

# **Transpower's 2020-2025 IPP – Draft decision on enhancement and development base capex projects – 21 September 2022**

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## Executive summary

### We seek your views on our draft decision to reconsider and reopen Transpower's individual price path

- X1 Transpower New Zealand Limited (**Transpower**) has applied to us to reconsider and reopen its individual price-quality path (**IPP**).<sup>1,2</sup> Transpower is seeking an increase in its base capex allowance to include five additional Enhancement and Development base capex projects (**E&D base capex projects**) Transpower considers have become reasonably likely to commence within the current regulatory control period (**RCP3**).
- X2 Under the Transpower Input Methodologies Determination 2010 (**Transpower IMs**),<sup>3</sup> Transpower may apply to us to reconsider and amend the IPP if two or more E&D base capex projects, not included in the price path, become reasonably likely to commence in a regulatory control period (**RCP**).<sup>4</sup>
- X3 The Enhancement and Development reopener provision mitigates some of the impact of the uncertainties in forecasting Enhancement and Development base capex when Transpower submits an IPP proposal. The provision enables Transpower to seek additional allowance for projects that we considered were unlikely to proceed or were unknown at the time we reviewed the RCP3 proposal.
- X4 This paper sets out:
  - X4.1 the rules and evaluation criteria in relation to Transpower's E&D base capex project reopeners;
  - X4.2 the reason for our draft decision; and
  - X4.3 our draft amendment under s 52Q of the Commerce Act 1986 (**Act**) to Schedule A, Schedule C2 and Schedule C4 of the IPP.<sup>5</sup>

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<sup>1</sup> Transpower, *Application to re-consider Transpower's RCP3 IPP, (Application)*, 25 May 2022. Available at <https://comcom.govt.nz/regulated-industries/electricity-lines/electricity-transmission/transpowers-price-quality-path/setting-transpowers-price-quality-path-from-2020>.

<sup>2</sup> Commerce Commission, *Transpower Individual Price-Quality Path Determination 2020, (IPP)*, 7 October 2021. Available at [https://comcom.govt.nz/\\_data/assets/pdf\\_file/0031/267448/Consolidated-Transpower-individual-price-quality-path-determination-2020-7-October-2021.pdf](https://comcom.govt.nz/_data/assets/pdf_file/0031/267448/Consolidated-Transpower-individual-price-quality-path-determination-2020-7-October-2021.pdf).

<sup>3</sup> Commerce Commission, *Transpower Input Methodology Determination 2010, (Transpower IM)*, 29 January 2020. Available at: [https://comcom.govt.nz/\\_data/assets/pdf\\_file/0020/91181/Transpower-input-methodologies-determination-2010-consolidated-29-January-2020.pdf](https://comcom.govt.nz/_data/assets/pdf_file/0020/91181/Transpower-input-methodologies-determination-2010-consolidated-29-January-2020.pdf).

<sup>4</sup> Transpower IM, above n 3, at clauses 3.7.4(1)(vi) and 3.7.5(2)(h).

<sup>5</sup> Commerce Act 1986 (**Act**) available at <https://www.legislation.govt.nz/act/public/1986/005/latest/DLM1685456.html>.

### **Our draft decision is to reopen Transpower's IPP**

- X5 Having reviewed the projects in Transpower's Application, our draft decision is to reopen Transpower's IPP to allow Transpower to deliver four additional E&D base capex projects with an estimate forecast value of \$40.6m in nominal prices. The projects we propose to approve are:
- X5.1 Upper South Island voltage management, Islington reactor with an estimated cost of \$8.3m;
  - X5.2 Upper North Island Voltage Management, Pakuranga reactors with an estimated cost of \$15.6m;
  - X5.3 Kawerau substation interconnecting Capacity with an estimate cost of \$10.2m; and
  - X5.4 Wairakei reactor with an estimated cost of \$6.5m.
- X6 We propose to not approve the Otahuhu-Whakamaru C Installation of Variable Line Ratings project with an estimated cost of \$0.55m. This draft decision is made on the basis that this project is not reasonably likely to commence within RCP3, due to the likely continued availability of the Huntly Rankine units in this period.

### **We are seeking the views of interested parties on our draft decision**

- X7 We seek the views of interested persons on our draft decision by 6 October 2022. We intend to publish all submissions, and we will then invite cross submissions on those submissions by 17 October 2022.

## Chapter 1 Introduction

- 1.1 On 25 May 2022, we received an application (**Application**) from Transpower to reconsider the RCP3 price-quality path.<sup>6</sup> Transpower applied for an increase in funding for additional enhancement and development base capex projects (**E&D base capex projects**) that Transpower considers are reasonably likely to commence in RCP3.<sup>7</sup>
- 1.2 Under the Transpower IMs, we may:
  - 1.2.1 reconsider the IPP if we are satisfied, following application by Transpower, that at least two or more E&D base capex projects have become reasonably likely to commence in RCP3;<sup>8</sup> and
  - 1.2.2 after reconsidering, amend the IPP not more than is reasonably necessary to take account of the change in costs, arising from the E&D base capex projects, net of any insurance or compensatory entitlements.<sup>9</sup>
- 1.3 This paper sets out:
  - 1.3.1 our assessment of the E&D base capex projects included in Transpower's Application; and
  - 1.3.2 our draft decision to reconsider and amend the IPP to increase the base capex allowance for RCP3.

### Why Transpower applied for additional base capex allowance

- 1.4 Enhancement and development investments increase the capability of existing network assets or create new network assets.
- 1.5 Enhancement and development investments are difficult to forecast because these investments are usually driven by factors that are largely outside Transpower's control, such as new generation connections or decommissioning, and step changes in demand.
- 1.6 To manage the uncertainty in forecasting E&D base capex projects, Transpower applied a scenario approach for RCP3 and provided a high-expenditure scenario of \$93m and low-expenditure scenario of \$59m. Transpower applied for an allowance of \$76.4m for E&D base capex projects for RCP3.<sup>10</sup>

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<sup>6</sup> Application, above n 1.

<sup>7</sup> Here, we use the term E&D base capex project as defined in the Transpower IMs.

<sup>8</sup> Transpower IMs, above n 3, at clause 3.7.4(vi).

<sup>9</sup> Transpower IMs, above n 3, at clause 3.7.5(2).

<sup>10</sup> Transpower "*Securing our Energy Future 2020-2025 Regulatory Control Period 3 RCP3 Proposal*", (**RCP3 Proposal**) November 2018, at p. 64. Available at

- 1.7 When setting the IPP for RCP3, we approved the low-expenditure scenario. We considered that \$59m was the more appropriate enhancement and development base capex allowance and determined this value in the IPP. That was the Enhancement and development base capex allowance relating to projects that we considered were reasonably likely to proceed in RCP3.<sup>11</sup> Transpower had classified these projects as highly likely or extremely likely to proceed in RCP3.<sup>12</sup>
- 1.8 The Enhancement and development base capex allowance excluded projects that we considered were not reasonably likely to progress in RCP3.
- 1.9 To address the inherent uncertainty of projects in the enhancement and development base capex portfolio, we amended the Transpower IMs to include an enhancement and development reopener provision.<sup>13</sup> This amendment took effect before the commencement of RCP3. The enhancement and development reopener provision allows Transpower to seek additional allowance if its required enhancement and development base capex allowance exceeds the RCP3 allowance.<sup>14</sup>
- 1.10 In its Application, Transpower states that there is an increased requirement for enhancement and development base capex allowance due to changes in the external electricity environment. Transpower forecasts an enhancement and development base capex allowance of \$83.9m (in 2017/18 prices constant) for RCP3 and is seeking an increase in the base capex allowance to fund these projects.<sup>15</sup>
- 1.11 Transpower has identified five additional E&D base capex projects that were not included in the RCP3 base capex allowance and is seeking an additional \$41 million (in nominal prices) to deliver these projects. We provide further details on these projects in Chapter 3 of this paper.

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[https://comcom.govt.nz/\\_data/assets/pdf\\_file/0032/107978/Transpowers-RCP3-proposal-23-November-2018.PDF](https://comcom.govt.nz/_data/assets/pdf_file/0032/107978/Transpowers-RCP3-proposal-23-November-2018.PDF).

<sup>11</sup> Commerce Commission “*Transpower’s individual price-quality path from 1 April 2020: Draft decisions and reasons paper*”, 29 May 2019, at 235-241. Available at [https://comcom.govt.nz/\\_data/assets/pdf\\_file/0032/149837/Transpowers-individual-price-quality-path-from-1-April-2020-Draft-decisions-and-reasons-paper-29-May-2019.pdf](https://comcom.govt.nz/_data/assets/pdf_file/0032/149837/Transpowers-individual-price-quality-path-from-1-April-2020-Draft-decisions-and-reasons-paper-29-May-2019.pdf).

<sup>12</sup> RCP3 Proposal, above n 9, at p. 64.

<sup>13</sup> Commerce Commission “*Amendments to input methodologies for Transpower New Zealand Limited Reasons paper*”, (**Transpower IM Amendments Reasons paper**), 28 August 2019, at paras 2.60 – 2.92. Available at [https://comcom.govt.nz/\\_data/assets/pdf\\_file/0022/170149/Amendments-to-input-methodologies-for-Transpower-New-Zealand-Limited-Reasons-paper-28-August-2019.pdf](https://comcom.govt.nz/_data/assets/pdf_file/0022/170149/Amendments-to-input-methodologies-for-Transpower-New-Zealand-Limited-Reasons-paper-28-August-2019.pdf).

<sup>14</sup> Commerce Commission, “*Transpower’s individual price-quality path from 1 April 2020 Decisions and reasons paper*”, (**IPP3 reasons paper**), 19 August 2019, at para G154-G161. Available at [https://comcom.govt.nz/\\_data/assets/pdf\\_file/0028/170398/Transpower-IPP-for-RCP3-Decisions-and-reasons-paper-29-August-2019.PDF](https://comcom.govt.nz/_data/assets/pdf_file/0028/170398/Transpower-IPP-for-RCP3-Decisions-and-reasons-paper-29-August-2019.PDF).

<sup>15</sup> Application, above n 1, at p. 3.

### **Structure of this paper**

- 1.12 Chapter 2 sets out our legal framework and criteria for reconsidering Transpower's IPP in respect of E&D base capex projects.
- 1.13 Chapter 3 summarises our evaluation of Transpower's Application according to the legal framework giving reasons for our draft decision.
- 1.14 Included in the appendices of this paper is our draft amendment to Schedule A, Schedule C2 and Schedule C4 of the IPP under s 52Q of the Act.

### **How you can provide your views on our draft decision**

- 1.15 Before making our final decision, we seek your written views on our draft decision set out in this paper, within the timeframes mentioned in paragraph X7 above.
- 1.16 We prefer submissions in both a format suitable for word processing (such as a Microsoft Word document), as well as a 'locked' format (such as a PDF) for publication on our website.
- 1.17 Please address your submission to Matthew Clark c/o regulation.branch@comcom.govt.nz with "Transpower E&D base capex projects reopener" in the subject line of your email.

### *Confidentiality*

- 1.18 The Commission takes the protection of confidential information seriously.
- 1.19 When including commercially sensitive or confidential information in your submission, we offer the following guidance:
  - 1.19.1 provide both a confidential and non-confidential/public version of your submission;
  - 1.19.2 clearly label the confidential version and the public version. We will publish all public versions on our website;
  - 1.19.3 the responsibility for ensuring that confidential information is not included in the public version of a submission rests entirely with the party making the submission; and
  - 1.19.4 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 reasons existed under the Official Information Act 1982 to withhold it. We would consult with the party that provided the information before any disclosure is made.

## Chapter 2      Legal framework for reconsidering and amending the IPP

- 2.1      This chapter sets out the framework against which we have assessed Transpower's Application.

### **The IPP may only be reconsidered in limited circumstances**

- 2.2      We are required to determine Transpower's IPP under Part 4 of the Act. An IPP is determined on an ex-ante basis and applies for a regulatory period of 5 years,<sup>16</sup> though we may set a period shorter than 5 years if we consider doing so would better meet the purpose of Part 4 under section 52A of the Act.<sup>17</sup>
- 2.3      Once we determine Transpower's IPP under section 52P of the Act it may not be reconsidered (reopened) within a regulatory period except in limited circumstances. The circumstances for reconsidering the IPP are specified in Subpart 7 of Part 3 of the Transpower IMs.<sup>18</sup>
- 2.4      Under clause 3.7.4(1)(a)(vi) of the Transpower IMs, Transpower may apply to us to reconsider the IPP if it considers that two or more E&D base capex projects not included in the IPP have become reasonably likely to commence in the RCP.
- 2.5      We set out the policy basis and the legal criteria for reconsideration below.

### **The reconsideration enables Transpower to seek additional allowance for E&D base capex projects**

- 2.6      When setting the IPP for RCP3, we recognised that there is increased uncertainty in forecasting the enhancement and development base capex allowance in the current electricity environment.<sup>19</sup> The uncertainty arises because enhancement and development projects are driven by factors outside Transpower's control such as connecting new generation or supplying step changes in demand.
- 2.7      Uncertainty in forecasting makes it challenging for us to determine an appropriate level of enhancement and development base capex allowance when we set the IPP.

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<sup>16</sup> Act, above n 5, sections 53ZC(2)(a) and 53M(4).

<sup>17</sup> Act, above n 5, sections 53ZC(2)(a) and 53M(5).

<sup>18</sup> Section 52T(1)(c)(ii) requires that the IMs specify the circumstances in which price-quality paths may be reconsidered within a regulatory period.

<sup>19</sup> IPP3 reasons paper, above n 13, at para G155.



- 2.8 As mentioned above, to address this matter, at the RCP3 reset we amended the Transpower IMs and introduced a reopener for E&D base capex projects.<sup>20</sup> The reconsideration and reopening provisions for E&D base capex projects are included in clauses 3.7.4 and 3.7.5 of the Transpower IMs.
- 2.9 The enhancement and development reopener provisions were introduced prior to the commencement of RCP3 to allow Transpower the opportunity to seek additional funding within the regulatory period. The purpose of this amendment was to address two primary aims, in pursuit of the Part 4 purpose:<sup>21</sup>
- (a) to reduce the risk to consumers that Transpower's enhancement and development base capex allowance is too high, leading to inefficiencies across the base capex programme; and
  - (b) to reduce the risk to Transpower that enhancement and development base capex allowance is too low, requiring Transpower to re-allocate base capex from other projects to fund E&D base capex projects. This contributes to the overall asset failure risk.

#### **Requirements and criteria for reconsideration under the Transpower IMs**

- 2.10 The Transpower IMs set out the following requirements and criteria for reconsideration of the price path.

*Transpower must demonstrate that the E&D base capex projects have become reasonably likely to commence in the RCP*

- 2.11 Clause 3.7.4(1)(a)(vi) of the Transpower IMs permit the IPP to be reconsidered if Transpower satisfies the Commission that two or more E&D base capex projects have become reasonably likely to commence in the regulatory period.
- 2.12 In the context of reopening a price path, where we must have regard to the section 52A purpose of the Commerce Act 1986, we consider the requirement to be satisfied that a E&D base capex project is reasonably likely to commence within a regulatory period is a relatively high threshold. Projects with only a moderate or remote possibility of commencing within the regulatory period will not meet this threshold.
- 2.13 Assessing whether a project is reasonably likely to commence within a given timeframe requires a weighing of different factors. This will generally require a high degree of confidence that the project will commence within that timeframe.
- 2.14 Other factors to be considered include whether, and the extent to which, the project has:

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<sup>20</sup> Transpower IM Amendments Reasons paper, above n 12, at par 2.60 – 2.96.

<sup>21</sup> Commerce Act 1986, s 52A; and Transpower IM Amendments Reasons paper, above n 12, at [2.89].

- (a) well-defined external drivers as required by clause 3.7.3B(2)(c)(i) and 3.7.3B(3)(c)(i);
- (b) a satisfactory Options Assessment Analysis investigation (carried out by Transpower);
- (c) accurate cost-estimates; and
- (d) a high degree of confidence the projects will commence within the regulatory period.<sup>22</sup>

2.15 We consider this threshold excludes the projects that have:

- (a) a high-level definition only;
- (b) reached problem recognition stage, but where there is no confidence in the project proceeding;
- (c) not yet been modelled or assessed using Transpower's Options Assessment Analysis investigation; and
- (d) an order-of-magnitude estimate only.<sup>23</sup>

*Transpower can apply for reconsideration only once during the RCP*

2.16 Under clause 3.7.4(6) of the Transpower IMs, Transpower may apply to the Commission only once during an RCP for reconsideration of an IPP in respect of E&D base capex projects.

2.17 Clause 3.7.4(6)(a) of the Transpower IMs requires Transpower to apply before the end of the second disclosure year commencing in that regulatory period.

*The aggregate forecast value of the projects must be at least \$20 million*

2.18 Clause 3.7.4(7) of the Transpower IMs states that the total forecast value of the E&D base capex projects must, in aggregate, amount to at least \$20 million.

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<sup>22</sup> Synergies Economic Consulting "Independent Verification Report - Transpower's RCP3 Expenditure Proposal (2020-25)" (**Verifier report**), 12 October 2018, at page 253. Available at [https://comcom.govt.nz/\\_data/assets/pdf\\_file/0033/107979/Final-verification-report-12-October-2018.PDF](https://comcom.govt.nz/_data/assets/pdf_file/0033/107979/Final-verification-report-12-October-2018.PDF).

<sup>23</sup> Verifier report, above n 22, at p. 253.

*Transpower can seek reconsideration for projects that were either unforeseeable or foreseeable enhancement and development projects at the time the IPP was determined*

- 2.19 Clause 3.7.4(7) of the Transpower IMs allows Transpower to apply for reconsideration of the IPP in respect of either Unforeseeable enhancement and development projects or Foreseeable enhancement and development projects:<sup>24</sup>
- 2.20 Clause 3.7.3B(2)(a) of the Transpower IMs defines ‘Unforeseeable Enhancement and Development Project’ as an E&D base capex project, where, in relation to a regulatory period:
- (a) at the time the IPP determination was made for that regulatory period, an allowance for that E&D base capex project was not included in the base capex allowances for that regulatory period because:
    - (i) the E&D base capex project was not forecast to commence in that regulatory period; and
    - (ii) it was reasonably unforeseeable that the E&D base capex project was likely to commence during that regulatory period.
  - (b) Transpower can demonstrate that the E&D base capex project has become reasonably likely to commence in that regulatory period; and
  - (c) drivers of the E&D base capex project include one or more of the following:
    - (i) a step change in demand that necessitates a capacity upgrade in the grid;
    - (ii) generation commissioning or generation decommissioning;
    - (iii) meeting grid reliability standards or reliability service levels agreed between Transpower and its customer;
    - (iv) ensuring power quality complies with regulatory or legislative requirements;
    - (v) managing the power system dynamic voltage response to disturbances; or
    - (vi) any other development caused by a party outside the control of Transpower that requires a transmission network enhancement or transmission network development.
- 2.21 Clause 3.7.3B(3)(a) of the Transpower IMs defines ‘Foreseeable Enhancement and Development Project’ as an E&D base capex project where, in relation to a regulatory period:

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<sup>24</sup> As defined in the Transpower IMs.

- (a) at the time the IPP determination was made for that regulatory period, an allowance for that E&D base capex project was not included in the base capex allowances for that regulatory period, and it would have been unreasonable to expect Transpower to have accurately forecast the capital expenditure, or timing of, the E&D base capex project at the time the IPP determination was made;
- (b) Transpower can demonstrate that the E&D base capex project has become reasonably likely to commence in that regulatory period; and
- (c) drivers of the E&D base capex project include one or more of the following:
  - (i) a step change in demand that necessitates a capacity upgrade in the grid;
  - (ii) generation commissioning or generation decommissioning;
  - (iii) meeting grid reliability standards or reliability service levels agreed between Transpower and its customer;
  - (iv) ensuring power quality complies with regulatory or legislative requirements;
  - (v) managing the power system dynamic voltage response to disturbances; or
  - (vi) any other development caused by a party outside the control of Transpower that requires a transmission network enhancement or transmission network development.

2.22 When considered together, these definitions require Transpower to demonstrate that the E&D base capex projects:

- (a) were either unforeseeable or not sufficiently certain in cost or timing at the time the IPP was determined;
- (b) have become reasonably likely to commence during RCP3; and
- (c) are driven by one of the project drivers specified in the Transpower IMs definitions.<sup>25</sup>

*The information Transpower needs to provide with its application*

2.23 Clause 3.7.4(6)(b) of the Transpower IMs sets the requirements for Transpower's applications stating that, commensurate with the estimated capital expenditure and complexity of each project, the application should include:

- (a) an explanation of why the projects have become reasonably likely to commence in that regulatory period;

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<sup>25</sup> Set out above and at clause 3.7.3B(2)(c) and 3.7.3B(3)(c) of the Transpower IMs.

- (b) an explanation of the drivers of the projects in accordance with either or both clauses 3.7.3B(2)(c) and 3.7.3B(3)(c); and
- (c) supporting analysis for the explanations described in the subclauses above.

**The IPP determination sets out the technical requirements to reconsider and reopen the IPP**

- 2.24 The IPP sets out that where Transpower applies for a reconsideration under clause 3.7.4(1) of the Transpower IMs, Transpower must:<sup>26</sup>
- (a) provide to the Commission, and publicly disclose, no later than 80 working days after the end of the prior complete disclosure year,<sup>27</sup> for each of the remaining complete pricing years of RCP3:
    - (i) a proposed updated forecast MAR in accordance with clause 30;
    - (ii) a proposed updated forecast SMAR calculated in accordance with clause 30;<sup>28</sup> and
    - (iii) where applicable, the updated forecast EV adjustment amounts calculated in accordance with clauses 32.2 and 32.3 and Schedule D, Formula I (Forecast EV adjustment);<sup>29</sup> and
  - (b) apply the calculations required in clause 30 and Schedule D and must include supporting information for its calculations.<sup>30</sup>
- 2.25 If we amend the IPP then we must determine and update the forecast MAR, forecast SMAR and, if necessary, the forecast EV adjustment for the remaining years of the RCP.<sup>31</sup> While not expressly stated in the IPP, we also need to update Schedules C2 and C4 of the IPP. These schedules specify the approved standard rate base capex summary and are used to calculate the base capex incentives.

**We have the discretion to reopen and amend the IPP3 price path**

- 2.26 Our approach to reopen and amend (**amend**) the IPP3 price path is in two-steps:
- (a) first, we assess whether the projects meet the criteria for reconsideration of the price path; and

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<sup>26</sup> IPP, above n 2, at clause 8.3.

<sup>27</sup> IPP, above n 2, at clause 8.4.2 defines prior complete disclosure year as “the disclosure year prior to the first pricing year to which the updated forecast SMAR applies.

<sup>28</sup> MAR means maximum allowance revenue and SMAR means MAR converted to a smooth price path over the RCP.

<sup>29</sup> IPP, above n 2, at clauses 8.3.3(c) and 8.4.1

<sup>30</sup> IPP, above n 2, at clause 8.4.

<sup>31</sup> IPP, above n 2, at clause 8.6.

- (b) if, having taken into account each of those considerations, we decide to reopen the price path, then we can amend the price path as set out in the clause 3.7.5 of the Transpower IMs and clause 8.6 of the IPP.
- 2.27 Our discretion to reopen the price path, under clause 3.7.5 of the Transpower IMs, is guided by the extent to which reopening the price path in these circumstances would promote the s 52A purpose of Part 4 of the Act.
- 2.28 If we decide to reopen the price path then under clause 3.7.5(2)(h) of the Transpower IMs, we must not amend the price path by more than is reasonably necessary to take account of the change in costs, arising from the E&D projects, net of any insurance or compensatory entitlements.

## Chapter 3      **Assessment of the Application and draft decision**

3.1      This chapter sets out our evaluation of Transpower's application according to the legal framework giving reasons for our draft decision.

### **Transpower's application**

3.2      In summary, the Transpower IMs set out the following criteria for Transpower's application for a reconsideration under clause 3.7.4(1(a)(vi):

- (a)      the application must be made only once during the RCP and no later than the end of the second disclosure year commencing in that regulatory period. For RCP3, this date is 30 June 2022 (clause 3.7.4(6)(a)); and
- (b)      the application must be for two or more E&D base capex projects with an aggregated forecast value more than \$20 million (clause 3.7.4(7)).

3.3      Within its application, Transpower must demonstrate the following in relation to each of the E&D base capex projects:

- (a)      each project is reasonably likely to commence during the regulatory period (clause 3.7.3B(2)(b) and clause 3.7.3B(3)(b)); and
- (b)      each project must be either Foreseeable enhancement and development projects or Unforeseeable enhancement and development projects, as defined in clauses 3.7.3B(2)(c) and 3.7.3B(3)(c) of the Transpower IMs;
- (c)      the drivers of the projects must be those specified in clauses 3.7.3B(2)(c) and 3.7.3B(3)(c) and listed in paragraphs 2.20 and 2.21 above.

*The Application meets the criteria for timeframe and number of and estimated cost of the projects*

3.4      We are satisfied that the Application meets the criteria set out in paragraphs 3.2(a) to 3.2(b) above. In particular:

- (a)      This is the first application, and we received the Application on 25 May 2022, which is within the second disclosure year of RCP3;
- (b)      The aggregate forecast value for the four approved E&D base capex projects is \$41 million, which exceeds the minimum threshold of \$20 million set out in clause 3.7.4(7) of the Transpower IMs.

### **Our assessment of Transpower's E&D base capex projects**

3.5      The five E&D base capex projects included in the Application are:

- (a)      Upper South Island voltage management, Islington reactor;

- (b) Upper North Island Voltage Management, Pakuranga reactors;
- (c) Kawerau interconnecting capacity;
- (d) Otahuhu-Whakamaru C Installation of Variable Line Ratings; and
- (e) Wairakei reactor.

3.6 We summarise our evaluation of the above five projects according to the criteria in clauses 3.7.3B and 3.7.4B of the Transpower IMs. While we have discussed whether a proposed project was a Foreseeable enhancement and development project or an Unforeseeable enhancement and development project as defined in clause 3.7.3B of the Transpower IMs, the evaluation criteria for both categories of projects are the same.

#### **Upper South Island voltage management, Islington reactor**

3.7 The Islington reactor project (**ISL project**) aims to install assets that will enable the System Operator to effectively manage voltages in the Upper South Island.<sup>32</sup> The estimated cost of the ISL project is \$8.3m and Transpower plans to deliver the project by 30 August 2023.<sup>33</sup>

#### *Our draft decision*

3.8 Our draft decision is to accept this project for reconsideration of the IPP. Based on our discussion below, we are satisfied that the ISL project meets the criteria set out in the Transpower IMs for reconsideration of the IPP.

#### *This was an unforeseeable project at the time the IPP was determined*

3.9 Transpower states that the ISL project was an unforeseeable project at the time the IPP was determined since it depended on Orion entering into a new investment agreement with Transpower to establish a grid exit point at Norwood (**Norwood GXP**).<sup>34</sup>

3.10 We consider that the ISL project was an unforeseeable project at that time because the project would not be required unless Orion committed to the Norwood GXP. We note that Orion had not discussed the Norwood GXP in its 2018 Asset Management Plan, which is when Transpower prepared its RCP3 proposal.<sup>35</sup>

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<sup>32</sup> Application, above n 1, at p. 12.

<sup>33</sup> Transpower, *Application to re-consider Transpower's RCP3 IPP relating to enhancement and development: Transpower Response*, 27 June 2022 (**RFI 1**), at p. 3.

<sup>34</sup> An unforeseeable project is defined in para 2.14 above.

<sup>35</sup> Orion, *Asset Management Plan 2018*. Available at <https://www.oriongroup.co.nz/corporate/corporate-publications/asset-management-plans/>.



*The driver for the project is to maintain steady state voltage power quality*

- 3.11 The primary driver for this project is 'ensuring power quality complies with regulatory or legislative requirements' as set out in clause 3.7.3B(2)(c)(iv) of the Transpower IMs
- 3.12 Transpower advises that currently, in addition to using dynamic reactive plant, the System Operator uses selected transmission circuits to manage steady state voltages. The System Operator switches out transmission circuits during periods of low demand, such as in the latter parts of the nights, and switches them back into service when demand increases. Switching circuits is an effective way of managing voltages but its application can affect the security of supply in the area.
- 3.13 One of the circuits the System Operator uses for managing voltages at Islington is the Livingston-Islington circuit.
- 3.14 Transpower plans to connect the Norwood GXP to the Livingston-Islington circuit. This connection means that the Livingston-Islington circuit cannot be used for managing voltages without affecting the security of supply to the Norwood GXP.
- 3.15 In its application, Transpower stated that the driver for the Islington reactor project is to meet the grid reliability standards (**GRS**).<sup>36</sup> The GRS requires Transpower to maintain an n-1 level of security for the core grid under a range of operating conditions that could reasonably be expected to occur.<sup>37</sup>
- 3.16 Transpower subsequently advised that the primary driver for this investment is 'ensuring power quality complies with regulatory or legislative requirements'.<sup>38</sup> Transpower states, that the ISL project will enable the System Operator to effectively manage steady state voltage (power quality) without switching the Livingston-Islington circuit.
- 3.17 We agree with Transpower's revised primary driver for this project and are satisfied that the primary driver is one of the drivers listed in clause 3.7.3B(2)(c) of the Transpower IMs.

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<sup>36</sup> Transpower IM, above n 3, at clause 3.7.3B(2)(c)(iii).

<sup>37</sup> Electricity Industry Participation Code 2010 (**Code**), at clause 2 of Schedule 12.2. Available at <https://www.ea.govt.nz/code-and-compliance/the-code/>.

<sup>38</sup> Transpower, *Base Capex E&D reopener Application Response 7/7/2022 (RFI 2)*, p. 4.

- 3.18 The project will enable Transpower to meet its obligations under the Electricity Industry Participation Code (**Code**).<sup>39</sup> The Code requires the Grid Owner to ensure the design and configuration of its assets support the System Operator's ability to comply with the Principal Performance Obligations (**PPO**) set out in the Code.<sup>40</sup>

*We are satisfied that the project is reasonably likely to commence in RCP3*

- 3.19 Transpower advises that this project is in the delivery stage and is scheduled for completion in 2023. This project needs to be completed before the Norwood GXP is commissioned. Orion's 2021 Asset Management Plan (**AMP**) shows the need date for the Norwood GXP as FY24.<sup>41</sup>

- 3.20 We are satisfied that this project is reasonably likely to be delivered by late 2023.

### **Upper North Island Voltage Management, Pakuranga reactors**

- 3.21 Transpower proposes the Pakuranga reactors project (**PAK project**) to provide a more appropriate means of managing voltages in the Upper North Island region during periods of low demand.<sup>42</sup> The estimated cost of the project is \$15.6m and Transpower considers it is reasonably likely to be delivered by 2023.

*Our draft decision*

- 3.22 Our draft decision is to accept this project for the reconsideration of the IPP. We are satisfied that the project meets the criteria set out in the Transpower IMs and outline our reasons below.

*This was an unforeseeable project at the time the IPP was determined*

- 3.23 Transpower has stated that this is an unforeseen project.<sup>43</sup> Transpower did not foresee a need for additional reactors to manage voltages until it had to place operational restriction on the Pakuranga-Whakamaru circuits.
- 3.24 Like the Islington voltage issue, Transpower has been switching transmission circuits in and out of service, including the Pakuranga-Whakamaru circuits, to manage voltages in the UNI region.

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<sup>39</sup> Code, above n 36, at clause 8.25(1)

<sup>40</sup> Code, above n 36, at clause 7.2A(1). One of the PPOs the System Operator is required to meet is avoiding cascade failure from voltage excursions.

<sup>41</sup> Orion Asset Management Plan 2021, p. 138. Available <https://www.oriongroup.co.nz/corporate/corporate-publications/asset-management-plans/>.

<sup>42</sup> Application, above n 1, pp. 17-18.

<sup>43</sup> Transpower IM, above n 3, clause 3.7.3B(2).

- 3.25 Transpower advises that until 2020, along with other circuits in the region, the System Operator would switch-out one of the Pakuranga-Whakamaru circuits to manage voltages during periods of low demand. The circuit would be switched back-in service when demand increased.
- 3.26 We are satisfied that this project was unforeseeable at the time the IPP was determined.

*The project's driver is to ensure power quality in terms of steady state voltage*

- 3.27 In its Application, Transpower stated the driver for this project as “meeting grid reliability standards” and “restriction to switching of the Brownhill-Pakuranga cables to manage voltage”.<sup>44</sup> We considered that meeting grid reliability standards is not a driver for this project. While the restriction to switching of the Brownhill-Pakuranga cables drives the PAK project, this driver is not in clause 3.7.3B2(c) of the Transpower IMs.
- 3.28 We consider that this project falls within the driver of ensuring power quality complies with regulatory or legislative requirements, set out at clause 3.7.3B(2)(c)(iv) of the Transpower IMs.
- 3.29 Transpower subsequently revised the primary driver for this investment as ‘ensuring power quality complies with regulatory or legislative requirements’.<sup>45</sup> We agree that ensuring power quality (in terms of steady state voltage control) is an appropriate driver for this project. Our reasons are the same as those discussed above under the ISL project at paragraphs 3.17 and 3.18 above. Some specific information on the PAK project follows.
- 3.30 The Brownhill-Pakuranga circuits have cable sections between the Brownhill and Pakuranga substations. Transpower advises that:
- (a) between 2016 to 2020, each of the Brownhill-Pakuranga circuits has had 150-200 switching operations per year; and
  - (b) there have been two significant cable joint failures on one of the Brownhill-Pakuranga cables which has resulted in Transpower restricting switching cable circuits to manage voltages.

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<sup>44</sup> Application, above n 1, at p. 17.

<sup>45</sup> RFI 1, above n 32, p. 5.

- 3.31 The System Operator has expressed its inability to comply with the Principal Performance Obligation (**PPO**) steady state voltage obligations with the current restrictions, stating:<sup>46</sup>

Because of the operational restriction on the Grid Owner's assets, the System Operator believes that (while this operational restriction remains in place) the current design and configuration of Grid Owner assets in the Upper North Island does not support our ability to comply with our PPO.

- 3.32 Transpower also states that international research has identified that this frequency of switching of high voltage cables is not a common industry practice. We agree that frequently switching large capacity cable circuits is not an appropriate means of operationally managing system voltages.
- 3.33 As a result, Transpower is proposing to install reactors at Pakuranga substation for managing voltages.

*We are satisfied that the project is reasonably likely to commence in RCP3*

- 3.34 We are satisfied with the planned delivery of 2023 because with restrictions on switching the Pakuranga-Whakamaru circuits the System Operator is unable to comply with its steady state voltage PPO obligations.
- 3.35 The System Operator has requested Transpower (Grid Owner) to modify the design and configuration of its assets in the Upper North Island region to support its ability to comply with the PPO.
- 3.36 We are satisfied this project is reasonably likely to commence within RCP3.

#### **Kawerau substation interconnecting capacity**

- 3.37 The Kawerau substation is unusual in that it has two interconnecting transformers (**transformer**) with different ratings. One of the transformers is rated at 250 MVA (**T12**) and the other is rated at 80 MVA (**T13**). Such an arrangement can cause operational issues particularly when the higher rated transformer is not in service, and demand exceeds the rating of the lower rated transformer. Transpower is experiencing some operational constraints because of this imbalance in transformer rating.
- 3.38 The Kawerau interconnecting capacity project (**Kawerau project**) proposes to upgrade T13 to 250 MVA. This project will ensure that both interconnecting transformers at Kawerau will be rated at 250 MVA each and remove operational constraints due to the difference in ratings. The project is expected to cost \$10.2m and has a planned delivery date of 2024.

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<sup>46</sup> Transpower, *Grid Owner asset design and configuration in the Upper North Island*, 3 August 2022.

*Our draft decision*

- 3.39 Our draft decision is to accept this project for the reconsideration of the IPP. We are satisfied that the project meets the criteria set out in the Transpower IMs and outline our reasons below.

*This was an unforeseeable project when the IPP was determined*

- 3.40 Transpower advises that this is an unforeseen project because its key drivers were not foreseeable when we set the IPP.<sup>47</sup> This project arose after a large industrial consumer ceased operation at Kawerau.
- 3.41 We are satisfied that this project was not reasonably foreseeable at the time the IPP was determined.

*The project's drivers are step change in demand and generation commissioning*

- 3.42 Transpower advises the following reasons for this project:
- (a) an industrial customer connected to Kawerau ceased operation in 2021 resulting in a step decrease in load. Since several generators connect at Kawerau there is a consequential increase in generation export from the Kawerau 110 kV system;
  - (b) when T12 is out of service, generation export from Kawerau is limited to 80 MVA to avoid overloading T13. Transpower has special protection schemes (SPS) to manage generation export following a contingency of T12;
  - (c) Transpower has received enquiries from generators wanting to connect to the network in the region; and
  - (d) Transpower anticipates that with the expected generation development (or load growth) Transpower will need to reconfigure the 110kV network at Edgumbe.<sup>48</sup> Once this reconfiguration is in place, all generation export from Kawerau will be through T13 following a contingency of T12. Under this condition, T13 will overload significantly, putting it at risk due to overloading.
- 3.43 The driver for this project is additional generation commissioning in the area. Without this project, Transpower states that it will have to remove T13 from service under normal operating conditions.
- 3.44 We are satisfied that the main drivers for the project meet the requirements set out in clause 3.7.3B(2)(c)(a) of the Transpower IMs.

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<sup>47</sup> Transpower IM, above n 3, clause 3.7.3B(2).

<sup>48</sup> The reconfiguration includes splitting the 110kV network at Edgumbe and reconnecting the Edgumbe interconnecting transformer.

*We are satisfied that the project is reasonably likely to commence in RCP3*

- 3.45 Transpower states that if there is additional generation or demand in the Edgumbe-Kawerau area, then Transpower will need to reconfigure its network and upgrade T13.
- 3.46 We are satisfied that there is a reasonable likelihood of additional generation in the Edgumbe-Kawerau area within RCP3.
- 3.47 For example, on 29 August 2022, Helios Energy announced that it is developing a 115 MW solar farm near Whakatane that will be connected to the Transpower network at Edgumbe substation. This announcement also mentioned that Helios has signed a grid connection agreement with Transpower, strongly signalling that the Kawerau project is reasonably likely to commence in RCP3.<sup>49</sup>

### **Otahuhu-Whakamaru C Installation of Variable Line Ratings**

- 3.48 The Otahuhu-Whakamaru C Installation of Variable Line Ratings (**Otahuhu**) project aims to provide a cost-effective method to manage constraints on the Hamilton–Whakamaru 1 and Ohinewai–Whakamaru 1 circuits.<sup>50</sup>
- 3.49 This project is estimated to cost \$0.55m and Transpower plans to deliver this within RCP3.<sup>51</sup>
- 3.50 One of the factors that influences the rating of transmission lines is the rate of cooling of the conductors of the transmission lines. On cold days, the rate of cooling is high so conductors can be operated at higher ratings. Transmission line asset owners take advantage of this phenomena and use seasonal variation in ambient temperatures as one of the inputs into rating power lines. Transpower rates most of its transmission lines according to a conservative estimate of summer and winter ambient temperatures.
- 3.51 An alternative to seasonal rating is VLR. VLR provides a more granular rating of transmission line. Under VLR, Transpower varies the ratings of transmission line monthly and in two-hour intervals throughout a day.<sup>52</sup>
- 3.52 Transpower proposes to install VLR to increase the capacity of the 220 kV Hamilton–Whakamaru 1 and Ohinewai–Whakamaru 1 to better utilise their capacities.

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<sup>49</sup> Helios Energy, Media Release 29 August 2022. Available at <https://heliosenergy.co.nz/news/Media-Release-29-August-2022>.

<sup>50</sup> The Otahuhu-Whakamaru C line consists of a several circuits.

<sup>51</sup> Application, above n 1, at p. 13 and RFI 1, above n 32, at p. 8.

<sup>52</sup> See Transpower website for examples of transmission lines with VLR.  
<https://www.transpower.co.nz/system-operator/information-industry/variable-line-ratings-information>.

*Our draft decision*

- 3.53 Our draft decision is to exclude this project from the reconsideration of the IPP, for the reasons discussed below.

*This was an unforeseeable project when the IPP was determined*

- 3.54 Transpower advises that this project was unforeseeable when Transpower prepared the RCP3 proposal. The benefits of this project were identified as part of the Waikato and Upper North Island Voltage stability studies.<sup>53</sup>
- 3.55 Due to the timing of this study, we are satisfied that this project was not reasonably foreseeable at the time the IPP was determined.

*The project's driver is to meet grid reliability standard*

- 3.56 Transpower stated the capacity of the 220 kV Hamilton–Whakamaru 1 and Ohinewai–Whakamaru 1 circuits imposes a transmission constraint on power flow between Whakamaru and Otahuhu during low generation and high demand in the Waikato and Upper North Island region.
- 3.57 The Otahuhu project would remove that transmission constraint under the operating conditions described in par 3.61 below and allow Transpower to meet the relevant grid reliability standard.<sup>54</sup>
- 3.58 Therefore, this project meets the requirement of the driver set out at clause 3.7.3B(2)(c)(iii).

*We are not satisfied that the project is reasonably likely to commence in RCP3*

- 3.59 We consider that the driver for this project will not occur in RCP3 as the Huntly Rankine Units will continue to be in use. Therefore, this project is not reasonably likely to commence in RCP3.
- 3.60 This is because according to the Transpower's Transmission Planning Report 2021 (TPR) there are three factors that lead to a constraint. These are:
- (a) the closure of the Huntly Rankine units;
  - (b) low generation in the Waikato region; and
  - (c) high demand in the WUNI region.

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<sup>53</sup> Application, above n 1, at p.

<sup>54</sup> Transpower IM, above n 3, clause 3.7.3B(c)(iii).

3.61 In its 2021 TPR, Transpower stated:<sup>55</sup>

**Waikato and Upper North Island thermal transmission capacity**

The proposed closure of the remaining Huntly Rankine units in 2022 will also cause thermal constraints into the WUNI region under, N-G-1 conditions (in addition to the voltage stability risks discussed above). The limiting circuits are Hamilton–Whakamaru, Ohinewai–Whakamaru and Otahuhu–Whakamaru.

**Enhancement approach**

We are investigating potential options to increase thermal transmission capacity into the WUNI region. Options include a combination of the following:

- series compensation on the Brownhill–Whakamaru circuits.
- reconfiguring 220 kV circuits in the Waikato region to redistribute power flow across circuits.
- *implementing variable line ratings on the Hamilton–Whakamaru and Ohinewai–Whakamaru circuits.*

3.62 We are aware that the previously planned closure from normal operations of the Huntly Rankine units in 2022 has been deferred. Instead, Genesis Energy states that the current operational performance of the Rankines can be maintained until 2030 and Genesis intends to trial biomass as an alternative fuel to coal.<sup>56, 57</sup> Genesis Energy has stated that:<sup>58</sup>

The Climate Change Commission’s recommendation to set a date by which coal electricity generation assets must be retired is an overly simplified recommendation

and

Thermal plant at Huntly Power Station fills most of that storage gap today, and we expect it will meet the entire gap within the next few years.

<sup>55</sup> Transpower, *Transmission Planning Report 2021 (TPR)* “, p. 44. Available at <https://www.transpower.co.nz/sites/default/files/publications/resources/Transmission%20Planning%20Report%202021.pdf>.

<sup>56</sup> Genesis Energy Limited “*Annual Report 2022 – Empowering New Zealand’s sustainable future*”, at p. 18. Available at [https://media.genesisenergy.co.nz/genesis/investor/2022/FY22\\_Annual\\_Report.pdf?\\_ga=2.21889979.1042069981.1662774962-1686954326.1650926192](https://media.genesisenergy.co.nz/genesis/investor/2022/FY22_Annual_Report.pdf?_ga=2.21889979.1042069981.1662774962-1686954326.1650926192).

<sup>57</sup> <https://media.genesisenergy.co.nz/genesis/investor/2022/Genesis%20Energy%20-%20Biofuels%20Insights.pdf>.

<sup>58</sup> Genesis Energy “*Submission - Climate Change Commissioner 2021 Draft advice for Consultation*”, 28 March 2021, at pp. 3-4. Available at [https://media.genesisenergy.co.nz/genesis/investor/legacy-reports-and-presentations/20210329\\_gene\\_ccc\\_response\\_final.pdf?\\_ga=2.98845726.1042069981.1662774962-1686954326.1650926192](https://media.genesisenergy.co.nz/genesis/investor/legacy-reports-and-presentations/20210329_gene_ccc_response_final.pdf?_ga=2.98845726.1042069981.1662774962-1686954326.1650926192).



- 3.63 We therefore consider that it is likely that the Rankine units will remain in service at Huntly during periods of high demand for the foreseeable future. For this reason, the Otahuhu project is not likely to commence RCP3.

### **Wairakei reactor**

- 3.64 The Wairakei reactor project (**Wairakei project**) is planned to increase the transmission capacity through the Wairakei ring between Wairakei to Whakamaru.<sup>59</sup> The transmission system between Wairakei and Whakamaru has two loops - the lower capacity Wairakei–Whakamaru A line (**A line**) and a higher capacity Wairakei–Whakamaru C line (**C line**). The project aims to install a reactor on the A line.

- 3.65 The estimated cost of the project is \$6.5m, and this project is in the delivery phase.

### *Our draft decision*

- 3.66 Our draft decision is to accept this project for reconsideration of the IPP. Based on our discussion below, we are satisfied that the Wairakei project meets the criteria set out in the Transpower IMs for reconsideration of the IPP.

### *This was a foreseeable project when the IPP was determined*

- 3.67 Transpower states that this was a foreseeable project identified in the RCP3 proposal but was not included in the low-expenditure-scenario category of projects that we approved for RCP3, as mentioned in paragraph 1.7 above.<sup>60</sup>
- 3.68 We assess that this project was a foreseeable project at the time the IPP was determined; however, it was not sufficiently certain to reasonably be included in the IPP.

### *The project's driver is connection of new generation*

- 3.69 The driver for this project is new generation commissioning. The project is a result of the planned commissioning of the Tauhara generation in 2023.
- 3.70 Transpower states that after the Tauhara power station starts generating, the network will require constraints on power flow to avoid n-1 overloads on the A line. To avoid these constraints and allow for efficient generation dispatch, Transpower is installing a series reactor on the A line at Atiamuri.
- 3.71 The series reactor will increase the transport capacity by re-distributing the power flow between the A and the C lines. This has the effect of better utilising the high-capacity C line for existing and future generation in the area.

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<sup>59</sup> Application, above n 1, p. 14.

<sup>60</sup> Application, above n 1, at p. 14.

- 3.72 We are satisfied that the driver for the project aligns with the driver for generation commissioning specified in clause 3.7.3B(3)(c)(ii) the Transpower IMs.

*We are satisfied that the project is reasonably likely to commence in RCP3*

- 3.73 Transpower advises that this project has commenced and is in the delivery stage and is scheduled for completion in 2023. This project needs to be completed by the time Tauhara power station starts generating.
- 3.74 We are satisfied that this project is reasonably likely to be completed before the Tauhara power station is commissioned.

**Our draft decision is to reopen Transpower's IPP**

- 3.75 Having reviewed the projects in Transpower's Application, our draft decision is to reopen Transpower IPP to allow Transpower to deliver four additional E&D base capex projects with an estimate forecast value of \$40.6m in nominal prices. The projects we propose to approve are:
- (a) Upper South Island voltage management, Islington reactor with an estimated cost of \$8.3m;
  - (b) Upper North Island Voltage Management, Pakuranga reactors with an estimated cost of \$15.6m;
  - (c) Kawerau substation interconnecting capacity with an estimate cost of 10.2m; and
  - (d) Wairakei reactor with an estimated cost of \$6.5m.
- 3.76 Based on the information Transpower has provided, we are satisfied that the above projects are reasonably likely to commence in RCP3.
- 3.77 We propose to exclude projects for which only preliminary or indicative estimates and models had been generated and Transpower did not at that time have confidence in the project proceeding within RCP3. Therefore, we assessed that projects in this category were not reasonably likely to commence in the regulatory period; for the purposes of clause 3.7.4(1)(a)(vi) of the Transpower IMs.
- 3.78 Our draft decision is to not approve the Otahuhu project because we consider that the driver for this project will not occur until the Huntly Rankine units are no longer used during periods of high demand.
- 3.79 We are satisfied that when we make our final decision, any amendment of the IPP will promote the purpose of part 4 of the Act. The additional allowance will provide Transpower the incentive to invest in a timely manner and deliver services at a quality that reflects consumer demands.

- 3.80 Appendix A below shows the estimated impact of our decision on Transpower's MAR, SMAR and approved base capex. Transpower will provide the final values when we make final decision. Linked it back to the IPP requirements.

## Appendix A: Draft amendments to the IPP Schedules due to the reopener

### IPP Schedule A: Summary of forecast MAR and forecast SMAR

Forecast MAR applied to pricing years of RCP3 ending	Forecast MAR is calculated based on building block values for the disclosure year ending	Initial determined value of forecast MAR for pricing year	Incremental update to forecast MAR determined in 2020	Incremental update to forecast MAR determined in 2021	Incremental update to forecast MAR determined in 2022	Incremental update to forecast MAR determined in 2023	Total forecast MAR applicable to the pricing year (sum of amounts in columns 3 to 7)	Forecast SMAR applicable to the pricing years in RCP3
[Column 1]	[Column 2]	[Column 3]	[Column 4]	[Column 5]	[Column 6]	[Column 7]	[Column 8]	[Column 9]
31 March 2021 (Year 1)	30 June 2021	810.6 million	N/A	N/A	N/A	N/A	810.6 million	788.7 million
31 March 2022 (Year 2)	30 June 2021	795.6 million	0	N/A	N/A	N/A	795.6 million	798.8 million
31 March 2023 (Year 3)	30 June 2021	790.9 million			N/A	N/A	790.9 million	809.0 million
31 March 2024 (Year 4)	30 June 2021	821.3 million			0.8 million	N/A	822.1 million	820.3 million
31 March 2025 (Year 5)	30 June 2021	824.4 million			1.8 million	0	826.2 million	830.6 million

**IPP Schedule C2: Approved standard incentive rate base capex summary – commissioned basis**

Disclosure year ending	Value of standard incentive rate base capex allowance as determined 29 August 2019	Incremental approved standard incentive rate listed project base capex determined in 2020	Incremental approved standard incentive rate listed project base capex determined in 2021	Incremental approved standard incentive rate listed project base capex determined in 2022	Incremental approved standard incentive rate listed project base capex determined in 2023	Approved standard incentive rate base capex allowance for purposes of forecast MAR in the disclosure year (sum of amounts in columns 2 to 6)
[Column 1]	[Column 2]	[Column 3]	[Column 4]	[Column 5]	[Column 6]	[Column 7]
30 June 2021	206.7 million	N/A	N/A	N/A	N/A	206.7 million
30 June 2021	266.8 million	0	0	N/A	N/A	266.8 million
30 June 2021	303.3 million	0	0	7.5 million	N/A	310.3 million
30 June 2021	274.8 million	0	0	14.7 million	0	289.5 million
30 June 2021	347.2 million	0	0	18.9 million	0	366.1 million

**IPP Schedule C4: Approved standard incentive rate base capex summary – expenditure basis**

<b>Disclosure year ending</b>	Value of standard incentive rate base capex allowance as determined 29 August 2019	Incremental approved standard incentive rate listed project base capex determined in 2020	Incremental approved standard incentive rate listed project base capex determined in 2021	Incremental approved standard incentive rate listed project base capex determined in 2022	Incremental approved standard incentive rate listed project base capex determined in 2023	Approved standard incentive rate base capex allowance for purposes of forecast MAR in the disclosure year (sum of amounts in columns 2 to 6)
[Column 1]	[Column 2]	[Column 3]	[Column 4]	[Column 5]	[Column 6]	[Column 7]
30 June 2021	222.9 million	N/A	N/A	N/A	N/A	222.9 million
30 June 2021	277.3 million	0	0	N/A	N/A	277.3 million
30 June 2021	273.9 million	0	0	16.1 million	N/A	290.0 million
30 June 2021	280.0 million	0	0	12.7 million	0	292.7 million
30 June 2021	300.2 million	0	0	11.8 million	0	312.0 million