

# **Draft Decision on the Otahuhu Substation Diversity Project Major Capex Allowance Amendment**

## **Draft Decision**

Date: 1 March 2013

[This page has been left intentionally blank]

# Contents

<b>EXECUTIVE SUMMARY .....</b>	<b>6</b>
TRANSPower NEW ZEALAND LIMITED'S APPLICATION .....	6
OUR DRAFT DECISION .....	7
<b>1. INTRODUCTION .....</b>	<b>9</b>
PURPOSE OF THIS PAPER.....	9
TRANSPower IS A REGULATED BUSINESS.....	9
TRANSPower HAS SPENT MORE THAN THE AMOUNT THAT IT HAS APPROVAL TO RECOVER .	10
TRANSPower HAS APPLIED FOR APPROVAL TO RECOVER ITS FULL COSTS.....	10
WE MUST EVALUATE TRANSPower'S APPLICATION USING THE RULES THAT APPLY .....	10
HOW YOU CAN PROVIDE YOUR VIEWS .....	10
<i>Address for responses</i> .....	11
<b>2. OUR DRAFT DECISION IS TO INCREASE THE MAJOR CAPEX ALLOWANCE FOR THE PROJECT ..</b>	<b>12</b>
WHAT THE DRAFT DECISION MEANS .....	12
<i>The effect if the draft decision is finalised</i> .....	12
WHY WE MADE A DRAFT DECISION .....	12
HOW WE MADE OUR DRAFT DECISION .....	13
<i>What the Capex IM requires us to do for the application</i> .....	13
<b>3. TRANSPower'S APPLICATION.....</b>	<b>15</b>
<i>What the application is asking for</i> .....	15
HISTORY OF THE PROJECT THAT THE APPLICATION SEEKS TO AMEND .....	15
HOW THE CAPEX IM APPLIES TO THE APPLICATION .....	16
<i>The Capex IM applies to projects approved by the former Electricity Commission</i> .....	16
<i>We have to consider the application under the framework of the Capex IM</i> .....	16
TRANSPower'S BASIS FOR THE COSTS PRESENTED IN THE APPLICATION.....	17
<i>The budget used in the application is different from the budget used for the approval</i> .....	17
<i>We have accepted the use of the alternative budget for the application</i> .....	18
WHAT PEOPLE SAID ABOUT THE APPLICATION DURING OUR CONSULTATION IN NOVEMBER 2012.....	19
<i>Responses to our consultation</i> .....	19
<i>What views were expressed by interested persons</i> .....	19
<i>How we take these views into account</i> .....	20
<b>4. HOW THE CAPEX IM APPLIES TO OUR DECISION .....</b>	<b>21</b>
THE CAPEX IM PROMOTES THE PURPOSE OF PART 4 OF THE COMMERCE ACT .....	21
<i>The Capex IM requires approval of major capex projects</i> .....	21
<i>The Capex IM recognises that parts of a major capex project may need to be updated</i> .....	23

WHAT THE CAPEX IM DOES NOT ALLOW US TO DO .....	24
<b>5. REASONS FOR OUR DRAFT DECISION .....</b>	<b>26</b>
WHY WE DECIDED TO AMEND THE MAJOR CAPEX ALLOWANCE .....	26
<i>Our decision meets the requirements of the Capex IM.....</i>	26
WHAT OUR EVALUATION OF THE APPLICATION FOUND .....	26
<i>Transpower decided to start the project before developing a full assessment of the costs .....</i>	27
<i>Shortcomings in the planning and cost estimating did not materially affect the project costs.....</i>	29
<i>Increasing the major capex allowance allows Transpower to recover the efficient costs of delivering the project outputs.....</i>	29
HOW THE CAPEX IM ENCOURAGES IMPROVED OUTCOMES FROM TRANSPOWER.....	30
<b>ATTACHMENT A : OUR EVALUATION OF THE APPLICATION AGAINST THE REQUIREMENTS OF THE CAPEX IM .....</b>	<b>33</b>
GENERAL EVALUATION OF THE APPLICATION .....	33
<i>The application and our decision is consistent with relevant input methodologies .....</i>	33
<i>Our decision promotes the purpose of Part 4 of the Act.....</i>	33
<i>The application and supporting information was fit for purpose .....</i>	34
EVALUATION OF MATTERS SPECIFIC TO THE APPLICATION.....	34
<i>The key factors that led to the application .....</i>	35
<i>The effect of our decision on the expected net electricity market benefit.....</i>	37
<i>The extent to which Transpower has already incurred capital expenditure .....</i>	40
THE PROCESS REQUIREMENTS OF THE CAPEX IM ARE SATISFIED .....	40
<i>The timing requirements of the Capex IM are satisfied .....</i>	41
<i>Transpower satisfied the information requirements of the Capex IM.....</i>	41
<i>Transpower satisfied the certification requirements of the Capex IM.....</i>	42
<b>ATTACHMENT B : OUR EVALUATION OF THE KEY FACTORS IN THE APPLICATION .....</b>	<b>43</b>
WHAT THE CAPEX IM REQUIRES US TO EVALUATE IN RELATION TO THE KEY FACTORS.....	43
THE KEY FACTORS PRESENTED BY TRANSPOWER.....	43
THE RESULTS OF OUR EVALUATION OF THE KEY FACTORS.....	45
<i>The common themes we found in the key factors leading to the application .....</i>	45
EVALUATION OF INDIVIDUAL KEY FACTORS RELEVANT TO THE AMENDMENT .....	47
<i>Enabling works civil general overspend .....</i>	47
<i>Transmission line deviations .....</i>	49
<i>Enabling works secondary systems design and install.....</i>	49
<i>Enabling works transition station and cable termination.....</i>	50
<i>Enabling works procurement.....</i>	51
<i>Design/build contract for GIS/AIS and EHV cable.....</i>	52
<i>Land easement.....</i>	52
<i>Interest during construction .....</i>	52

## Figures and Tables

TABLE 1.1 : DATES FOR RESPONSES AND PROCESS FROM HERE.....	11
TABLE A1 : COMPARISON OF FORECAST AND ACTUAL NPV ELECTRICITY MARKET BENEFITS (\$ MILLIONS IN 2006 PRICES).....	39
TABLE B1 : KEY FACTORS AND COSTS RELEVANT TO THE APPLICATION .....	44

## Executive Summary

- X1 This paper invites interested parties to submit their views on our draft decision to amend the maximum amount of costs for the Otahuhu Substation Diversity Project that Transpower New Zealand Limited can recover from its consumers.
- X2 This paper sets out the reasons for our draft decision and provides detail on the evaluation used to reach the draft decision.
- X3 Submissions on this paper are due by 15 March 2013. Cross-submissions are due by 25 March 2013. We expect to publish our final decision on the amendment by 28 March 2013.
- X4 Transpower New Zealand Limited is regulated by the Commerce Commission under the Commerce Act 1986. Under the Commerce Act, a number of input methodologies were set, which control Transpower New Zealand Limited's revenue.<sup>1</sup> The input methodologies control the amount of costs that Transpower New Zealand can recover from consumers.<sup>2</sup>
- X5 Transpower New Zealand Limited has spent \$7.1 million (in 2009 prices) more than the approved maximum amount of \$99 million (in 2009 prices) on the Otahuhu Substation Diversity Project. The input methodologies prevent Transpower New Zealand Limited from recovering the \$7.1 million (in 2009 prices) from consumers, unless the approved maximum amount is amended to include the spend that is greater than the current approved maximum amount.<sup>3</sup>

### Transpower New Zealand Limited's application

- X6 Transpower New Zealand Limited has submitted an application to the Commerce Commission to increase the approved maximum amount for the Otahuhu Substation Diversity Project to \$106.1 million (in 2009 prices). If we amend the approved maximum amount to the amount requested then Transpower New Zealand Limited will be able to recover the full amount of the costs it incurred on the Otahuhu Substation Diversity Project from consumers.

---

<sup>1</sup> The input methodologies set by the Commerce Commission include; *Individual price-quality path determination applicable to Transpower pursuant to Part 4 of the Commerce Act 1986 (the Act)* (consolidated 31 October 2012), *Transpower Input Methodologies Determination* [2012] NZCC 17 (29 June 2012), and *Re Transpower Capital Expenditure Input Methodology Determination* [2012] NZCC 2 (31 January 2012).

<sup>2</sup> Commerce Commission *Transpower Input Methodologies Determination* [2012] NZCC 17 (29 June 2012), clause 3.1.1.

<sup>3</sup> Commerce Commission *Transpower Input Methodologies Determination* [2012] NZCC 17 (29 June 2012), clause 3.3.1(d).

## Our draft decision

- X7 Our draft decision is to amend the maximum amount of costs that can be recovered from consumers for the Otahuhu Substation Diversity Project from \$99 million to \$106.1 million (in 2009 prices).
- X8 If our decision is finalised then Transpower New Zealand Limited will be able to recover the additional \$7.1 million (in 2009 prices) it incurred for the Otahuhu Substation Diversity Project from consumers.
- X9 We arrived at our decision after evaluating Transpower New Zealand Limited's application in accordance with the rules that apply.<sup>4</sup>
- X10 In making our decision we consider that:
- X10.1 our decision meets the requirements of the rules that apply;
  - X10.2 consumers will not have to pay for inefficient costs; and
  - X10.3 this decision maintains Transpower New Zealand Limited's incentives to invest.
- X11 Our evaluation found that Transpower New Zealand Limited:
- X11.1 did not fully plan and develop the costs before seeking approval due to a decision to commit to delivering the Otahuhu Substation Diversity Project early;
  - X11.2 could have arrived at a more realistic maximum amount of costs, and may not have needed this amendment, by recognising the risks this decision created;
  - X11.3 built in sufficient cost and scope controls, and took appropriate action in the delivery phase to minimise any costs incurred; and
  - X11.4 did not incur inefficient costs in delivering the approved outputs of the Otahuhu Substation Diversity Project.
- X12 The Otahuhu Substation Diversity project was initially approved by the Electricity Commission in accordance with the Electricity Governance Rules (EGRs). The original application and its approval were therefore not submitted, or considered, under the rules currently in force, that we administer. The EGRs relating to major capex

---

<sup>4</sup> Commerce Commission *Re Transpower Capital Expenditure Input Methodology Determination* [2012] NZCC 2 (31 January 2012).

applications have been replaced by our Capex IM<sup>5</sup>. In reaching our decision to amend the maximum amount of costs Transpower can recover in this case we have had to evaluate forecasts and other information in accordance with the Capex IM, but as it was submitted under the EGRs. As such, the evaluation conducted in reaching this decision has necessarily been done in a one-off, transitional manner. It is unclear how it might be applied to future applications for amendments of major capex proposals.

---

<sup>5</sup> Commerce Commission *Re Transpower Capital Expenditure Input Methodology Determination* [2012] NZCC 2 (31 January 2012).

# 1. Introduction

## Purpose of this paper

- 1.1 This paper invites you to submit your views on our draft decision on the amount of costs that Transpower New Zealand Limited can recover from consumers, over the life of the assets, for the Otahuhu Substation Diversity Project.<sup>6</sup>
- 1.2 Submissions on this paper are due on 15 March 2013.
- 1.3 Cross-submissions are due on 25 March 2013.
- 1.4 We intend to release our final decision on 28 March 2013, unless we decide to hold an industry conference.

## Transpower is a regulated business

- 1.5 The price and quality of the service that Transpower New Zealand Limited (Transpower) supplies to its consumers is regulated under Part 4 of the Commerce Act 1986 (the Act). This service is the delivery of electricity through the national grid (also called the transmission network). The national grid connects the generators of electricity to large electricity consumers and to electricity distribution businesses, who then connect to smaller electricity consumers. The Commerce Commission (the Commission) is responsible for regulating Transpower under the Act.
- 1.6 Transpower is regulated under its own individual price-quality path.<sup>7</sup> The individual price-quality path allows us to set how much revenue Transpower can recover from consumers of the service it provides. We also set the rules that relate to the building blocks used in determining this revenue.<sup>8</sup>
- 1.7 The capital that Transpower invests in the national grid is one of the building-block components. The rules relating to Transpower's major capital investments are explicitly addressed in the Capex IM.<sup>9</sup> Under the Capex IM, Transpower must obtain approval from the Commission before carrying out a major capital expenditure project if it wants its allowable revenue to cover the cost of that project. Any approval of a major capital expenditure project must specify the maximum amount

---

<sup>6</sup> The project was carried out to reduce the risk of widespread electricity outages in Auckland and Northland. Transpower New Zealand Limited considered the solution to reducing this risk was to increase the number of electricity supply points into Auckland. The project did this by building an additional substation at Transpower New Zealand Limited's existing Otahuhu substation site.

<sup>7</sup> Commerce Commission *Individual price-quality path determination applicable to Transpower pursuant to Part 4 of the Commerce Act 1986 (the Act)* (consolidated 31 October 2012).

<sup>8</sup> Commerce Commission *Transpower Input Methodologies Determination* [2012] NZCC 17 (29 June 2012).

<sup>9</sup> Commerce Commission *Re Transpower Capital Expenditure Input Methodology Determination* [2012] NZCC 2 (31 January 2012).

of costs that Transpower can recover from consumers by way of an increase in revenue. This maximum amount of costs that Transpower can recover from consumers is called the major capex allowance (MCA).

### **Transpower has spent more than the amount that it has approval to recover**

- 1.8 Transpower has spent more than the MCA on the Otahuhu Substation Diversity Project (the project). The project is effectively finished<sup>10</sup> and Transpower has spent \$106.1 million (in 2009 prices). The MCA is \$99 million (in 2009 prices). Without our approval, Transpower will bear the difference between what it spent on the project and the MCA. The difference is \$7.1 million (in 2009 prices).

### **Transpower has applied for approval to recover its full costs**

- 1.9 Transpower has asked us to amend the MCA for the project by sending us an application as allowed by the Capex IM (the application).<sup>11</sup> Transpower has applied to recover the full costs it incurred in delivering the project. This would mean consumers would face an additional \$7.1 million (in 2009 prices) in increased transmission charges spread over the life of the assets installed and commissioned by this project.

### **We must evaluate Transpower's application using the rules that apply**

- 1.10 The rules that apply to Transpower for its investments in the national grid also apply to us and constrain our decision. The rules require us to evaluate Transpower's application against certain criteria before reaching our decision.<sup>12</sup> The rules also permit us to make a draft decision and seek your written views on that draft decision.<sup>13</sup>

### **How you can provide your views**

- 1.11 You are invited to provide your views on our draft decision. This includes the process and the information outlined in this paper used to arrive at that decision, and any other issue under the Capex IM you think we should consider in reaching our final decision. We will take account of all submissions and cross-submissions in reaching our final decision.

- 1.12 The timeframes for you to provide your submissions are set out in Table 1.1 below.

---

<sup>10</sup> A small amount of work remains on handover issues and on the scheduled removal of a cable.

<sup>11</sup> Transpower "Otahuhu Substation Diversity Project Application for increase of major capex allowance" (27 September 2012).

<sup>12</sup> Capex IM, clause 3.3.4(2)(c).

<sup>13</sup> Capex IM, clause 8.1.1(2)(a).

**Table 1.1: Dates for responses and process from here**

Date	Event
15 March 2013	Submissions due on this paper
25 March 2013	Cross-submissions due
28 March 2013	Final decision published

- 1.13 As shown in the table, we intend to reach a final decision on the amendment by 28 March 2013, unless we decide to hold an industry conference.

#### **Address for responses**

- 1.14 You should address your responses to:

Hazet Adam (Chief Adviser, Regulation Branch)

c/o [regulation.branch@comcom.govt.nz](mailto:regulation.branch@comcom.govt.nz)

- 1.15 Responses should be provided in the PDF-file format and accompanied by a copy in an electronic format suitable for word processing. We will publish all submissions and cross-submissions on our website.

## 2. Our draft decision is to increase the major capex allowance for the project

- 2.1 Our draft decision is to amend the MCA for the project from \$99 million (in 2009 prices) to \$106.1 million (in 2009 prices).<sup>14</sup> This is the amount that Transpower requested through its application. We do not consider that this decision requires us to amend any other affected components of the project.<sup>15</sup>

### What the draft decision means

- 2.2 The draft decision to increase the MCA for the project has no effect until we make a final decision. A final decision will not be made until we have taken into account the views of anyone who sends us a submission, or cross-submission, on this paper.

### The effect if the draft decision is finalised

- 2.3 The increase in the MCA for the project will allow Transpower to recover the additional amount it spent from consumers. Increasing the MCA allows Transpower to recognise the additional \$7.1 million (in 2009 prices) as approved in the regulated value of its assets. The recognised value of Transpower's assets is the value accepted under the individual price-quality path applying to Transpower. The recognised value of Transpower's assets is one of the building blocks that the Commission uses in setting how much revenue Transpower is allowed to collect from all its consumers. The process for determining how the allowable revenue is collected from consumers is called the transmission pricing methodology (TPM). The TPM is administered by a different regulator called the Electricity Authority.<sup>16</sup>

### Why we made a draft decision

- 2.4 We made a draft decision, instead of a final decision, because we considered that people needed to be able to see how and why we reached the decision to increase the MCA for the project. Also, we considered that people should have the opportunity tell us what they think about how we reached our decision. It is optional for the Commission to make and consult on a draft decision when making amendments to approved projects under the Capex IM. We decided to take these steps for three reasons. These reasons are discussed below.

- 2.4.1 This is the first amendment application under the Capex IM. We considered that people should have the opportunity to see how the amendment process works under the Capex IM.

---

<sup>14</sup> This decision is made under clause 3.3.4(4) of the Capex IM.

<sup>15</sup> Under clause 3.3.4(5) of the Capex IM we may decide to amend the P50, or the commissioning date assumption, of the project if our decision to amend the MCA makes this necessary.

<sup>16</sup> More information on the Electricity Authority is available at their website [www.ea.govt.nz/](http://www.ea.govt.nz/).

- 2.4.2 The project was controversial when originally approved by the former Electricity Commission in 2007. It was the subject of a High Court judicial review and a Court of Appeal hearing.<sup>17</sup>
- 2.4.3 The next amendment requested by Transpower is likely to be for the North Island Grid Upgrade (NIGU) project. The NIGU project has cost in the order of \$70 million above the approved amount,<sup>18</sup> about ten times as much as this application.<sup>19</sup> This application presents us with an opportunity to show people how the Commission will apply the rules set in the Capex IM amendment process in advance of the NIGU application.

### **How we made our draft decision**

- 2.5 Our process has followed the requirements of the Capex IM. The requirements are outlined in the 'What the Capex IM requires us to do for the application' section below.
- 2.6 There are certain things that we cannot do in making a decision on the application if we are to remain within the framework set by the Capex IM. These are covered in the 'What the Capex IM does not allow us to do' section in Chapter 4.

### **What the Capex IM requires us to do for the application**

- 2.7 The Capex IM requires us to do certain things in making our decision. These are discussed below.
- 2.7.1 We were required to make a decision on the application by no later than 30 November 2012,<sup>20</sup> unless we used the provisions of the Capex IM to extend the timeframe for our decision.<sup>21</sup> How we applied the provisions of the Capex IM to do this is discussed in the 'Timing of our decision' section below.
- 2.7.2 We must evaluate the application, using the criteria set in the Capex IM, before reaching our decision on the appropriate value for the amended MCA.<sup>22</sup> This is discussed in Attachment A.

---

<sup>17</sup> [www.ea.govt.nz/industry/ec-archive/grid-investment-archive/gup/2005-gup/otahuhu-substation-diversity-proposal-history/](http://www.ea.govt.nz/industry/ec-archive/grid-investment-archive/gup/2005-gup/otahuhu-substation-diversity-proposal-history/).

<sup>18</sup> Transpower "Annual Report 2011/12" (15 October 2012) page 7.

<sup>19</sup> The additional amount Transpower is seeking in the application is approximately 7% of the approved amount for the project. For NIGU the amount cost incurred above the approved amount is approximately 8% of the approved amount for that project (\$824 million).

<sup>20</sup> Capex IM, clause 3.3.4(3)(b).

<sup>21</sup> Capex IM, clause 5.1.1(2).

<sup>22</sup> Capex IM, clause 3.3.4(2)(c).

- 2.7.3 We must take into account the views of anyone who participates in our consultation process.<sup>23</sup> This applies even though consulting and making a draft decision are optional for us when making an amendment to a major capex project.<sup>24</sup> The consultation to date is discussed in the section 'What people said about the application during our consultation' in the next chapter, and future consultation is covered in the section 'How you can provide your views' in the Introduction.
- 2.7.4 We must treat the project the application relates to as if it was a major capex project approved by us under the Capex IM.<sup>25</sup> This is discussed in the section 'The Capex IM applies to projects approved by the former Electricity Commission' in the next chapter.

### *Timing of our decision*

- 2.8 We changed the date our decision had to be made from 30 November 2012 to 29 March 2013. Transpower submitted its application on 27 September 2012. We considered that the 30 November 2012 deadline would not provide sufficient time to make a decision and carry out the full amount of consultation we considered necessary for the first amendment of a project under the Capex IM.
- 2.9 We applied Part 5 of the Capex IM to extend the timeframe on the amendment from 30 November 2012 to 29 March 2013.<sup>26</sup> Part 5 of the Capex IM allows us to change a timeframe if we believe that it is not likely to be met. We considered that the 30 November 2012 deadline would not be met and, after discussion with Transpower, set a date for our decision of 29 March 2013. We notified Transpower of this new date and published the proposed date of our decision on our website.<sup>27</sup> This met the requirements of the Capex IM.<sup>28</sup>

---

<sup>23</sup> Capex IM, clause 6.1.1(1)(a)(i).

<sup>24</sup> Capex IM, clause 8.1.1(2)(a).

<sup>25</sup> Capex IM, clause 1.1.4(1)(a).

<sup>26</sup> Capex IM, clause 5.1.1(2).

<sup>27</sup> [www.comcom.govt.nz/otahuhu-substation-diversity-project-mca-amendment-application/](http://www.comcom.govt.nz/otahuhu-substation-diversity-project-mca-amendment-application/).

<sup>28</sup> Capex IM, clause 5.1.1(2).

### 3. Transpower's application

- 3.1 Transpower submitted the application to amend the MCA for the project to the Commission on 27 September 2012. The application is available to view on the Commission's website.<sup>29</sup>

#### What the application is asking for

- 3.2 Transpower has applied to the Commission to amend the MCA of the project. The amendment sought by Transpower is to increase the MCA from \$99 million (in 2009 prices) by an additional \$7.1 million. This is the difference between the total cost Transpower has incurred for the project and the approved amount that Transpower is allowed to recover from consumers.
- 3.3 In this chapter we discuss:
- 3.3.1 the history of the project;
  - 3.3.2 how the Capex IM applies to the application;
  - 3.3.3 Transpower's basis for costs in the application; and
  - 3.3.4 what people said about the application in our consultation.

#### History of the project that the application seeks to amend

- 3.4 On 12 June 2006 an equipment failure at the Otahuhu substation resulted in a widespread loss of electricity supply to Auckland and Northland. One of Transpower's responses to the failure was to develop and submit a proposal to the Electricity Commission. The proposal was to increase diversity and improve the reliability of supply into Auckland and Northland. This was to be done by installing new switchgear adjacent to the existing switchyard at Transpower's Otahuhu substation. At that time, the Electricity Commission was the government-appointed body that had the power to approve Transpower's proposed investments.<sup>30</sup>
- 3.5 The Electricity Commission approved the project in August 2007. The expected cost of the project was \$94 million (in 2009 prices). The approval decision allowed Transpower to recover up to \$99 million (in 2009 prices) from consumers. A judicial review of the approval decision was initiated in November 2007 by objectors to the project. The judicial-review process continued until December 2008 when the Court of Appeal released its decision. The Court's decision was to dismiss the objector's appeal against the Electricity Commission's approval.

---

<sup>29</sup> [www.comcom.govt.nz/otahuhu-substation-diversity-project-mca-amendment-application/](http://www.comcom.govt.nz/otahuhu-substation-diversity-project-mca-amendment-application/).

<sup>30</sup> The Electricity Commission was disestablished in 2010 and the functions relating to Transpower were assigned to the Commerce Commission and the Electricity Authority.

- 3.6 With the approval confirmed, Transpower began the work of delivering the project. Before the project was complete Transpower became aware that the costs would exceed the amount it was allowed to recover from consumers. Transpower initially sought to amend the approved amount to include the additional costs through the Electricity Commission in June 2010, before the project was complete. At this time work was underway to transfer some of the roles of the Electricity Commission to the Commerce Commission, and the current Part 4 of the Act regime was under development. Transpower was advised by the Electricity Commission to wait until the project was completed and apply to the Commerce Commission to recover any unapproved costs.
- 3.7 The project was completed in November 2011 with a total cost of \$106.1 million (in 2009 prices).

### **How the Capex IM applies to the application**

- 3.8 The Capex IM sets the rules applying to Transpower's capital investments, including amendments to major capital projects as asked for in the application.<sup>31</sup> Our decision on the application to amend the MCA must be consistent with the Capex IM.<sup>32</sup> This means we cannot make an amendment if Transpower's application does not meet the rules set in the Capex IM. Transpower has submitted the application using the requirements set out in the Capex IM.

### **The Capex IM applies to projects approved by the former Electricity Commission**

- 3.9 The Otahuhu Substation Diversity Project is an approved major capital investment project under the Capex IM. This is despite the project being originally approved by the former Electricity Commission. This is because of the transitional provisions in the Capex IM.<sup>33</sup> These provisions deem that any project approved by the former Electricity Commission is considered in the same manner as major capital projects approved by the Commerce Commission under the Capex IM.

### **We have to consider the application under the framework of the Capex IM**

- 3.10 As the Capex IM applies to the project the application is for, we must follow the rules stated in the Capex IM when we make our decision on amending the MCA for the project. To do this we must evaluate the application in line with the requirements of the Capex IM. Our evaluation, and the criteria we used, is discussed in Attachment A.

### *The project was not developed under the framework of the Capex IM*

- 3.11 As outlined above we must treat the project as if it was approved by us under the Capex IM. However, we need to recognise that the specific components required by

---

<sup>31</sup> Capex IM, clause 3.3.4(2)(a).

<sup>32</sup> Capex IM, clause 6.1.1(2)(a).

<sup>33</sup> Capex IM, clause 1.1.4(1).

the Capex IM, both from Transpower and the former Electricity Commission, may not be available. The Capex IM was developed after the Electricity Commission was disestablished, and it has expanded upon the rules the former Electricity Commission used to approve projects.

- 3.12 While we must treat the project as if it was approved under the Capex IM, we consider that the forecasts of costs used in the original approval do not meet the requirements of the Capex IM. We consider the issue with the underestimation of costs in the original approval is the reason that led to the application. This is discussed in the 'What our evaluation of the application found' section in Chapter 5.
- 3.13 We consider that this decision is specific to the application to amend the MCA for this particular project. Our evaluation of the application is in part based on forecast costs that were approved by the Electricity Commission under the EGRs, rather than the Capex IM which we are tasked with applying in this instance. As such it is unclear how the analysis may be applied to future applications for amendment or approval under the Capex IM.
- 3.14 We discuss the requirements for Transpower to improve their forecasting of project costs in the 'How the Capex IM encourages improved outcomes from Transpower' section in Chapter 5.

### **Transpower's basis for the costs presented in the application**

- 3.15 We have accepted the basis for costs that Transpower has presented in the application. Transpower presented costs on a different basis from the original approval. The issue, and the reasons for our decision, are discussed in the sections below.

### **The budget used in the application is different from the budget used for the approval**

- 3.16 Transpower has used a budget to manage the project, and produce the application, that is different from the original budget used for gaining approval for the project from the former Electricity Commission. Transpower produced the alternative budget, called the project approval document (PAD) budget, after the Electricity Commission approved the project using the original budget. The PAD budget was based on additional investigations into the design, scope and cost of the project. These investigations were carried out while the Electricity Commission was evaluating the proposal for the project.
- 3.17 The PAD budget is for the same project that the Electricity Commission approved. The use of the PAD budget does not change the outputs, approved by the Electricity Commission, which the project must deliver.
- 3.18 The two budgets are not easily compared due to the differences in structure and size.
- 3.18.1 The PAD budget total was \$76.6 million (in 2006 prices) or \$82.8 million (in 2009 prices). The approval for the project was based on an expected cost for

the project of \$94 million (in 2009 prices) and a maximum of \$99 million (in 2009 prices) being recoverable from consumers.

- 3.18.2 The PAD budget was developed using a different work-breakdown structure from the original budget. Despite being budgets for the same project, an item of work in one budget may not exist in the other budget.
- 3.19 The only element that is common between the two budgets is interest during construction (IDC). In the original proposal IDC was presented as a figure of \$4 million (in 2006 prices).<sup>34</sup> The PAD budget IDC was \$3.2 million (in 2006 prices) and actual IDC incurred for the project was \$6.9 million (in 2009 prices).

### **We have accepted the use of the alternative budget for the application**

- 3.20 We accepted the use of the PAD budget for the application. We evaluated the application by comparing the PAD budget to the actual costs within the same expenditure categories. Analysing planned and actual costs for the project within the same structure will let us see how well Transpower planned and delivered the project. Mapping the categories of one budget to another does not provide us with any useful additional information. Any mapping of different categories could introduce errors or inconsistencies into the evaluation. It may also lead to confusion as to the basis of our decision.
- 3.21 Using the PAD budget structure does not affect the results of the evaluation. Evaluating the variance between the PAD budget total of \$76.6 million (in 2006 prices) and the actual spend on the project of \$106.1 million (in 2009 prices) gives the same result as evaluating the \$7.1 million variance between the MCA of \$99 million (in 2009 prices) and the actual spend on the project of \$106.1 million (in 2009 prices). The difference is that we have consistent information to perform the evaluation of the variance for all elements that led to Transpower spending more than its estimate of costs.
- 3.22 We cannot say with confidence that the \$7.1 million (in 2009 prices) is justifiable under the Capex IM due to the uncertainty as to what are the components of this figure in the original budget. While the IDC component is common between the budgets, the remainder of the \$7.1 million is not.
- 3.23 We have more confidence in the makeup of the \$23.3 million variance from the PAD budget. This is because of Transpower's consistent application of the structure in developing and delivery of the project, as well as in discussing the key factors that lead to the costs going over the budgeted figures.

---

<sup>34</sup> Transpower "Otahuhu Substation Diversity Project—Proposal—Application for approval" (11 December 2006) table 9-3, page 35.

*All project costs are assessed as part of our evaluation*

- 3.24 Our decision on amending the MCA should not be considered on the basis of approving each dollar over the original MCA. The basis we use is that the actual costs incurred for the project in delivering the approved outputs should meet the requirements that allow them to be recovered from consumers. The requirements are that the costs are reasonable, efficiently incurred and in line with the Capex IM.

## **What people said about the application during our consultation in November 2012**

- 3.25 We asked for people to provide us with their views on Transpower's application through a process of requesting submissions and cross-submissions. Transpower application was published on our website in October 2012 and the consultation process was carried out in November 2012.

### **Responses to our consultation**

- 3.26 We received submissions from:

- 3.26.1 Pacific Aluminium on behalf of Rio Tinto; and
- 3.26.2 The Major Electricity Users' Group (MEUG).

- 3.27 We received cross-submissions from:

- 3.27.1 Contact Energy;
- 3.27.2 Norske Skog;
- 3.27.3 New Zealand Steel; and
- 3.27.4 Transpower.

- 3.28 The application, submissions and cross-submissions are available on our website.<sup>35</sup>

### **What views were expressed by interested persons**

- 3.29 All submitters, with the exception of Transpower, opposed the application. Transpower's cross-submission rebutted the arguments raised by MEUG and Pacific Aluminium, but did not provide any new information. The main themes expressed by those opposing the application, in summary, were:

- 3.29.1 if the application was approved by the Commission then Transpower effectively does not face any risk when it makes its investments. Because of

---

<sup>35</sup> [www.comcom.govt.nz/otahuhu-substation-diversity-project-mca-amendment-application](http://www.comcom.govt.nz/otahuhu-substation-diversity-project-mca-amendment-application).

this, Transpower's weighted average cost of capital (WACC) should not be greater than the risk-free interest rate; and

- 3.29.2 in a workably competitive market Transpower should bear the costs of any project overruns and not seek to recover them from consumers. Submitters claim that this is what they would have to do in their own marketplaces.

**How we take these views into account.**

- 3.30 We evaluated the views expressed and have taken them into account in our decision.
- 3.31 Any decision we make must still be consistent with the Capex IM and promote the purpose of Part 4 of the Act.<sup>36</sup> In taking the views expressed into account we must be aware of the rules set in the Capex IM.
- 3.31.1 The Capex IM does not require us to simply approve or reject the application. It allows us to select any value we consider appropriate for the amendment of the MCA.<sup>37</sup>
- 3.31.2 However, we cannot amend any aspect of an approved project. We can only amend specific parts of an approved project in response to an application from Transpower.<sup>38</sup> If required, we can amend some secondary components of the approval.<sup>39</sup> These secondary components would be amended if the forecast maximum allowable revenue calculations were affected by our decision.
- 3.31.3 We have no scope to re-open the original approval for the major capex project.
- 3.32 In the next chapter we discuss how the Capex IM applies to any decision we make on an amendment. We also discuss what decisions would not be consistent with the Capex IM.

---

<sup>36</sup> Capex IM, clause 6.1.1(2)(a) and (b).

<sup>37</sup> Capex IM, clause 3.4.4(4).

<sup>38</sup> Capex IM, clause 3.3.4(1).

<sup>39</sup> Capex IM, clause 3.3.4(5).

## 4. How the Capex IM applies to our decision

4.1 In this chapter we discuss how the Capex IM:

- 4.1.1 promotes the purpose of Part 4 of the Act;
- 4.1.2 allows approval of major capex projects that provide the electricity market with the highest expected net electricity market benefit; and
- 4.1.3 recognises that parts of an approved project may need to be updated.

4.2 We also discuss what the Capex IM does not allow us to do.

### The Capex IM promotes the purpose of Part 4 of the Commerce Act

- 4.3 The Capex IM promotes the purpose of Part 4 of the Act.<sup>40</sup> In determining the Capex IM, the Commission considered, in particular, how the Capex IM can promote outcomes consistent with those in a workably competitive market.<sup>41</sup> It might not always be apparent how each individual component of the Capex IM, in isolation, gives effect to the purpose of Part 4. However, when considered in combination with each other, and with other requirements,<sup>42</sup> it can be seen that the components of the Capex IM will provide strong incentives for Transpower to act in a manner consistent with the purpose of Part 4.
- 4.4 The Capex IM, as discussed below, includes the option for parts of an approved project to be amended by the Commission. One of the parts of a project that can be amended is the amount of costs that Transpower can recover from consumers. When an approved project is amended in accordance with the requirements of the Capex IM, we consider that the amendment will promote the purpose of Part 4 of the Act.
- 4.5 Details of our assessment of the application against the requirements of the Capex IM are covered in Attachment A.

### The Capex IM requires approval of major capex projects

- 4.6 The Capex IM and related regulation of Transpower allows the recovery of costs from consumers for an approved major capex project. A major capex project is

---

<sup>40</sup> Commerce Act 1986, section 52A(1).

<sup>41</sup> See Commerce Commission “Transpower capital expenditure input methodology reasons paper” (31 January 2012) paragraphs 1.3.4 to 1.3.8 for a discussion on how the purpose of Part 4 was applied to the development of the Capex IM.

<sup>42</sup> Such as the other input methodology and the individual price-quality path determinations applying to Transpower.

approved by following the process defined in the Capex IM.<sup>43</sup> The approval sets the maximum level of costs that can be recovered from consumers.<sup>44</sup>

- 4.7 A major capex project can only be approved under the Capex IM if it can be shown that it is the project that has the potential to provide the highest expected net electricity market benefit.<sup>45</sup> This assessment must be done taking the uncertainty surrounding the future into account.<sup>46</sup>
- 4.8 The expected net electricity market benefit is based on electricity market benefit or cost elements, and project costs.<sup>47</sup> Transpower should be able to develop project costs with a higher degree of accuracy than electricity market benefit or cost elements. A project is within Transpower's control and has a defined scope and deliverables, while an electricity market benefit or cost element is outside Transpower's control and the estimates rely on long-term modelling.
- 4.9 This lack of certainty imposes a risk on the approval of a major capex project. However trying to get better information on the project costs or electricity market cost and benefit elements involved would take more cost and time than is warranted for the improved outcomes this would provide. So approval for a major capex project is based on imperfect knowledge before the event. We are required to be satisfied with the forecast project costs and electricity market cost or benefit elements Transpower presents in support of a project.<sup>48</sup> We must also take into account the views of anyone who disagrees with any of the forecast project costs and electricity market cost or benefit elements Transpower has presented.<sup>49</sup> Once approved, there is no scope to apply hindsight to a project.
- 4.10 The Capex IM does not apply financial incentives to the accuracy of the project cost figures that Transpower provides when seeking approval for a project. We recognise that it is difficult to obtain fully accurate values for project costs in advance of actually delivering the project. If Transpower were to be incentivised on the accuracy of the project costs used for obtaining approval, it is likely the risk involved would affect Transpower's decision to invest. Alternatively these incentives could cause Transpower to require a premium for an investment or over-compensate for the risk in all items of a project. This behaviour would lead to inaccurate costs being applied

---

<sup>43</sup> Capex IM, clause 3.3.3.

<sup>44</sup> Capex IM, clause 3.3.3(5)(b).

<sup>45</sup> Capex IM, Schedule D clause D1(1)(c).

<sup>46</sup> Capex IM, Schedule D clause D3(1).

<sup>47</sup> Capex IM, Schedule D clause D3(2).

<sup>48</sup> Capex IM, Schedule C clause C1(2).

<sup>49</sup> Capex IM, clause 6.1.1(1)(a)(i).

in the assessment of the best option for the electricity market. This is not a desired outcome.

- 4.11 This does not mean that we will accept inaccurate project costs from Transpower when it seeks approval for a project under the Capex IM. This is discussed in ‘How the Capex IM encourages improved outcomes from Transpower’ below.
- 4.12 We have set up an incentive scheme that allows Transpower to be rewarded in response to proven efficiencies it has achieved in delivering its portfolio of major capex projects.<sup>50</sup>
- 4.13 The Capex IM also applies financial incentives to Transpower’s performance against the components of the approval. The major capex overspend adjustment forces Transpower to bear the full amount of any unapproved costs relating to a major capex project.<sup>51</sup> In addition Transpower can be penalised if the project does not meet the approved outputs that Transpower is required to deliver.<sup>52</sup>

**The Capex IM recognises that parts of a major capex project may need to be updated**

- 4.14 The Capex IM recognises that circumstances around a project may change and the approval may need to be updated as better information becomes available.<sup>53</sup> This may include cost information, and changes to technology or circumstances that are not within Transpower’s control. As noted in the section above, the approval of a project is based on costs that are not fully certain. When the uncertainties affect the project it may be appropriate to adjust the approval accordingly.
- 4.15 In an extreme case, the Capex IM provides Transpower with the ability to shut down an approved project and recover the costs it has incurred to date from consumers. This is called the major capex sunk costs adjustment.<sup>54</sup> This adjustment is permitted in circumstances where it has become clear that the approved project is no longer the best option of the electricity market. This means that Transpower is not incentivised to invest in assets where the outputs are no longer required, or the expected net electricity market benefits are no longer worth seeking.

*The major capex allowance is not a fixed price contract*

- 4.16 The Capex IM allows Transpower to recover the costs it incurs in delivering a major capex project from consumers, up to an approved level.<sup>55</sup> The Capex IM also contains

---

<sup>50</sup> Capex IM, clause 4.1.1(1).

<sup>51</sup> Capex IM, clause 3.3.7(1).

<sup>52</sup> Capex IM, clause 3.3.7(2).

<sup>53</sup> Capex IM, clause 3.3.4.

<sup>54</sup> Capex IM, clause 3.3.5.

<sup>55</sup> Capex IM, clause 3.3.3(5)(b).

a re-approval mechanism.<sup>56</sup> The mechanism recognises that, when changing circumstances or new information warrants it, there is a valid case to make a change to the approved components of a project.

- 4.17 Based on this, the maximum amount that Transpower can recover from consumers is not 'set in stone' by the original approval of the MCA. However, amendments to the MCA are only permitted within certain circumstances controlled by the Capex IM. The MCA is not a contracted price that Transpower will deliver a project for. Transpower cannot recover the full MCA value if it has spent less than this amount in delivering the approved outputs for the project. Transpower can only recover project costs incurred up to the MCA without seeking additional approval. When the project costs incurred reach, or are forecast to reach, the MCA (which was set before the event using uncertain information), this becomes a trigger for a review of the project costs incurred. Then Transpower must justify, under the Capex IM, that any extra costs it seeks to recover from consumers are reasonable.
- 4.18 The justification to amend part of an approved project is presented in Transpower's application. The application should meet the criteria of the Capex IM;<sup>57</sup> this is covered in the next chapter and in the attachments to this paper.

### **What the Capex IM does not allow us to do**

- 4.19 The Capex IM sets the framework for our treatment of Transpower's capital expenditure. This restricts our decision on the application to amend the MCA for the project. Some of these restrictions, including matters raised by submitters that fall outside the framework of the Capex IM, are discussed below.
- 4.20 The Capex IM gives us no scope to reopen the original approval for a major capex project. Transpower only applied to the Commission for an amendment to the MCA component of the project.<sup>58</sup> The Capex IM limits our decision to the MCA and directly related components of the approved project.<sup>59</sup> Any analysis on the original approval for the project in this paper only relates to our decision on amending the MCA.
- 4.21 The Capex IM does not let us apply a penalty to Transpower if we, or stakeholders, disagree with its decisions. Instead, the Capex IM has set several incentive mechanisms to influence Transpower's behaviour.

---

<sup>56</sup> Capex IM, clause 3.3.4.

<sup>57</sup> Capex IM, clause 3.3.4(2)(a).

<sup>58</sup> Under clause 3.3.4(1) of the Capex IM Transpower can apply to us to amend the MCA, the approved major capex project outputs and the approval expiry date of the project. This clause also allows Transpower to apply to amend components of an approval relating to a non-transmission solution.

<sup>59</sup> Capex IM, clause 3.3.4(4).

- 4.22 The Capex IM does not allow us to make a decision that goes against the purpose of Part 4 of the Act, or is inconsistent with the other relevant input methodologies.<sup>60</sup>
- 4.23 The Capex IM gives us no scope to look at Transpower's WACC. We are satisfied the WACC set by the method specified in the *Transpower Input Methodologies Determination* [2012] NZCC 17 (29 June 2012) is appropriate for Transpower.

---

<sup>60</sup> Capex IM, clause 6.1.1(2)(a) and (b).

## 5. Reasons for our draft decision

- 5.1 In this chapter we discuss the reasons behind our draft decision to amend the MCA for the project to \$106.1 million (in 2009 prices). This discussion includes what our evaluation of the application found and how the Capex IM encourages improved outcomes from Transpower.

### Why we decided to amend the major capex allowance

- 5.2 We have made a draft decision to amend the MCA for the project from \$99 million (in 2009 prices) to \$106.1 million (in 2009 prices). The amended MCA is equal to the actual costs that Transpower incurred for the project. We made this draft decision because our evaluation of the application, using the criteria specified in the Capex IM, showed that this is consistent with the Capex IM and other regulations applying to Transpower.

### Our decision meets the requirements of the Capex IM

- 5.3 Our decision to amend the MCA for the project does not expose consumers to inefficient costs. This promotes the purpose of Part 4 of the Act.
- 5.4 Our decision maintains Transpower's incentives to invest in the national grid as it will be able to recover the efficient costs of its investments. We consider this is in the long-term benefit of consumers and so promotes the purpose of Part 4 of the Act. If Transpower cannot recover the efficient costs of investment this may reduce its incentive to invest in the national grid. If this was the case reliability would decline and consumers could be worse off.
- 5.5 We do not consider that Transpower is only permitted to recover efficient costs up to the originally approved MCA from consumers. The Capex IM allows for amendments to be made where this is justified. Transpower's application meets the requirements of the Capex IM, and our evaluation found that the costs incurred were efficient. An efficient investment is considered to be one where Transpower would incur the least cost over the lifetime of the assets.

### What our evaluation of the application found

- 5.6 We evaluated the application and additional information that Transpower provided at our request.
- 5.7 We found that the application meets the requirements of the Capex IM. The requirements of the Capex IM and our specific findings against these are covered in Attachment A.
- 5.8 A summary of our findings and a discussion on how we reached our decision is presented below. We consider:
- 5.8.1 Transpower decided to start the project before developing a full assessment of the costs;

- 5.8.2 shortcomings in the planning and cost estimating did not materially affect the actual project costs of delivering the approved project outputs;
- 5.8.3 increasing the MCA does not expose consumers to inefficient costs; and
- 5.8.4 consumers were exposed to the risk of a cost overrun by Transpower's decision.

**Transpower decided to start the project before developing a full assessment of the costs**

- 5.9 We found that the root cause that led to the need for the application was that Transpower decided to progress the project before developing a full assessment of the costs involved.
- 5.10 Transpower listed a number of key factors in the application that it says led to the underestimation of the project costs.<sup>61</sup> These key factors are discussed at a high level in Attachment A, and in more detail in Attachment B. The common link between these factors is that Transpower decided to progress the project before developing a full assessment of the costs involved. This was further aggravated by the fact that the work was on a 'brownfield'<sup>62</sup> site. The added complications of this were not recognised in the project scope and budget.
- 5.11 It appears that Transpower decided to progress the project because it believed that the Auckland and Northland electricity supply was at a lower level of security without the project. The risk of another supply outage affecting Auckland and Northland was considered to outweigh the need to obtain accurate costs for approval or project management.<sup>63</sup>

*The effect on the MCA of Transpower's decision to start the project early*

- 5.12 Transpower admits that there were errors, omissions and oversights in developing both the original budget used by the Electricity Commission to approve the project, and the internal PAD budget. In the case of the original budget submitted to the Electricity Commission, these issues lead to the underestimating of the costs of the project at the approval stage. This means that the MCA for the project was underestimated.

---

<sup>61</sup> Application, section 6.1 page 18.

<sup>62</sup> A brownfield site is one where there is existing works already in place. This adds to the complexity of any new work on site. Compare this to a greenfield site where there are fewer restrictions to work.

<sup>63</sup> Application, section 4.1.1 page 8.

- 5.13 Transpower claims<sup>64</sup> that its initial costing was supported by the fact it was similar to the value reached by consultants to the Electricity Commission.<sup>65</sup> However this does not fully address the issue.
- 5.13.1 The consultants were constrained by the information provided to them. A significant amount of the information regarding the project was based on Transpower's proposal. It is not surprising that similar costs were derived from similar information.
- 5.13.2 The consultant's report produced a base estimate. The base estimate is only part of the process for determining the maximum amount that can be recovered from consumers.
- 5.13.3 The consultant's report did not consider on-site issues, and, more importantly, did not include any assessment of the potential for the costs of the project to vary if circumstances changed. If these factors had been fully identified and incorporated into the approval, it is likely that Transpower would have had no need to seek an amendment.
- 5.13.4 It also remains that Transpower internally produced a lower cost for the project in the PAD budget than that used in the original approval. This lower cost was arrived at after carrying out additional investigations and conceptual design work.
- 5.14 Transpower's approval budget shows a very low difference between what is called the expected cost and the approved maximum amount that could be recovered from consumers. This low difference shows that there was very little recognition that the price of the project could change should circumstances change. Transpower admits that this was an oversight, particularly with the project being on a site that was already in use.<sup>66</sup>
- 5.15 If Transpower had undertaken site investigations and developed conceptual designs for the project, then more accurate costs would have been used when Transpower sought approval for the project.<sup>67</sup> Alternatively Transpower could have recognised the risk of starting the project without proper site investigations on a brownfield site by including a risk premium or increased contingency in the project costs. It would

---

<sup>64</sup> Application, section 1.2 page 2.

<sup>65</sup> Parsons Brinckerhoff Associates "Otahuhu Substation Diversity Project: Review of the Capital Cost Estimates for Transpower's Proposal of 11 December 2006" (May 2007), section 4. This report is available at [www.ea.govt.nz/industry/ec-archive/grid-investment-archive/gup/2005-gup/otahuhu-substation-diversity-proposal-history/](http://www.ea.govt.nz/industry/ec-archive/grid-investment-archive/gup/2005-gup/otahuhu-substation-diversity-proposal-history/).

<sup>66</sup> Application, section 1.2 page 2.

<sup>67</sup> Conceptual design refers to the level of design that allows Transpower and its consultants to obtain a reasonable idea of scope and estimate of costs to within 20%.

then be very likely that the approved MCA would have been similar to the project costs, and there would not be any requirement for an amendment.

- 5.16 Transpower did not take these options or any other action that could have resulted in an MCA that would have been higher than the actual project costs.
- 5.17 The process that Transpower chose to follow in developing the budget led to the low forecast of project costs. It was reasonably foreseeable that Transpower's choice of budget process led to the underestimation of the project costs. Transpower's choice of its budget process, and the resulting quality of the forecast costs, was within Transpower's control.
- 5.18 The conclusion that we draw from this is that Transpower's planning and cost estimating has significant scope for improvement from that employed when the project was developed. We believe that Transpower is implementing changes to its business processes that will lead to improvements.<sup>68</sup> The Capex IM has put an increased focus on Transpower's planning and expenditure. This is discussed in 'How the Capex IM encourages improved outcomes from Transpower' below.

#### **Shortcomings in the planning and cost estimating did not materially affect the project costs**

- 5.19 If Transpower had improved its cost estimation and obtained a better budget figure, this would not have changed the actual costs of the project to deliver the approved outputs to any significant degree. The actual cost required to deliver the approved outputs of the project is largely independent of the budgeting process.<sup>69</sup> We have not attempted to assess the difference in cost that improved planning and cost estimation would have provided.<sup>70</sup>

#### **Increasing the major capex allowance allows Transpower to recover the efficient costs of delivering the project outputs**

- 5.20 Our decision to allow Transpower to recover the costs of its capital investment will not result in consumers paying for inefficient choices in the delivery of the approved project outputs on the part of Transpower.
- 5.21 Despite Transpower's underestimation of the costs in their budget, we did not find that the actual costs incurred in delivering the approved project outputs were inefficiently incurred. Transpower did not attempt to spend its way out of trouble

---

<sup>68</sup> Application, section 7.6 page 35.

<sup>69</sup> Investigation costs for the project could have been higher. But, for example, the legal costs involved in the consenting of storm-water discharge may have been reduced.

<sup>70</sup> Transpower's decision to proceed with the project before adequate site investigations transferred some scope risk to the contractors. It is difficult to set a price for the scope risk that contractors allowed. We do not consider that a price can be efficiently developed and recovered from Transpower.

and buy solutions to the issues that were not identified during the planning phase of the project.

- 5.22 Our analysis of the project costs shows that there was reasonable cost and budget control in the delivery of the approved project outputs. Transpower had reasonably planned for and carried out mitigation of the cost and scope issues that lead to Transpower needing to make the application.
- 5.23 Transpower had implemented controls and mitigation strategies before it was aware that there was a possibility of running over the PAD budget on the project. The controls and strategies are listed below.
- 5.23.1 The project documentation supplied with the application shows that the project had established procedures for regular reporting and forecasting of costs to the management team.<sup>71</sup>
- 5.23.2 The PAD budget (\$76.6 million in 2006 prices) that Transpower had internal approval to use and manage the project with was lower than the expected costs in the original approval by \$9.4 million (in 2006 prices). This acted as a buffer for Transpower to take action to control costs before they exceeded the MCA.
- 5.23.3 Work packages, the sub-components to the key factors leading to the overspend in the project, were subject to competitive tender.<sup>72</sup> This sought to minimise project costs that would be recovered from consumers.
- 5.23.4 Transpower did not automatically approve scope and price variations requested by the provider of a work package. There is evidence that Transpower went to considerable lengths, including independent mediation, to settle on costs less than those claimed.
- 5.24 The independent quality-assurance review of the project endorses the processes undertaken by Transpower to control scope and cost changes.<sup>73</sup>

### **How the Capex IM encourages improved outcomes from Transpower**

- 5.25 The introduction of the Capex IM and other regulation that affect Transpower has set requirements and provides incentives for Transpower to improve its performance. These include that:
- 5.25.1 we must be satisfied with the cost estimates provided, and with the assessment of cost uncertainties, before we can approve a project;

---

<sup>71</sup> Application, section 4.5.2 page 11.

<sup>72</sup> Application, section 6.1 page 18.

<sup>73</sup> Application, section 4.5.3 page 11.

- 5.25.2 we must consider the views that any other parties raise on costs for a project;
  - 5.25.3 we must only approve a proposal for a project where the costs are the best estimate of the likely efficient costs;
  - 5.25.4 Transpower must publically disclose actual project costs and outputs; and
  - 5.25.5 the Capex IM provides Transpower with direct and indirect incentives to improve its performance for investing capital.
- 5.26 These are discussed below.
- 5.27 The approval process will not let the Commission approve a major capex process unless we are satisfied with the costs and uncertainties in prices that Transpower has used in developing its major capex proposal.<sup>74</sup> The requirement that the Commission is satisfied also applies to the other components of Transpower's major capex proposal, for example, the assumed commissioning date, the approval expiry date and the outputs the project will be judged on. The Capex IM provides criteria for us to evaluate these components.<sup>75</sup>
- 5.28 Seeing Transpower repeating errors, including inefficiencies, or exposing consumers to risk transfer in projects is not likely to satisfy us. Unless we are satisfied we cannot approve a major capex project. We have been engaging with Transpower over the costs and uncertainties in the costs Transpower intends to use for future major capex projects.
- 5.29 We must also take into account any views submitters raise on the costs Transpower has proposed for the project and ongoing operations.<sup>76</sup> This requirement also applies to any other matter in Transpower's major capex proposal and our draft decision on the proposal. Stakeholders can tell us where they believe that we, or Transpower, have got it wrong. We must consider their views in our draft decision. Transpower must review issues submitters raise in its own consultation. Transpower must then explain how its proposal accommodates, or does not accommodate, the issues raised. This places additional scrutiny on Transpower and will result in improved outcomes.
- 5.30 Transpower faces a cost to its business in taking the time to develop an amendment, and the approval of any amendment is not guaranteed. This provides an additional incentive for Transpower to have the major capex proposal correct in the first place.

---

<sup>74</sup> Capex IM, clause C1(2).

<sup>75</sup> Capex IM, clauses C2 to C6.

<sup>76</sup> Capex IM, clause 3.3.3(3)(a).

- 5.31 Transpower is likely to improve its internal process if any shortcomings are exposed to public scrutiny.
- 5.32 Transpower will face additional scrutiny due to the new requirements to regularly and consistently report on the progress of its projects. Stakeholders will be able to judge Transpower's performance, for specific projects and over time, using this information. Increased reporting requirements will also be introduced in the future.<sup>77</sup>
- 5.33 There are defined incentives within the Capex IM to improve Transpower's performance. These are:
- 5.33.1 the major capex efficiency incentive, as discussed above, encourages Transpower to improve its processes as well as developing more efficient physical solutions;<sup>78</sup>
  - 5.33.2 the major capex sunk costs adjustment, as discussed above, allows Transpower to withdraw from projects that are approved but no longer required;<sup>79</sup>
  - 5.33.3 the major capex overspend adjustment forces Transpower to bear all unapproved costs for a project.<sup>80</sup> This incentivises Transpower to either remain with the approved limit or apply for an amendment to a project; and
  - 5.33.4 the major capex project output adjustment applies a penalty to Transpower if it has not met set project objectives.<sup>81</sup> This prevents Transpower from keeping within the approved cost limits, but under-delivering on the performance of the project.

---

<sup>77</sup> Transpower will be required to produce an integrated transmission plan in the future and will be subject to information disclosure when this is developed.

<sup>78</sup> Capex IM, clause 4.1.1(1).

<sup>79</sup> Capex IM, clause 3.3.5.

<sup>80</sup> Capex IM, clause 3.3.7(1).

<sup>81</sup> Capex IM, clause 3.3.7(2).

## Attachment A: Our evaluation of the application against the requirements of the Capex IM

- A1 Our evaluation of the application under the Capex IM covers three key areas. These areas are:
- A1.1 a general evaluation of the application;
  - A1.2 an evaluation of matters specific to the application; and
  - A1.3 an assessment that the process requirements have been met.

### General evaluation of the application

- A2 The general evaluation of the application we must carry out is based on:<sup>82</sup>
- A2.1 what is proposed is consistent with the Capex IM and the Transpower (Input Methodologies) Determination 2010;<sup>83</sup>
  - A2.2 the extent to which what is proposed promotes the purpose of Part 4 of the Act; and
  - A2.3 whether the data, analysis and assumptions provided by Transpower are fit for purpose.
- A3 These matters are discussed below.

### The application and our decision is consistent with relevant input methodologies

- A4 We found no reason to consider that what was proposed by Transpower, or our decision, is inconsistent with the Capex IM and any other relevant input methodology.
- A5 We considered the views expressed in the consultation on the application. We have identified where making a decision in line with these views would produce outcomes inconsistent the input methodologies. This is discussed in the 'What the Capex IM does not allow us to do' section in Chapter 4.

### Our decision promotes the purpose of Part 4 of the Act

- A6 Our decision to amend the MCA of the project promotes the purpose of Part 4 of the Act. The amended MCA will allow Transpower to recover the full amount of the costs it incurred in delivering the approved outputs of the project.

---

<sup>82</sup> Capex IM, clause 6.1.1(2) as required by clause 3.3.4(2)(c).

<sup>83</sup> This Determination has been replaced by *Transpower Input Methodologies Determination* [2012] NZCC 17 (29 June 2012).

- A7 'The purpose of Part 4 of the Act is to promote the long-term benefits of consumers in markets where there is little or no competition, by promoting outcomes that are consistent with outcomes produced in competitive markets.'<sup>84</sup> In determining the Capex IM the Commission was guided by the purpose of Part 4 of the Act.
- A8 The costs incurred in delivering the approved outputs of the project were reasonable and efficiently incurred. Consumers will not face inefficient costs and Transpower will have an incentive to invest, knowing it can recover the full amount of efficient costs incurred.
- A9 Transpower, stakeholders and the Commission consider that Transpower's planning and cost estimation process for the project had significant room for improvement. This directly led to the underestimation of costs and exposed consumers to uncertainty in the price that they would have to face for the project. Transpower is addressing this aspect of its business to improve performance. The regulatory regime that has come into force since the project was approved requires more scrutiny of Transpower's major capital proposals. It also requires more reporting of project performance. This will allow stakeholders and the Commission to better judge Transpower in the future.

### **The application and supporting information was fit for purpose**

- A10 We had no material concerns with the information used to support our decision.
- A11 We consider that the information we based our decision to amend the MCA on was fit for our purpose. In making our decision we used the information provided by Transpower in the application, and in response to questions we asked, as required by the Capex IM.
- A12 When we received the information, we assessed the inputs used, outputs produced and the methodology used. We examined the information provided for consistency and quality. We considered if Transpower's conclusions were supported by the evidence it provided.

### **Evaluation of matters specific to the application**

- A13 The evaluation of matters specific to the application covers three areas.<sup>85</sup> These areas are:

A13.1 the key factors that caused Transpower to apply for an amendment;<sup>86</sup>

---

<sup>84</sup> Commerce Act (1986), section 52A(1).

<sup>85</sup> Capex IM, clause 6.1.1(5) as required by clause 3.3.4(2)(c).

<sup>86</sup> This includes if the key factor was foreseeable and within Transpower's control and how Transpower mitigated the key factors outside its control.

- A13.2 the effect of any amendment on the expected net electricity market benefits for the project; and
- A13.3 the extent to which Transpower has already incurred capital expenditure.
- A14 These matters are discussed below. More detail on the evaluation of the key factors is presented in Attachment B.
- A15 The evaluation of the specific matters informs, but does not dictate, our decision and the appropriate value for the amendment of the MCA.

### **The key factors that led to the application**

- A16 Transpower says that there were a number of reasons that contributed to the actual project costs exceeding the MCA.<sup>87</sup> In summary, these were:
- A16.1 unforeseen environmental requirements for stormwater filtration facilities;
- A16.2 the need to relocate existing underground utilities services which were not detailed and in some cases not identified on drawings of the site;
- A16.3 a significant underestimate of the cost to install four 220 kV transmission towers;
- A16.4 complex and challenging design and installation enabling works for secondary systems, including protection, SCADA and communications;
- A16.5 exchange rate fluctuations associated with the design/build contract for the major construction component of the project;
- A16.6 the need to award a contract to complete the construction enabling works prior to completing the detailed design and associated scoping of the necessary works due to the urgency required to mitigate the single-point-of-failure risk to Auckland;
- A16.7 the unexpected need to include the costs of a property easement; and
- A16.8 an underestimate of interest during construction (IDC) due to an over-simplified 'rule-of-thumb' calculation.
- A17 The Capex IM provides criteria to be used in our evaluation of the key factors.<sup>88</sup> These include if the key factor was foreseeable and within Transpower's control, and how Transpower mitigated the key factors outside its control.

---

<sup>87</sup> Application, section 6.1.1 page 18.

<sup>88</sup> Capex IM, clause 6.1.1(5)(a) and (b) as required by clause 3.3.4(2)(c).

- A18 Our evaluation found, in summary, that:
- A18.1 Transpower's decision to seek approval for and start the project early led to an underestimation of the costs for each key factor;
  - A18.2 this was Transpower's choice and the result was foreseeable; and
  - A18.3 each key factor's actual costs in delivering the approved project outputs were efficiently incurred.
- A19 Details on our findings for the evaluation of each key factor are presented in Attachment B.

*Evaluation of the application*

- A20 In assessing the key factors we have examined all the costs that Transpower incurred in delivering the approved project outputs. We have not limited our analysis to only the amount of costs that was in excess of the approved MCA.
- A21 In making our assessment of Transpower's decisions we have considered the project management methodology used by Transpower in delivering the approved project outputs. This includes the project management plan<sup>89</sup> and the cost management procedure document<sup>90</sup> that Transpower supplied. We also relied on the "Independent Quality Assurance New Zealand (IQANZ) Otahuhu Diversity Project Health Check Review" document that accompanied the application.<sup>91</sup>
- A22 We recognise that it is difficult to fully assess the efficiency of each item of expenditure in a project of this size and complexity. Our evaluation has relied on the controls Transpower put in place to deliver the approved outputs of the project and the IQANZ review. Our assessment on the efficiency of costs was based on not finding any evidence of inefficiencies in the project costs, rather than individually assessing each cost item.
- A23 Transpower has relied upon competitive tendering to control the costs for various items of work. We recognise contractors will factor in risk and uncertainty in their tenders. Transpower's decision not to undertake appropriate site investigation and produce concept designs may have led to an additional risk margin being included by contractors.

---

<sup>89</sup> Application, Appendix B.

<sup>90</sup> Application, Appendix C.

<sup>91</sup> Application, Appendix D.

### **The effect of our decision on the expected net electricity market benefit**

- A24 We do not consider that the expected net electricity market benefit of the project will be materially lower given our decision to amend the MCA. How we reached this conclusion is discussed below.
- A25 The Capex IM requires us to evaluate the extent to which the project's expected net electricity market benefit would be materially lower as a result of the amendment compared to when it was approved.<sup>92</sup> The amendment requested in the application is only for an increase in the allowed capital costs of the project and so our decision can only take into consideration the effects this increase in capital costs has on the expected net electricity market benefit of the project. Changes to other categories, that have resulted in a difference in total electricity market benefits calculated at the original approval stage compared to once the project was commissioned, are not considered to form part of our decision. However, we do discuss the effect of some of these changes below.
- A26 In the original approval of the project the electricity market benefit relating to the capital costs was calculated by Transpower as negative \$82.2 million (in 2006 prices).<sup>93</sup> This was determined using the grid investment test (GIT) methodology set under the Electricity Governance Rules (EGRs). The calculation involved discounting the expected costs of the project, and the costs of any other projects that are likely to occur as a result of the Otahuhu diversity project,<sup>94</sup> over a period that extends twenty years after the project was forecast to be commissioned. These project costs exclude any cost of finance.
- A27 The effect of amending the MCA is to recognise the actual costs incurred by Transpower in delivering the approved outputs of the project. The updated calculation of the electricity market benefits, reflecting the result of amending the MCA, replaces the stream of expected project costs with the actual costs incurred in delivering the approved project outputs. The costs for other projects that are likely to occur as a result of the Otahuhu diversity project in the period twenty years after the project was forecast to be commissioned were unchanged. As with the original calculation, these project costs exclude any cost of finance.
- A28 The result of the updated calculation of the electricity market benefits relating to the capital cost is negative \$82.5 million (in 2006 prices).<sup>95</sup> This is a difference of \$0.3 million (in 2006 prices) lower than the electricity market benefits relevant to amending the MCA that was determined when the project was approved (negative

---

<sup>92</sup> Capex IM, clause 6.1.1(5)(c).

<sup>93</sup> Application, table 7-1 page 34.

<sup>94</sup> The projects that were considered likely to occur in this forecast due to the approval of the project were called modelled project.

<sup>95</sup> Application, table 7-1 page 34.

\$82.2 million (in 2006 prices)). While the application is to increase the MCA by \$7.1 million (in 2009 prices), the calculation of electricity market benefits excludes the costs of interest during construction.<sup>96</sup> Transpower has incurred more costs than the estimated project costs at the approval stage. However the effect of this on the electricity market benefits was partially offset by Transpower's delay in incurring the project costs. Delaying project costs compared to the original estimated cash flow reduces the present value of the project.

- A29 Transpower has not presented a full calculation of the expected net electricity market benefit as detailed in the Capex IM.<sup>97</sup> However, we do not consider that the \$0.3 million (in 2006 prices) decrease in benefits due to the amendment will result in a materially lower expected net electricity market benefit for the project. In order to develop a full calculation of the expected net electricity market benefit Transpower would have to develop figures for all of the electricity market cost and benefit elements.<sup>98</sup> This includes the requirement to quantify electricity market cost and benefit elements that were not previously determined under the rules the project was approved under.<sup>99</sup> Transpower would also have to apply the relevant demand and generation scenarios to the net electricity market benefits and take a weighted average of the results.<sup>100</sup> We consider that the small decrease in benefits Transpower calculated if the MCA was to be amended will not materially affect the expected net electricity market benefit. We do not consider the effort involved in determining the exact difference amending the MCA makes to the expected net electricity market benefit is appropriate for our evaluation.
- A30 Transpower's recalculation of the benefits of the project using the actual costs and timing of the project<sup>101</sup> and the calculation of benefits presented in the original proposal is presented in Table A1 below.<sup>102</sup> As stated above, the only component of the electricity market benefits calculation that is affected by the decision to amend the MCA is that relating to the capital costs of the project. The other components are presented for information only.

---

<sup>96</sup> Interest during construction was estimated as \$4 million (in 2006 prices) in the original approval and the actual amount incurred was \$6.9 million (in 2009 prices).

<sup>97</sup> Capex IM, Schedule D clause D1.

<sup>98</sup> Capex IM, Schedule D clause D5(1).

<sup>99</sup> Capex IM, Schedule D clause D1(1)(c)(ii).

<sup>100</sup> Capex IM, Schedule D clause D3(1).

<sup>101</sup> Application, table 7-1 page 34.

<sup>102</sup> Transpower, "Otahuhu Substation Diversity Project - Proposal - Application for approval" (11 December 2006) table 10-1 page 41.

**Table A1: Comparison of forecast and actual NPV electricity market benefits (\$ millions in 2006 prices)**

	Original proposal	Actual	Difference in actual to original proposal
Capital cost	(82.2)	(82.5)	(0.3) <sup>103</sup>
Consenting and noise abatement	0.0	0.0	0.0
Operations and maintenance	(2.6)	(2.1)	0.5
Total cost	(84.8)	(84.6)	0.2
Saved expected unserved energy	23.2	16.5	(6.7)
Terminal value	3.0	2.1	(0.7)
Terminal benefit	4.1	4.1	0.0
Total benefit	30.3	22.8	(7.5)
Expected net market benefit	(54.3)	(61.8)	(7.5)

*Note costs have been presented as negative benefits, rounding may affect some figures.*

- A31 The original expected net market benefits for the project were calculated as negative \$54.3 million. The project was approved with negative benefits because it was considered necessary to keep the transmission network in a state that meets the established reliability standards.<sup>104</sup> Meeting the established reliability standards was considered to have a value that was greater than the negative outcome of the grid investment test. A similar provision to approve project with negative benefits exists under the Capex IM.<sup>105</sup>
- A32 The other electricity market benefits listed in Table A1 are not affected by the decision to amend the MCA. We have no scope under the Capex IM to take these electricity market benefits into account when we make our decision on amending the MCA.

<sup>103</sup> As stated above, this is the only component of the electricity market benefits calculation that is affected by the decision to amend the MCA.

<sup>104</sup> The established reliability standards are the n-1 criterion of the Grid Reliability Standards (GRS). The former Electricity Commission established the Grid Reliability Standards as required by Rule 4 of section 3 of part F of the now obsolete Electricity Governance Rules (EGR). Rule 13 of the EGR, part F, s3 allows that grid investments required to meet reliability standards must have the least electricity market costs but not necessarily provide positive expected net market benefits. The EGR is available at the Electricity Authority website [www.ea.govt.nz/act-code-regs/ec-archive/rules-regs/rulebook-regs/rules/](http://www.ea.govt.nz/act-code-regs/ec-archive/rules-regs/rulebook-regs/rules/).

<sup>105</sup> Capex IM, Schedule D clause D1(1)(b).

- A33 The table shows that while the capital costs increase as a result of the amendment, this is offset by a reduction in operating and maintenance costs. This reduction is due to the delay in the implementation of the project by two years, leading to a corresponding delay in the operational costs for the project starting to be incurred. The operations and maintenance costs are not affected by any decision we make relating to the amendment of the MCA.
- A34 The benefits of the project have been reduced due to the same delay, resulting in a lower amount of unserved energy being saved than was originally predicted. Transpower did not update the demand forecast used in the original application in order to calculate this value. This is the most significant factor in the calculation of expected net market benefit. The saved unserved energy is not affected by increasing the MCA; any updates to the demand forecast would not affect our decision on the amendment.
- A35 The updated unserved energy values and project delay also affects the calculation of the terminal value. The terminal value is not materially affected by our amendment of the MCA.

#### **The extent to which Transpower has already incurred capital expenditure**

- A36 Transpower has already incurred the majority of the capital expenditure for the project. The project is commissioned and the only outstanding costs are an estimated \$0.1 million. This relates to the removal of redundant assets that are scheduled to be taken away at a later date.<sup>106</sup>
- A37 The extent to which Transpower has incurred additional capital costs above the forecast value, while delivering the approved project outputs, is the reason behind the application to amend the MCA. Dealing with actual costs to deliver the approved outputs, as opposed to a forecast, provides more certainty on the values under evaluation.
- A38 This provides us with more certainty in performing our evaluation and making our decision on amending the MCA.

#### **The process requirements of the Capex IM are satisfied**

- A39 The Capex IM has a number of process requirements related to an amendment. These include the:
- A39.1 timing for submitting the application and our decision;
  - A39.2 information provided by Transpower in the application; and
  - A39.3 certification of the information provided by Transpower.

---

<sup>106</sup> Application, section 4.4 page 10.

A40 These matters are discussed below.

**The timing requirements of the Capex IM are satisfied**

A41 The application was submitted on 27 September 2012, this is within the time allowed for an application to the project to be submitted under the Capex IM.<sup>107</sup> The allowable timeframe for an application to amend the project closed on 28 September 2012. The timeframe for an application to amend any project closes on the last working day of September in the disclosure year in which the project was commissioned. A disclosure year is the year ending 30 June. The project was commissioned in November 2011.

A42 We discuss the use of Part 5 of the Capex IM to extend the two-month deadline the Commission had to make its decision in the 'Timing of our decision' section in Chapter 2.

**Transpower satisfied the information requirements of the Capex IM**

A43 Transpower provided the information required by the Capex IM in its application.<sup>108</sup>

A44 As part of this requirement Transpower has addressed specific matters in the application. These include the effect of any amendment by the Commission on:

A44.1 the project outputs as set in the original approval by the former Electricity Commission;<sup>109</sup>

A44.2 the assets commissioned as part of the project;<sup>110</sup>

A44.3 the functional capability of the transmission grid;<sup>111</sup>

A44.4 any relevant service provided by a third party;<sup>112</sup> and

A44.5 any implications for other approved major capex projects.<sup>113</sup>

A45 In the application Transpower concludes that any amendment by the Commission will have no effect on the matters listed above. Transpower notes that the cost estimation has undergone continuing improvement and the risk profile has more consideration in the scope development. We agree with Transpower's assessment

---

<sup>107</sup> Capex IM, clause 7.4.2(1).

<sup>108</sup> Capex IM, Schedule H Division 1 as required by clause 7.4.2(3)(a).

<sup>109</sup> Application, section 7.1 page 35.

<sup>110</sup> Application, section 7.3 page 35.

<sup>111</sup> Application, section 7.4 page 35.

<sup>112</sup> Application, section 7.5 page 35.

<sup>113</sup> Application, section 7.6 page 35.

that our decision will have no impact on the matters listed above. We have seen an improvement in the costing and risk identification processes for more recent projects being developed under the Capex IM.

**Transpower satisfied the certification requirements of the Capex IM**

A46 Transpower certified the information supplied to the Commission in accordance with the Capex IM.<sup>114</sup> The application was accompanied by the correct certificate signed by the chief executive officer of Transpower.<sup>115</sup>

---

<sup>114</sup> Capex IM, clause 9.3.1 as required by clause 7.4.2(4).

<sup>115</sup> The signed certificate can be viewed at [www.comcom.govt.nz/otahuhu-substation-diversity-project-mca-amendment-application/](http://www.comcom.govt.nz/otahuhu-substation-diversity-project-mca-amendment-application/).

## Attachment B: Our evaluation of the key factors in the application

B1 In this attachment we discuss our evaluation of the key factors that led to the application to amend the MCA. Our evaluation of each key factor must include criteria set in the Capex IM.<sup>116</sup> This is discussed below.

### What the Capex IM requires us to evaluate in relation to the key factors

B2 The Capex IM requires us to evaluate the key factors that led to Transpower sending us an application.<sup>117</sup> We must assess the extent to which each key factor relevant to the proposed amendment:

B2.1 was reasonably foreseeable by Transpower before the project was approved by the Commission; and

B2.2 was or is within Transpower's control.

B3 If the key factor was outside Transpower's control we must assess:

B3.1 the reasonableness of any applicable mitigation strategy devised by Transpower; and

B3.2 the reasonableness and extent of mitigation actions taken by Transpower.

### The key factors presented by Transpower

B4 Transpower says that there were a number of reasons that contributed to the actual project costs exceeding the MCA. Transpower discusses the reasons that led to overspending the MCA in the following cost categories.<sup>118</sup>

B4.1 Enabling works civil general overspend

B4.2 Transmission line deviations

B4.3 Enabling works secondary systems design and install

B4.4 Enabling works transition station and cable termination

B4.5 Enabling works procurement

B4.6 Design/build contract for GIS/AIS and EHV cable

---

<sup>116</sup> Capex IM, clause 6.1.1(5)(a) and (b).

<sup>117</sup> Capex IM, clause 3.3.4(2)(c).

<sup>118</sup> Application, section 6 page 18.

B4.7 Land easement

B4.8 Interest during construction

B5 The budget and actual amounts of each key factor are shown in Table B1 below.

**Table B1: Key factors and costs relevant to the application<sup>119</sup>**

Overspend category/ Adjustment to PAD estimate	PAD budget 2006 \$	Actual	Overspend relative to PAD	Adjusted PAD 2009 \$	Overspend relative to adjusted PAD
Enabling works civil general	3.5	11.0	7.5	3.8	7.2
Transmission line deviations	2.4	4.2	1.8	2.5	1.7
Enabling works secondary equipment design & install	2.8	7.7	4.9	3.0	4.6
EW transition station & cable termination design & install	3.2	7.1	3.9	3.4	3.6
Enabling works procurement	3.4	3.9	0.5	3.7	0.2
Design build GIS/AIS & EHV cable	58.2	64.2	6.0	62.9	1.3
Land easement	0.0	1.2	1.2	0.0	1.2
Interest during construction	3.2	6.9	3.7	3.5	3.5
<b>TOTAL</b>	<b>76.6</b>	<b>106.1</b>	<b>29.5</b>	<b>82.8</b>	<b>23.3</b>

B6 Our evaluation of the key factors is presented below in the same categories as Transpower provided its information.

B7 As discussed in Chapter 3, we have accepted Transpower's use of the PAD budget for the application. The PAD budget used for the application, and in the management of the project, differs from the budget used for the original approval of the project. The approved outputs of the project remain the same.

<sup>119</sup> Application, table 5-3 page 16.

## The results of our evaluation of the key factors

- B8 We evaluated the key factors presented by Transpower in accordance with the criteria set in the Capex IM. Our evaluation found that:
- B8.1 Transpower's decision to seek approval for and start the project early led to an underestimation of the costs for each key factor;
  - B8.2 this was Transpower's choice and the result was foreseeable; and
  - B8.3 each key factor's actual costs were efficiently incurred.
- B9 We discuss the common themes our evaluation found and the findings for each key factor below.

## The common themes we found in the key factors leading to the application

- B10 In our evaluation of the key factors we found that:
- B10.1 the key factors were foreseeable by Transpower;
  - B10.2 the key factors were controllable by Transpower; and
  - B10.3 Transpower's mitigation plans and actions controlled the costs incurred.

### *The key factors were foreseeable by Transpower*

- B11 We consider that for the most part the key factors leading to the amendment were reasonably foreseeable by Transpower. Transpower's decision not to carry out appropriate site investigations and produce conceptual designs, and the flow-on effects of this, is part of our assessment. The project was approved by the Electricity Commission in August 2007. Under the Capex IM this is considered the date at which the project was approved by the Commerce Commission. This is the point that we must use for our assessment of whether a key factor was reasonably foreseeable by Transpower. As the PAD budget was being developed before the project was approved by the former Electricity Commission, we consider it acceptable to base our analysis of the key factors on the PAD budget structure presented by Transpower.
- B12 The assessment of whether a key factor was reasonably foreseeable by Transpower is strongly influenced by the decision to seek approval for the project before carrying out appropriate site investigations and producing conceptual designs. This decision appears to have been made due to Transpower's assessment that the need to mitigate the single-point-of-failure risk to Auckland outweighed the need for more accurate project costs.
- B13 The decision to progress the project quickly led to the lack of appropriate site investigation and design. This meant that costs were not as accurate as they could have been. It is reasonably foreseeable that increased investigation would lead to more accurate estimates of costs. The resulting risk that forecasts developed with incomplete information could have different outcomes due to unforeseen

circumstances was not fully recognised by Transpower. It is reasonable to expect that costs could change when a project involves a brownfield site. It is also reasonable to expect that there is a possibility of costs increasing when components are not fully investigated.

*The key factors were within Transpower's control*

- B14 The decision to progress the project in advance of accurate costing was within Transpower's control, and so the key factors that led to the amendment were also in Transpower's control. The result of this is that we are not required to assess the reasonableness and extent of Transpower's mitigation strategies and actions.
- B15 However, we do not ignore Transpower's mitigation strategies and actions, as they form a key part of our decision on determining if costs were efficiently incurred.

*Transpower's mitigation plans and actions controlled the costs incurred*

- B16 There is evidence Transpower planned and carried out mitigating activities to control spending more than the approved amount while delivering the approved outputs. While this did not prevent spending more than the approved amount, it did ensure that costs were reasonable and efficiently incurred.
- B17 The project documentation supplied in the application shows that Transpower had internal approval for \$76.6 million (in 2006 prices). This was the figure used to manage the project. This is below the MCA and the P50 estimate of costs for the project. Transpower did not intend to spend more than the approved amount.
- B18 The scope and cost controls were in place in the project management plan before Transpower became aware that the project would run over the internal PAD budget. This was also before Transpower was aware the approved expected and maximum allowable costs would also be exceeded. The scope and cost controls used in the delivery phase of the project were endorsed by an independent review.
- B19 Transpower used competitive tendering for many work packages in the project. This is supportive of the claims that costs to deliver approved outputs were efficiently incurred. However if tendering for a work package is based on incomplete information there is an element of doubt that the costs can be considered efficient. In many cases there was not sufficient information to accurately cost a work package. In addition, the contractor may rely on the contract provisions to recover over the tender price. Transpower has attempted to mitigate these risks by having scope and cost control integrated into the project management. This was confirmed by the independent project health check that was carried out.

## Evaluation of individual key factors relevant to the amendment

B20 The evaluation of each key factor relevant to the amendment is discussed below.

### Enabling works civil general overspend

*\$11 million expenditure against a budget of \$3.5 million*

B21 The enabling works civil general contains the following components:

- B21.1 stormwater drainage;
- B21.2 underground services relocation;
- B21.3 wastewater;
- B21.4 warehouse building relocation; and
- B21.5 earthworks and general.

B22 These matters are discussed below.

*Stormwater drainage \$3.1 million expenditure against a budget of \$0.1 million*

B23 Transpower stated that the additional cost was incurred because it had to provide a storm-water filtration facility to treat runoff from the galvanised equipment installed in the switchyard and to provide a new discharge point. This work was necessary to comply with the resource consents required by the Auckland Regional Council and Manukau City Council. Transpower stated that the requirement to treat storm-water runoff was not anticipated based on Transpower's experience with storm water discharge.<sup>120</sup>

B24 With the level of information that Transpower had at the time the project was approved it is doubtful that the stormwater filtration requirements could have been foreseen. However, Transpower did decide to seek approval for the project before trying to obtain more information on the ground issues affecting the project. This could have enabled the consent requirements to be identified and included in the project scope. Transpower did not attempt to manage the risk that this decision created. Appropriate on-site investigations and conceptual design may still have not fully identified all the issues that the project encountered.

B25 We found that Transpower did not simply buy the first available solution to the stormwater problem but undertook investigations into the most cost-effective treatment system. It also undertook a legal challenge to the conditions of the consent it found it was going to have to operate under. If successful, this would have reduced the unplanned costs that Transpower faced.

---

<sup>120</sup> Application, section 6.2.1 page 20.

*Relocation of underground services \$1.8 million expenditure against a budget of \$0.2 million*

- B26 Transpower stated that this cost was due to the need to relocate existing underground services that were either not identified during the investigations or the scope of work required to relocate the known services could not be accurately defined by above-ground investigations.<sup>121</sup>
- B27 A portion of the additional costs in this category can be attributed to the decision to progress the project before carrying out further investigations and design. Some of the additional costs would not have been foreseeable even if further investigations had been carried out. However, Transpower did not factor in the risk to the project of unforeseen factors increasing the cost.
- B28 Transpower undertook competitive tendering as a means of controlling the costs for this work package. The project-management documentation also shows that scope and price controls were in place.

*Wastewater \$1.8 million expenditure against a budget of \$0.3 million*

- B29 Transpower stated that this cost was to relocate the manhole of a sewer main that was located in the area of the proposed new switchyard. Transpower identified this work and budgeted \$0.3 million for it. Transpower stated that the work was technically challenging.<sup>122</sup>
- B30 It is unclear if additional investigation and design would have provided enough information to accurately estimate the costs involved for the work package.
- B31 Transpower actively managed the contract variations incurred as a result of the challenges encountered.

*Warehouse building relocation \$1.5 million expenditure against a budget of \$1.2 million*

- B32 This work package was to replace the warehouse with a new structure on an existing building. Transpower under-estimated the cost of this work.<sup>123</sup>
- B33 The underlying reason for the additional costs in this category was the decision to progress the project before carrying out appropriate investigations and design.
- B34 We have no reason to consider that the actual costs incurred for this work package were inefficiently incurred. The controls around cost and scope management for the project applied to this work package.

---

<sup>121</sup> Application, section 6.2.2 page 21.

<sup>122</sup> Application, section 6.2.3 page 22.

<sup>123</sup> Application, section 6.2.4 page 23.

*Earthworks and general \$2.9 million expenditure against a budget of \$1.8 million*

- B35 This work package was to establish the platform for the new AIS switchyard and GIS building on a greenfield site. Transpower stated that the scope of this work package increased as work progressed.<sup>124</sup>
- B36 The underlying reason for the additional costs in this category was the decision to progress the project before carrying out appropriate investigations and design.
- B37 We have no reason to consider that the actual costs incurred for this work package were inefficiently incurred. The controls on cost and scope management for the project applied to this work package.

**Transmission line deviations**

*\$4.2 million expenditure against a budget of \$2.4 million*

- B38 The overspend in this category was foreseeable by Transpower. The cause of the overspend in this category was the underestimation of the 220 kV tower-foundation costs. All other items in this work package were delivered under budget. Transpower states that the conditions relating to the tower foundations on the Otahuhu site were known at the time the PAD budget was prepared. However, the costs included in the PAD budget were based on another site with different foundation requirements. It is unclear why the actual site requirements did not inform the foundation costs Transpower used.<sup>125</sup>
- B39 We have no reason to consider that the actual costs incurred for this work package were inefficiently incurred. The controls on cost and scope management for the project applied to this work package.

**Enabling works secondary systems design and install**

*\$7.7 million expenditure against a budget of \$2.8 million*

- B40 Transpower stated that most of the additional expense was for the design and installation of electrical protection systems. The original budget was based on a high-level outline of the protection scope.<sup>126</sup>
- B41 The underlying reason for the additional costs in this category was the decision to progress the project before carrying out appropriate investigations and design. We consider that appropriate investigations would have provided a more accurate scope and estimate of costs.

---

<sup>124</sup> Application, section 6.2.5 page 23.

<sup>125</sup> Application, section 6.3 page 24.

<sup>126</sup> Application, section 6.4 page 25.

- B42 Transpower considered developing and awarding an installation contract but decided not to as this would add complexity and not necessarily reduce the cost. The cost was considered not to have been reduced due to the contractor potentially pricing in the risk of the unknown. There is a case to be made that an allowance for the risk of the unknown should have been included.
- B43 Transpower competitively tendered for the work and managed the cost and scope variations.
- B44 We have no reason to consider that the actual costs incurred for this work package were inefficiently incurred. The controls on cost and scope management for the project applied to this work package.

### **Enabling works transition station and cable termination**

#### *\$7.1 million expenditure against a budget of \$3.2 million*

- B45 This key factor is made up of three different sub-factors. These are:
- B45.1 cable terminations;
  - B45.2 transition stations; and
  - B45.3 AIS switchyard works.

- B46 These matters are discussed below.

#### *Cable terminations \$2.1 million expenditure against a budget of \$1.2 million*

- B47 Transpower stated that the additional costs were due to the constraints of terminating cables within the existing switchyard.<sup>127</sup>
- B48 Allowing for the complexity of working in the existing switchyard is likely to have resulted in a better budget figure. Transpower understood the installation costs for the equipment but did not allow for the complexity of working within an existing switchyard.
- B49 There were a number of scope refinements and contract variations on this work package. We have no reason to consider that the actual costs incurred for this work package were inefficiently incurred. The controls on cost and scope management for the project applied to this work package.

---

<sup>127</sup> Application, section 6.5.1 page 27.

*Transition stations \$3.9 million expenditure against a budget of \$1.6 million*

- B50 Transpower states that two of the transition stations had additional costs that were identified and should have been included in the PAD budget. The reason that these identified costs were not included is unclear.<sup>128</sup>
- B51 There were a number of scope refinements and contract variations on this work package. The common cause of these changes was the lack of investigation and detailed design at the time the contract for the work package was awarded.
- B52 We have no reason to consider that the actual costs incurred for this work package were inefficiently incurred. The controls on cost and scope management for the project applied to this work package.

*AIS switchyard works \$1.0 million expenditure against a budget of \$0.3 million*

- B53 Transpower stated that the scope of this work included two new circuit breakers and relocating an existing circuit to a different circuit breaker.<sup>129</sup> We consider that Transpower's PAD budget for this work was underestimated.
- B54 The underlying reason for the additional costs in this category was the decision to progress the project before carrying out appropriate investigations. This decision meant that the added complexity of carrying out works in an existing switchyard was not considered when planning for the project.
- B55 We have no reason to consider that the actual costs incurred for this work package were inefficiently incurred. The controls on cost and scope management for the project applied to this work package.

**Enabling works procurement**

*\$3.9 million expenditure against a budget of \$3.4 million*

- B56 This over-expenditure was mainly to buy the additional protection equipment not included in the original scope.<sup>130</sup>
- B57 The underlying reason for the additional costs in this category was the decision to progress the project before carrying out appropriate investigations and design. This decision meant that the 136 protection relay equipment items required by the project were not considered when planning for the project.

---

<sup>128</sup> Application, section 6.5.2 page 28.

<sup>129</sup> Application, section 6.5.3 page 28.

<sup>130</sup> Application, section 6.6 page 29.

B58 We have no reason to consider that the actual costs incurred for this work package were inefficiently incurred. The controls around cost and scope management for the project applied to this work package.

### **Design/build contract for GIS/AIS and EHV cable**

*\$64.2 million expenditure against a budget of \$58.2m*

B59 Transpower stated that the increase in costs was mainly due to fluctuations in exchange rate.<sup>131</sup>

B60 We have assessed the amount of overspend attributed to exchange-rate issues and are broadly satisfied with the results Transpower presented.<sup>132</sup>

B61 Transpower faced a number of additional claims from the contractor, based on variations to the original fixed price contract.

B62 We have no reason to consider that the actual costs incurred for this work package were inefficiently incurred. The controls on cost and scope management for the project applied to this work package.<sup>133</sup>

### **Land easement**

*\$1.2 million expenditure against a budget of \$0 million*

B63 If the need to realign a transmission line had been identified when the project was planned then this cost could have been included in the approval. Land-easement costs are allowable under the Capex IM. The costs relating to the purchase of the land are covered in a separate application for approval.<sup>134</sup>

### **Interest during construction**

*\$6.9 million against a budget of \$3.2 million*

B64 The interest during construction was, to a large degree, foreseeable and within Transpower's control. Transpower states that the interest during construction used in the PAD budget was the result of an error in its calculation. This error was primarily due to the PAD estimate being a document internal to Transpower. For this, it was decided to use a commonly accepted rule of thumb to determine the IDC.

---

<sup>131</sup> Application, section 6.7 page 30.

<sup>132</sup> Exchange rate fluctuations are washed up under the regulation of Transpower.

<sup>133</sup> There is a difference between the enabling works cost-management procedure and those cost-management procedure(s) applying to the remainder of the project—see section 4.3 of the project management plan in Appendix A of the application.

<sup>134</sup> See [www.comcom.govt.nz/otahuhu-substation-land-purchase/](http://www.comcom.govt.nz/otahuhu-substation-land-purchase/).

- B65 However, the financing costs of the project would still have been underestimated if the correct calculation was applied. This is because the estimates of time and cost for the project were below actual figures. The under-estimation of time and costs for the project is attributable to the lack of investigation and detailed design.
- B66 The IDC used in the original proposal, when the project was approved by the former Electricity Commission, used an appropriate methodology. The results of this calculation gave an IDC figure of \$4 million (in 2006 prices).
- B67 We have assessed the actual interest during construction that Transpower has incurred and are satisfied with the results presented. Transpower used the correct methodology, the correct finance rate, and the costs and timing were reasonable.