make our decisions on whether these are appropriate, we will consider the following key matters in our assessment:

5.44.1 the Capex IM framework;

5.44.2 how Transpower has performed against the RCP3 quality measures;

5.44.3 Transpower's proposed expenditure; and

5.44.4 the view of the IV.

Our consideration of Transpower's proposed quality measures – the legal and economic framework

5.45 We set Transpower's grid output measures by reference to the Act and in accordance with the requirements of the Capex IM.

5.46 For example, we may set a quality standard to apply when thresholds across multiple grid output measures are not met (which we refer to as a 'pooled' approach), with some or all of those measures having an associated incentive scheme. The pooling may be across different measures, sub-categories of measures (for example, across points of supply), or across time (for example, if the limit is not met for two out of three years). This is the approach we took in RCP3.

5.47 We may also set a quality standard that is outside the range of the revenue incentive caps and collars if we consider that this is appropriate. In this case a quality standard is set at a less stringent level than the collar of the incentive range, where no financial incentive would apply.

5.48 The revenue-cap regulation we apply to Transpower involves setting a revenue path which Transpower can outperform. This is an important way to incentivise efficiencies which are later passed back to customers at the reset of the regulatory period.

5.49 However, one way for Transpower to cut costs is to cut quality of service, for example, by reducing maintenance costs, which may lead to more frequent power interruptions.

5.50 For RCP4 we will set a price-quality path which includes quality standards, and will likely include quality incentives.

5.51 We expect that Transpower should earn a normal return over the regulatory period, and have the opportunity to make higher profits through cost savings and other efficiency gains or quality improvements.

5.52 We would not expect Transpower (acting consistent with GEIP) to earn less than a normal return due to negative revenue adjustments from the quality incentive scheme alone.

5.53 Ideally, the quality incentive schemes should be designed to minimise the risk of windfall gains or losses to Transpower due to circumstances that it has less control of, and in making our decisions we will be mindful of this.

How Transpower is performing against the RCP3 quality measures

5.54 Transpower publishes service measures reports in September of each disclosure year, summarising how it is performing against the quality standards and measures.[40] To date we have two years of reporting for RCP3 and will receive 2023 reporting prior to receiving Transpower's RCP4 proposal.

5.55 Our indicative view is that we may need to modify some of the RCP3 quality settings. We may also need to extend the normalisation mechanism we introduced in RCP3, to include asset type issues that result in outages, and that are beyond Transpower's control.

5.56 As part of our quality standard setting approach, we will review how Transpower has been performing against its RCP3 quality standards and measures. We need to ensure the RCP4 quality measures are appropriate and meaningful. We will also consider the IV's views on Transpower's performance and the quality measures Transpower is likely to propose for RCP4.

Quality dimensions we may consider

5.57 There are a range of quality dimensions of Transpower's quality performance that we will consider when we set the RCP4 quality standards and measures, including but not limited to:

5.57.1 **customer preference** – what customers value, their preference for higher or lower quality, and willingness to pay;

5.57.2 **data** – maturity and robustness of data that underpins the proposed quality measure;

5.57.3 **efficiency outcome** – whether the quality measure will incentivise efficiency, demand-side management and reduce losses, and will any efficiency improvement be shared with consumers;

5.57.4 **works delivery** – whether the quality measure will affect asset works delivery plans;

5.57.5 **volatility** – whether the measure is likely to be volatile and whether it would need to be pooled with other measures;

[40] Transpower's RCP3 annual disclosures are available *here.*

5.57.6 **enforcement** – what the relationship is between the quality measures we set and the probability of contravention enforcement; is there anything that may make any quality standards difficult to enforce;

5.57.7 **fit for purpose** – is the quality measure reflective of the harm we intend it to prevent;

5.57.8 **proportionality** – whether it will be unduly burdensome for Transpower to comply with the quality measure, and will compliance be disproportionate to the harm we are trying to avoid; and

5.57.9 **suitable incentives** – what revenue is at risk, taking into account interactions with other incentive schemes, and the impact on behaviour.

Chapter 6 The links between RCP4 expenditure, forecast revenue and pricing

Purpose of this chapter

6.1 In this chapter we set out:

6.1.1 the role the base capex allowances and opex allowances have in our setting of the forecast maximum allowable revenue (**MAR**);

6.1.2 how the forecast MAR will be combined each year with Transpower's forecast pass-through costs, recoverable costs and forecast EV adjustments to derive total forecast revenues;

6.1.3 how smoothing of those total forecast revenues will limit volatility of Transpower's pricing;

6.1.4 our view of likely drivers of changes in total forecast revenues in RCP4;

6.1.5 how expenditure approvals for listed projects, E&D capex, and major capex projects will be factored into the forecast MAR and the total RCP4 revenue cap; and

6.1.6 how we intend to model total forecast revenues in our setting of the price path and in our pricing sensitivity analyses.

Role of the expenditure allowances in setting Transpower's RCP4 forecast MAR

The forecast MAR is the key component of Transpower's total forecast revenues

6.2 In this section we explain the components that make up Transpower's revenue, including how total forecast revenues are derived from the forecast MAR.

6.3 Total forecast revenues comprise forecast MAR, Transpower's forecast pass-through costs and recoverable costs, and any potential voluntary revenue adjustments to limit pricing volatility. Of these components, forecast MAR is the most significant.

6.4 In our analysis and consultation, we intend to focus primarily on Transpower's total forecast revenues, as these are what Transpower has the most control over.

We have discretion when setting the IPP

6.5 Our calculation of Transpower's price path is not specified in the Transpower 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 calculated.[41]

6.6 The form of calculation of the RCP4 price path for Transpower must therefore be set out in the IPP determination. If we were to take an approach that is consistent with RCP3, we would determine the price path in the form of:

6.6.1 the forecast smoothed MAR (**SMAR**) Transpower can recover;

6.6.2 how forecast SMAR is calculated;

6.6.3 how forecast SMAR is updated (if at all); and

6.6.4 the calculation of any adjustments, incentives, and wash-ups as part of those updates.[42]

Forecast values of building blocks will determine the forecast MAR for RCP4

6.7 Consistent with our approach to determining Transpower's forecast MAR for RCP3, we propose to use the sum of the forecast building block values for each year in determining the forecast MAR for RCP4.

6.8 Assuming a five-year regulatory period will be applied, significant features of the application of the building block values will be:

6.8.1 the building block values are calculated based on the expenditure and asset forecasts for the disclosure years ending 30 June 2026 through 30 June 2030;

[41] Transpower Input Methodologies Determination 2010 [2012] NZCC 17, as amended and consolidated as at 29 January 2020 *here*, clause 3.1.1.

[42] The forecast MAR each year will include the forecast EV adjustment, which will be an annual allocation of the forecast RCP3 closing balance in the EV account. In RCP3 we smoothed the RCP2 closing balance in the EV account across all of RCP3. Unless Transpower's RCP4 proposal shows reasons why the forecast closing balance for RCP3 should be recovered over a different revenue profile, it is likely we would adopt the same approach for RCP4. At this stage we do not foresee that the EV account balance will have a material impact on the allowable revenue for the first year of RCP4.

6.8.2 the timing factors used to reflect the estimate of when costs and revenues will arise within each disclosure year ending 30 June;[43] and

6.8.3 the timing factors used to reflect that revenues will be earned by Transpower on the basis of pricing years ending 31 March.

Combining the forecast MAR with other inputs in calculating total forecast revenues

6.9 Forecast pass-through costs and recoverable costs are not part of forecast MAR. We propose to add them to the forecast MAR to calculate Transpower's total forecast revenues to set prices each year. This approach is demonstrated in detail in the RCP3 forecast MAR building blocks calculation in Schedule D of the RCP3 IPP determination.[44]

6.10 When calculating forecast MAR, we set the forecast capex and forecast opex allowance building blocks net of proposed future efficiency savings. Our regime then provides incentives for Transpower to pursue further efficiency improvements in opex and capex, and to share a proportion of these savings with customers.

Smoothing of total forecast revenues to calculate the forecast SMAR

6.11 Transpower has publicly indicated, in its September 2022 draft proposal for consultation, that it will be proposing a smoothed price path to us for RCP4.

6.12 Smoothing removes the potential for variations in the building blocks-based forecast MAR between years in the regulatory period, and this will provide Transpower's customers with a more predictable price path.

6.13 We consider that there will be benefits if Transpower's RCP4 total forecast revenues are again smoothed across individual years in RCP4 (intra-period smoothing); and potentially, between the final year of RCP3 and first year of RCP4 (inter-period smoothing).

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[43] Transpower's pricing years run from 1 April through to 31 March. This is to align with the pricing years of electricity distributors, as the Transpower lines charges are combined for consumers with the charges made by the distributors. Transpower's financial forecasts and actual financial performance are measured and reported on the basis of its financial reporting years ending 30 June. We match up each disclosure year with the nearest preceding pricing year for revenue setting purposes.

[44] Transpower Individual Price-Quality Determination 2020 [2019] NZCC 19, *here*, Schedule D: Forecast MAR building blocks calculation.

We intend to consult on the long-term total forecast revenue impacts of forecast expenditures

6.14 In deciding how we will apply smoothing, it is necessary to understand the extent of any step changes in total forecast revenues for RCP4, relative to the total revenues applicable to the last year of RCP3, as well as any step change up to the total forecast revenues of the first year of RCP5 (which will be indicative only).

6.15 To achieve this, we intend to consult on the impact of the RCP4 forecast expenditures on the:

6.15.1 change in the total forecast revenues in transitioning from RCP3 to RCP4 (the immediate total forecast revenues impact); and

6.15.2 the potential changes in total forecast revenues when transitioning from RCP4 to forecasts for RCP5.

Drivers of change in RCP4 total forecast revenues

6.16 When analysing and consulting on the long-term impact of total forecast revenue, it is important to understand the drivers of revenue change.

6.17 While the RCP4 decision will be focussed on evaluating Transpower's base capex and opex proposal, Transpower's total forecast revenues will also be driven by other factors that do not form part of this evaluation. These factors include the impact of the weighted average cost of capital (WACC), whether the RAB is indexed or not, and the financial impact of capex commissioned prior to RCP4.

6.18 In presenting the drivers for revenue change we will again break down the impact of each of the factors using a waterfall chart, as this is more easily understood.

Impact of future RCP4 capex approvals on forecast SMAR

Approvals and how they affect revenue adjustments

6.19 In our RCP4 issues paper, RCP4 draft decisions paper and RCP4 final reasons paper which we intend to publish at the different stages during 2024, we propose to present Transpower's total forecast revenues in a way that reflects the different capex approval stages, namely:

6.19.1 the initial base capex allowance when we set the price path in 2024;

6.19.2 additional base capex allowances for listed projects and E&D projects that Transpower may apply for during RCP4; and

6.19.3 additional capex allowances for major capex projects that Transpower may propose for our approval during RCP4.

6.20 Base capex includes asset replacement and refurbishment (all project sizes) and grid enhancements and developments (under the present base capex threshold of $20 million). Note that we have proposed to increase the base capex threshold to $30 million in our IM Review 2023 draft decision.[45,46]

6.21 Listed projects are large asset replacement and renewals base capex projects with project costs that are likely to exceed the base capex threshold. Listed projects may have project cost, scope and timing uncertainties, and we require Transpower to identify likely listed projects prior to the commencement of an RCP.

6.22 When the timing and cost of a listed project becomes more certain, Transpower can apply to us for approval and inclusion of an additional base capex allowance.

6.23 E&D base capex projects are projects to enhance and improve the capacity of the grid that are not major capex projects.[47] At the time we set the price path, many of these projects have uncertain cost, investment timing, and/or project scope. In RCP3 we introduced a mid-period reopener window for Transpower to seek an additional E&D capex allowance to address these uncertainties.

6.24 When the timing, project scope and cost of the E&D base capex projects become more certain, Transpower can apply to us for approval and inclusion of an additional base capex allowance.

6.25 Once approved, the price path is reopened to accommodate the impact of the additional base capex on the forecast MAR, and the total forecast revenues for the remaining years of RCP4.

6.26 Our major capex proposal (**MCP**) approval process is limited to significant grid enhancement and development projects that exceed the base capex threshold. Once MCPs are approved, we will re-open Transpower's price path and update the forecast MAR, smoothed forecast SMAR and total forecast revenues.

6.27 As part of our consultation processes, to the extent possible, we intend to present total forecast revenues that reflect the staged approval of Transpower's capex allowances described above.

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[45] Transpower investment topic paper, 14 June 2023, here, para X30 to X32 and Chapter 7.

[46] Refer to the definition of 'base capex threshold' in clause 1.1.5(2) of the draft Transpower Capital Expenditure Input Methodology (IM Review 2023) Amendment Determination 2023 *here*, 21 June 2023.

[47] Major capex projects are grid enhancement projects estimated to cost over $20m.

6.28 We also intend to work with Transpower so we can apply our total forecast revenue decisions in the TPM and to enable us to provide indicative pricing impacts of our decisions to Transpower's customers.

Modelling forecast revenues and SMAR

6.29 In determining a preliminary estimate of Transpower's total forecast revenues for RCP4, we intend to rely on the revenue model that Transpower will provide with its RCP4 IPP proposal.

6.30 To help inform our revenue estimate, we have asked Transpower to include in its revenue model the flexibility to calculate alternative price paths under a range of scenarios and variations to those scenarios. This is to test the effects of smoothing across RCP4, the smoothing between RCP3 and RCP4, and the effect of a revenue step change between RCP3 and RCP4.

6.31 We will also seek to test the revenue impact of any likely major capex approvals and how any IM Review decisions change revenues for factors such as RAB indexation, WACC and alternative depreciation effects.

6.32 Based on our experience in earlier RCPs, we are confident Transpower's revenue model will provide reliable and accurate estimates of the total forecast revenues for the purpose of our decisions on inputs to the IPP in August 2024.

6.33 We will carry out our own high-level review of Transpower's revenue model to identify any material inaccuracies or mathematical errors and we have requested Transpower to obtain an independent expert review of the information we have requested in respect of the model.[48]

Testing RCP4 price sensitivity

6.34 We will also test the sensitivity of changes in Transpower's total forecast revenues on transmission charges that Transpower's customers will pay over the longer term.

6.35 For the purposes of our consultation with interested persons, we do not consider that the impact of changes in the total forecast revenues on electricity prices for household consumers is necessarily out of scope. However, given the impact of transmission charges is less direct and is proportionately smaller than distribution charges, we do not intend making this a key part of our RCP4 proposal analysis and consultation.

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[48] Commerce Commission, 53ZD notices to Transpower, 4 September 2023, available *here*.

6.36 In defining the depth of our analysis of the impact of long-term total forecast revenues, we intend to cover both overall changes in the total forecast revenues as well as a breakdown of transmission charges under the TPM.

6.37 Receiving the information at a TPM compliance level from Transpower, when it submits its proposal, will allow us to better consult on the price impact of that proposal.

6.38 Having transmission charges available for each EDB separately will have further advantages when we consult with interested persons on setting of the EDB DPP in 2024.[49] This information will help us more accurately reflect those changes in distribution charges, applicable to the next DPP regulatory period, and the resulting effect on electricity prices.

[49] Transmission charges are recoverable by EDBs in the distribution charges an EDB will charge its customers.

Attachment A Testing forecast expenditure against the expenditure outcome

Expenditure outcome

*Forecast expenditures reflect the **efficient cost** of a **prudent** supplier having regard to **Good Electricity Industry Practice** (GEIP).*

GEIP

The exercise of that degree of skill, diligence, prudence, foresight and economic management, as determined by reference to good international practice, which would reasonably expected from a skilled and experienced asset owner engaged in the management of a transmission network owner 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 technological status of the relevant transmission network and the applicable law.

Application of GEIP to an expenditure proposal

In this section we have been guided by the Transpower independent Verifier's application of GEIP

Prudency

Scope

Forecast expenditures directed to maintaining the safety, quality, reliability and security of supply of regulated services

Practical application

Forecast expenditures are required to meet Transpower's ongoing legal and regulatory obligations, or its contracts with customers (including quality targets)

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*Forecast base capex are required to meet forecast demand growth and/or renewal of exisiting infrastructure both in a timely manner, and/or it achieves an increase in the reliability, resilience or the quality of supply that is explicitly desired by customers, and/or required by the Electricity Industry Participation Code (**Code**).*

Cost efficiency

Scope

Forecast expenditures related to the provision of regulated services in a least cost manner having regard to conditions in relevant markets for labour, capital and materials inputs

Practical application

Forecast expenditures are underpinned by robust cost estimation and forecasting methodologies, including incorporating reported actual costs into the development of forecasts and having regard to the efficiency incentives applying under the Part 4 regulatory framework

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Base Capex reflect Transpower's asset management and capex planning processes which are likely to reliably provide for the best means of achieving identified needs (legal, regulatory, environmental or contractual) having regard to available options, including the substitution possibilities between Base Capex and opex, such as transmission alternatives

Forecast Expenditures Assessment - Potentially Relevant Considerations

Need analysis		Customer engagement	Assumptions analysis	Forecasting methodologies	Economic evaluation	Consideration of alternatives	Challenge process
Policy driven	Planning driven						
1) Are there internal policies driving the need for proposed work programmes/projects?	1) Is forecast demand growth, including the need to connect new generation, driving the need for proposed work programmes/projects?	1) Has there been customer engagement on the identified needs and the proposed solutions?	1) Are there policies and planning standards driving the use of assumptions?	1) Are there policies and planning standards specifying what forecasting methodologies to use?	1) Are there policies suggesting there are net economic benefits to proposed work programmes/projects?	1) Have transmission alternatives been considered?	1) Has the work programme/project been subject to internal and/or external challenge processes?
2) Are those policies consistent with the defintion of prudency above?	2) Is the forecast demand scenario the most reasonable?	2) Does the level of engagement seem appropriate?	2) Are the assumptions clearly outlined and are source information provided?	2) Are the forecasting methodoligies (eg, bottom-up, base-step trend) clearly outlined?	2) Unless there are such policies, is the decision making process underpinned by an economic evaluation?	2) Is the consideration of alternatives consistent with the relevant policies and planning standards?	2) Have aggregated work programmes/projects been subject to a top-down challenge process?
3) Do these policies promote net economic benefits in the long-term?	3) Are the majority of customers explicitly asking for outcomes that require invesment in the grid?	3) Is there clear evidence how customer preferences have been considered?	3) Is the rationale for using specific assumptions clear and appropriate?	3) Is the selected approach appropriate?	3) Is such an evaluation consistent with the relevant policies and planning standards?	3) Are the considered transmission alternatives credible?	3) Has the market been or will it be tested (ie, can a third party deliver the project more efficiently)?
4) Is the need triggered by a change in the Code ?	4) Do the planning standards require investment in the grid because of a change in health and safety legislation?	4) In addition to 3, in case of customer disagreement, are the reasons for pursuing needs/solutions that differ from customer preferences reasonable and well explained?	4) Have the assumptions been consulted on?	4) Have contingencies been built into the forecast to account for uncertainty?	4) Is the proposed solution the most economic solution (compared to other feasible solutions)?	4) Has the market been or will it be tested for alternatives?	4) Has deliverability been considered as part of the challenge process?
5) Are the proposed work programmes/projects likely to address the identified needs, including in a timely manner?	5) Are the proposed work programmes/projects likely to best meet the above needs, including in a timely manner?	5) Have customers been consulted on the price/quality trade-off?	5) Has the economic outcome been tested for sensitivity to variations in the assumptions?	5) What is the confidence level (eg, P10-P50-P90) of the resulting forecasts?	5) Is the modelling fit-for-purpose?	5) How well does the proposed solution address the project need as opposed to the alternatives?	5) In the event of identified deliverability constraint, has a single work programme or the aggregated scheduled work been appropriatley adjusted?
6) Are resilience policies well developed, systematic, and updated to reflect changing risk and climate change effects?	5) Does the proposed resilience programme address the identified risks and are mitigations demonstrably cost-effective?			6) To what extent have actual efficiency improvements been built into the expenditure forecasts.	6) Has the modelling been reviewed/audited?	6) Has the capex/opex trade-off been considered?	
Transpower's proposed opex forecasts are largely policy driven	**Transpower's proposed grid enhancements and resilience capex forecasts are largely planning driven**				**Transpower's proposed replacement and renewals capex forecasts are largely asset health driven**		