ISBN no. 978-1-869453-16-9
Project no. 14.16/12508

Decision on the Otahuhu Substation Diversity Project Major Capex Allowance Amendment

[2013] NZCC 8

Date: 12 April 2013

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Executive Summary

X1 We have decided to amend the maximum amount of costs that Transpower New Zealand Limited can recover for the Otahuhu Substation Diversity Project. Our decision means that Transpower New Zealand Limited's allowance for this project has been increased from $99 million to $106.1 million (in 2009 prices). Transpower New Zealand Limited can therefore recover the additional $7.1 million from its consumers. Specifically, Transpower New Zealand Limited will be able to treat the additional amount as approved in the recognised value of its assets, which is used to set how much revenue Transpower New Zealand Limited is allowed to collect for 2014/15 onwards.

X2 Transpower New Zealand Limited is required to seek approval for major capital expenditure projects. It must also seek approval to amend certain parts of an approved major capital expenditure project, including major capital expenditure allowances. These approvals are sought under the Capital Expenditure Input Methodology.[1]

X3 We evaluated Transpower New Zealand Limited's application to amend the allowance for the project, which we received on 27 September 2012, and supporting information provided by Transpower New Zealand Limited. In summary our evaluation found that:

X3.1 Transpower New Zealand Limited's Otahuhu substation grid upgrade was progressed with urgency to respond to the risk highlighted by the equipment failure at Otahuhu substation. This equipment failure occurred on 12 June 2006 and caused a widespread loss of electricity supply to Auckland and Northland. As a result the original submission made to the Electricity Commission was "based on relatively high-level cost estimates".[2] The urgency that resulted in providing only high-level cost estimates was accepted by the Electricity Commission in approving the proposal on 31 August 2007.

X3.2 As a result of this approach, the planning and development of the forecast costs at the time of approval was not as thorough as it might have been had there been lesser time pressures.

X3.3 Transpower New Zealand Limited built in sufficient cost and scope controls in the delivery phase of the project to minimise costs.

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1 Commerce Commission *Re Transpower Capital Expenditure Input Methodology Determination* [2012] NZCC 2 (31 January 2012).

2 Transpower *Otahuhu Substation Diversity Project Application for Increase of Major Capex Allowance*, 27 September 2012, page 1, paragraph 1.1 (4).

X3.4 Transpower New Zealand Limited did not incur inefficient costs in delivering the approved outputs of the project.

X4 We consider that in this instance better planning and more robust forecasting of costs would have likely resulted in a higher amount being approved up front, rather than affecting whether the project proceeded. Better planning and more robust forecasting may have also led to delays in commencing the project which Transpower New Zealand Limited deemed an inappropriate risk to consumers because of the possibility of further outages. We consider cost forecasting should be sufficiently robust so as to provide an appropriate level of certainty for consumers about the final costs of a project.

X5 Our analysis suggests that Transpower's forecasting approach did not have an adverse effect on outcomes. We do not think the inadequate forecasts resulted in Transpower undertaking this project when it should not have, or proceeding with an inferior project, relative to alternatives.

X6 We consider that Transpower New Zealand Limited did not incur inefficient costs in delivering the approved outputs of the project. We are satisfied that Transpower New Zealand Limited built in sufficient cost and scope controls in the delivery phase of the project, even before it became aware that the allowance for the project would be exceeded.

X7 Our decision to amend the allowance for the project does not expose Transpower New Zealand Limited's consumers to inefficient costs. In addition, our decision maintains incentives for Transpower New Zealand Limited to invest in the national grid as it will be able to recover the efficient costs of its investment. If Transpower New Zealand Limited could not 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.

X8 The regulatory regime that now applies to Transpower New Zealand Limited, in particular the requirements of the Capital Expenditure Input Methodology, encourages it to improve planning and cost-estimation for future projects. As a result consumers will have improved certainty on the costs of approved major capital projects. However, we expect that Transpower New Zealand Limited may still need to seek approval to amend allowances for these projects in certain cases, which is recognised by the Capital Expenditure Input Methodology.

1. Introduction

Purpose of this paper

1.1 This paper explains our decision to amend the maximum amount of costs that Transpower New Zealand Limited can recover from its consumers for the Otahuhu Substation Diversity Project.[3]

Transpower is a regulated business

1.2 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.

1.3 Transpower is regulated under its own individual price-quality path.[4] 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.[5]

1.4 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 Transpower Capital Expenditure Input Methodology Determination (Capex IM).[6] 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 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).

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3 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.

4 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).

5 Commerce Commission *Transpower Input Methodologies Determination* [2012] NZCC 17 (29 June 2012).

6 Commerce Commission *Re Transpower Capital Expenditure Input Methodology Determination* [2012] NZCC 2 (31 January 2012).

1.5 Transpower must seek our approval to amend certain parts of an approved major capex project.[7] The MCA is one of the components that require our approval in order to be amended.[8]

1.6 Attachment A summarises how the Capex IM approval process works and also sets out what we cannot revisit when considering an application to amend the MCA of an approved major capex project.

Transpower has spent more than what was originally approved

1.7 Transpower has spent more than the MCA on the Otahuhu Substation Diversity Project (the project). The project is effectively finished[9] 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 between what Transpower spent on the project and the MCA is $7.1 million (in 2009 prices).

Transpower has applied for approval to recover its full costs

1.8 Transpower has asked us to amend the MCA for the project by submitting an application to us (the application).[10] The application seeks 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.

1.9 This is the first application the Commission has received for amendment of a major capex project since the Capex IM has come into force. A summary of the application and the views expressed by interested persons on the application are set out in Attachment B.

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

1.10 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.[11] These provisions state that, for the purposes of the Capex IM, any major capex project approved by the former Electricity Commission will be treated as a major capex project approved by the Commerce Commission under the Capex

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7 Capex IM, clause 3.3.4.

8 Capex IM, clause 3.3.4(1)(a).

9 A small amount of work remains on handover issues and on the scheduled removal of a cable.

10 Transpower *Otahuhu Substation Diversity Project Application for increase of major capex allowance* (27 September 2012).

11 Capex IM, clause 1.1.4(1).

IM. The Capex IM sets out the rules we must apply when evaluating Transpower's applications in order to reach our decision.[12]

1.11 The Capex IM rules also permit us to make a draft decision and seek written views from interested persons on that draft decision.[13] We published our draft decision on 1 March 2013 and invited submissions from interested persons.[14] A summary of matters raised in submissions on the draft decision are set out in Attachment B.

12 Capex IM, clause 3.3.4(2)(c).

13 Capex IM, clause 8.1.1(2)(a).

14 Commerce Commission *Draft decision on the Otahuhu Substation Diversity project Major Capex Allowance amendment* (1 March 2013). This is available at www.comcom.govt.nz/otahuhu-substation-diversity-project-mca-amendment-application/.

2. Our decision to amend the major capex allowance and the reasons for this decision

2.1 In this chapter we set out our decision on whether, and to what extent, to amend the MCA for the Otahuhu Diversity Substation project, as well as the reasons for our decision.

Our decision

2.2 We have decided to amend the MCA for the project from $99 million (in 2009 prices) to $106.1 million (in 2009 prices).[15] We do not consider that this decision requires us to amend any other components of the project.[16]

2.3 The amended MCA is the amount that Transpower requested through its application. This is equal to the actual costs that Transpower incurred for the project.

2.4 We have reached this decision after assessing the application against the Capex IM requirements, evaluating the application in accordance with the evaluation criteria set out in the Capex IM and having consulted with the interested parties.[17]

What our decision means

2.5 The increase in the MCA for the project will allow Transpower to recover from consumers the additional amount it spent on the Otahuhu substation grid upgrade. Increasing the MCA allows Transpower to recognise the additional $7.1 million (in 2009 prices) as approved in the recognised 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.[18]

What our evaluation of the application found

2.6 We evaluated Transpower's application as well as the additional information that Transpower provided at our request.

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15 This decision is made under clause 3.3.4(4) of the Capex IM.

16 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.

17 Capex IM, clause 3.3.4((2)(c).

18 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. More information on the Electricity Authority is available at their website www.ea.govt.nz/.

2.7 We found that the application met the requirements of the Capex IM. The requirements of the Capex IM and our specific findings against these are covered in Attachment C.

2.8 A summary of our findings and how we reached our decision is presented below.

2.8.1 The Otahuhu substation grid upgrade was commissioned with urgency as a result of Transpower's need to respond to the risk highlighted by equipment failure at Otahuhu substation that occurred on 12 June 2006 and caused a widespread loss of electricity supply to Auckland and Northland. Because of this urgency, the submission made to the Electricity Commission was "based on relatively high-level cost estimates"[19]. The urgency that resulted in providing only "high-level cost estimates" was accepted by the Electricity Commission in approving the proposal on 31 August 2007.

2.8.2 We have taken into account that, as a result of this approach, the planning and development of the forecast costs at the time of approval was not as thorough as it might have been had there been lesser time pressures.

2.8.3 Transpower did build in sufficient cost and scope controls, and took appropriate action in the delivery phase to minimise any costs incurred. Shortcomings in the planning and cost estimating did not materially affect the actual costs of delivering the approved project outputs.

2.8.4 Transpower did not incur inefficient costs in delivering the approved outputs of the Otahuhu Substation Diversity Project.

2.9 In its application Transpower has presented a number of key factors that it considers led to the need for an amendment of the MCA.[20] The key factors presented by Transpower are the breakdown of costs for the delivery of the project outputs into separate components. We have evaluated these factors presented by Transpower in order to reach our decision. This analysis is set out in Attachment D.

2.10 We concluded that the high level cost forecasting prior to the commencement of the project was the main underlying reason that caused the overspend on each of the separate project components identified by Transpower. We consider that the high level cost forecasting is of key relevance to the need for this amendment of the MCA. We also evaluated the application in relation to the forecasting elements of the original proposal under clause 6.1.1(5) of the Capex IM. This analysis is also set out in Attachment D.

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19 Transpower *Otahuhu Substation Diversity Project Application for Increase of Major Capex Allowance*, 27 September 2012, page 1, paragraph 1.1 (4).

20 As required under Schedule H, clause H6 of the Capex IM.

2.11 Our evaluation concluded that in this instance better planning and more robust forecasting of costs would have likely resulted in a higher amount being approved up front, rather than affecting whether the project proceeded. Better planning and more robust forecasting may have also led to delays in commencing the project which Transpower deemed an inappropriate risk to consumers because of the possible risk of further outages. We consider that in general, forecasting should be sufficiently robust so as to provide the appropriate degree of certainty for consumers about the final costs of a project.

2.12 Transpower did not incur inefficient costs in delivering the approved outputs of the project. An efficient investment is considered to be one where Transpower would incur the least cost over the lifetime of the assets. We are satisfied that Transpower built in sufficient cost and scope controls in the delivery phase of the project, even before it became aware that the MCA would be exceeded.[21]

2.13 The uncertainty created by the use of high level cost estimates, cannot be remedied or mitigated after the fact. However, we have assessed whether Transpower's forecasting approach had an adverse effect on outcomes. Our analysis suggests that this is not the case. We do not think the inadequate forecasts resulted in Transpower undertaking this project when it should not have, or proceeding with an inferior project, relative to alternatives. Further, although the expenditure on the project was higher than forecast, we have concluded that these higher costs were efficiently incurred.

2.14 Our decision to amend the MCA does not expose consumers to inefficient costs in the delivery of the approved project outputs, despite Transpower proceeding with the project on the basis of high level cost estimates.

2.15 Our decision maintains Transpower's incentives to invest in the national grid as it will be able to recover the efficient costs of its investment. 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 may decline and consumers could be worse off.

2.16 Transpower is permitted to recover all of its costs incurred in the delivery of approved project outputs from consumers, up to the MCA without further approval. The Capex IM allows for amendments to the originally approved MCA to be made in certain circumstances.[22]

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21 Transpower became aware the project cost could exceed the MCA in October 2008, see Application, section 5.5 page 15. The Cost Management Procedure was approved in March 2008, see Application, Appendix C.

22 Capex IM, clause 3.3.4.

2.17 Our decision to amend the MCA for this project is in the long-term benefit of consumers and it promotes the purpose of Part 4 of the Act.[23]

2.18 The current regulatory regime, in particular the requirements of the Capex IM, encourages Transpower to improve planning and cost-estimation for future projects. These incentives are discussed below. As a result consumers will have improved certainty on the costs of major capex projects that are approved under the Capex IM. However, we expect that Transpower may still need to seek approval to amend a MCA in certain cases, and the Capex IM recognises that potential need. This is because the approved MCA will generally be a P90 estimate, and statistically 10% of projects will exceed that estimate.

2.19 Preventing Transpower from recovering efficient costs in the delivery of the approved project outputs would reduce its incentives to invest. Disallowing all or part of the requested amendment would provide an incentive to Transpower to improve its future planning and cost estimation. However we do not think that this would be the most effective way of providing such incentives to Transpower because of the detriment to Transpower's incentives to invest in the grid this would create. Instead, we consider that appropriate incentives are now provided in the Capex IM. The incentive mechanisms in the Capex IM are discussed below.

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

2.20 We found that the root cause that led to the need for the application was that Transpower saw the need to progress the project on the basis of high-level cost estimates.

2.21 Transpower listed a number of key factors in the application that it considers led to the application for the amendment of the MCA. These factors are the components of the project where costs were initially underestimated and where overspends had to be managed and mitigated once the project was underway.[24] These key factors are discussed at a high level in Attachment C, and in more detail in Attachment D.

2.22 The underlying cause of the overspends that links the key factors identified by Transpower is that Transpower decided to progress the project based on high level cost estimates and without detailed planning. This included the fact that the work was to be carried out on a 'brownfield' site and that the added complications of this were not recognised in the project scope and budget.[25]

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23 Purpose of Part 4 is set out in section 52A of the Commerce Act 1986.

24 Application, section 6.1 page 18.

25 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.

2.23 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.[26] We recognise that the Electricity Commission approved the project based on the high-level cost estimates due to the urgency component on 31 August 2007.

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

2.24 Transpower recognised 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 Project Approval Document (PAD budget).[27] In the case of the original budget submitted to the Electricity Commission, these issues led to the underestimating of the costs of the project at the approval stage. This meant that the MCA for the project was underestimated.

2.25 Transpower indicated[28] that its initial costing was supported by the fact it was similar to the value reached by consultants to the Electricity Commission.[29] However this does not fully address the issue.

2.25.1 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.

2.25.2 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.

2.25.3 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.

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26 Application, section 4.1.1 page 8.

27 For a discussion of the differences between the PAD and original approval budgets, and our decision to base our evaluation of the application on the PAD budget, see Attachment B.

28 Application, section 1.2 page 2.

29 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/.

2.25.4 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.

2.26 Transpower's approval budget shows a very low difference between what is called the expected cost (the P50 estimate) and the approved maximum amount that could be recovered from consumers (the P90 estimate). This low difference shows that there was very little recognition that the cost of the project could change should circumstances change. Transpower acknowledged that this was an oversight, particularly with the project being on a site that was already in use.[30]

2.27 Had Transpower decided to delay the commencement of the project in order to take the time and undertake site investigations and to develop conceptual designs for the project, then more accurate costs could have been used when Transpower sought approval for the project.[31]

2.28 In theory, Transpower's decision to proceed with the project before adequate full site investigations were carried out may have transferred some scope risk to the contractors. It is difficult to evaluate if this has occurred, and any such evaluation would be purely speculative.

2.29 Our analysis concluded that Transpower weighed up the risk of delay against the risk of underdeveloped and potentially inaccurate forecasts. The decision made at the time was to forego more detailed and developed cost forecasts in the interest of timing. This approach was the key contributor to underestimating the project costs in the initial cost forecast, leading to the requirement for the amendment of the MCA. We also consider that Transpower mitigated the issues adequately, as discussed below.[32]

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

2.30 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.

2.31 Despite Transpower's underestimation of the costs in its 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

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30 Application, section 1.2 page 2.

31 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%.

32 In relation to future decisions, Transpower has stated that it is implementing changes to its business processes that has led, or will lead, to improvements. See application, section 7.6 page 35.

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

2.32 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.

2.33 Transpower had implemented controls and mitigation strategies to reduce the impact of the high level cost estimates used in planning the project, 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.

2.33.1 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.[33]

2.33.2 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.

2.33.3 Work packages, the sub-components to the elements making up the components of the project, were subject to competitive tender.[34] This sought to minimise project costs that would be recovered from consumers.

2.33.4 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.

2.34 The independent quality-assurance review of the project endorses the processes undertaken by Transpower to control scope and cost changes.[35]

How the Capex IM encourages improved outcomes from Transpower

2.35 The introduction of the Capex IM and other regulation that Transpower is subject to has set requirements and provides incentives for Transpower to improve its performance. These include that:

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33 Application, section 4.5.2 page 11.

34 Application, section 6.1 page 18.

35 Application, section 4.5.3 page 11.

2.35.1 we must be satisfied with the cost estimates provided, and with the assessment of cost uncertainties, before we can approve a project;[36]

2.35.2 we must consider the views that any other parties raise on costs for a project;[37]

2.35.3 we must only approve a proposal for a project where the costs are the best estimate of the likely efficient costs;[38]

2.35.4 Transpower must publically disclose actual project costs and outputs; and[39]

2.35.5 the Capex IM provides Transpower with direct and indirect incentives to improve its performance for investing capital.[40]

2.36 These are discussed below.

2.37 The approval process will not let the Commission approve a major capex project unless we are satisfied with the costs and uncertainties in prices that Transpower has used in developing its major capex proposal.[41] 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.[42]

2.38 It is unlikely that the Commission would approve a major capex project where Transpower is continually repeating errors, including inefficiencies, or exposing consumers to risk transfer in projects. We have been engaging with Transpower over the costs and uncertainties in the costs Transpower intends to use for future major capex projects.

2.39 We must also take into account any views submitters raise on the costs Transpower has proposed for the project and ongoing operations.[43] This requirement also applies to any other matter in Transpower's major capex proposal and our draft decision on

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36 Capex IM, Schedule C clauses C1(2)(a) and C3.

37 Capex IM, clause 6.1.1(1)(a)(i).

38 Capex IM, Schedule C clauses C1(2)(c) and C3, Schedule D clauses D5 and D7.

39 This information is currently collected by way of an information gathering notice issued under s53ZD of the Act. Transpower published this information in their Regulatory report (Transpower *Annual Regulatory Report 2011-2012* (19 October 2012) available at www.transpower.co.nz/resources.

40 Incentives for Transpower are covered in the discussion below and in Attachment A.

41 Capex IM, clause C1(2).

42 Capex IM, clauses C2 to C6.

43 Capex IM, clause 3.3.3(3)(a).

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.

2.40 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.

2.41 Transpower is likely to improve its internal process if any shortcomings are exposed to public scrutiny.

2.42 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.[44]

2.43 There are defined incentives within the Capex IM to improve Transpower's performance. These are:

2.43.1 the major capex efficiency incentive encourages Transpower to improve its processes as well as developing more efficient physical solutions; [45]

2.43.2 the major capex sunk costs adjustment allows Transpower to withdraw from projects that are approved but no longer required;[46]

2.43.3 the major capex overspend adjustment forces Transpower to bear all unapproved costs for a project.[47] This incentivises Transpower to either remain with the approved limit or apply for an amendment to a project; and

2.43.4 the major capex project output adjustment applies a penalty to Transpower if it has not met set project objectives.[48] This prevents Transpower from keeping within the approved cost limits, but under-delivering on the performance of the project.

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44 Transpower will be required to produce an integrated transmission plan in the future and will be subject to information disclosure when this is developed.

45 Capex IM, clause 4.1.1(1).

46 Capex IM, clause 3.3.5.

47 Capex IM, clause 3.3.7(1).

48 Capex IM, clause 3.3.7(2).

Timing of our decision

2.44 We were required to make a decision on the application by no later than 30 November 2012,[49] unless we used the provisions of the Capex IM to extend the timeframe for our decision.[50]

2.45 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.

2.46 We applied Part 5 of the Capex IM to extend the timeframe on the amendment from 30 November 2012 to 29 March 2013.[51] 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.[52] This met the requirements of the Capex IM.[53]

2.47 We again applied Part 5 of the Capex IM to extend the timeframe of our decision to 12 April 2013. This was to enable us to fully consider issues raised in consultation.

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49 Capex IM, clause 3.3.4(3)(b).

50 Capex IM, clause 5.1.1(2).

51 Capex IM, clause 5.1.1(2).

52 www.comcom.govt.nz/otahuhu-substation-diversity-project-mca-amendment-application/.

53 Capex IM, clause 5.1.1(2).

Attachment A: How the Capex IM approval process works

A1 This attachment sets out how the Capex IM:

A1.1 promotes the purpose of Part 4 of the Act;

A1.2 allows approval of major capex projects that provide the electricity market with the highest expected net electricity market benefit; and

A1.3 recognises that parts of an approved project may need to be updated.

A2 We also discuss what the Capex IM does not allow us to do.

The Capex IM and the purpose of Part 4 of the Commerce Act

A3 The Capex IM must operate in a manner that promotes the purpose of Part 4 of the Act.[54] 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.[55] 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,[56] 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.

A4 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.

The Capex IM requires approval of major capex projects

A5 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

54 Commerce Act 1986, section 52A(1).

55 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.

56 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.[57] The approval sets the maximum level of costs that can be recovered from consumers.[58]

A6 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.[59] This assessment must be done taking the uncertainty surrounding the future into account.[60]

A7 The expected net electricity market benefit is based on electricity market benefit or cost elements, and project costs.[61] 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.

A8 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 may 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.[62] 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.[63] Once approved, there is no scope to apply hindsight to a project.

A9 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 created by the incentive in all items of a project. This behaviour would lead to

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57 Capex IM, clause 3.3.3.

58 Capex IM, clause 3.3.3(5)(b).

59 Capex IM, Schedule D clause D1(1)(c).

60 Capex IM, Schedule D clause D3(1).

61 Capex IM, Schedule D clause D3(2).

62 Capex IM, Schedule C clause C1(2).

63 Capex IM, clause 6.1.1(1)(a)(i).

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

A10 This does not mean that we will accept insufficiently robust and developed project costs from Transpower when it seeks approval for a project under the Capex IM. This is discussed in Section 2.

A11 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.[64]

A12 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.[65] In addition Transpower can be penalised if the project does not meet the approved outputs that Transpower is required to deliver.[66]

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

A13 The Capex IM recognises that circumstances around a project may change and the approval may need to be updated as better information becomes available.[67] 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.

A14 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.[68] 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

A15 The Capex IM allows Transpower to recover the costs it incurs in delivering a major capex project from consumers, up to an approved level.[69] The Capex IM also contains

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64 Capex IM, clause 4.1.1(1).

65 Capex IM, clause 3.3.7(1).

66 Capex IM, clause 3.3.7(2).

67 Capex IM, clause 3.3.4.

68 Capex IM, clause 3.3.5.

69 Capex IM, clause 3.3.3(5)(b).

a re-approval mechanism.[70] 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.

A16 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.[71] 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 demonstrate, under the Capex IM, that any extra costs it seeks to recover from consumers are justifiable.

A17 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.[72]

What the Capex IM does not allow us to do

A18 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.

A19 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.[73] The Capex IM limits our decision to the MCA and directly related components of the approved project.[74] Any analysis on the original approval for the project in this paper only relates to our decision on amending the MCA.

A20 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.

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70 Capex IM, clause 3.3.4.

71 Capex IM, clause 1.1.5.

72 Capex IM, clause 3.3.4(2)(a).

73 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.

74 Capex IM, clause 3.3.4(4).

A21 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.[75]

A22 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.

[75] Capex IM, clause 6.1.1(2)(a) and (b).

Attachment B: Transpower's application, our draft decision and submitters' views

B1 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.[76]

B2 We made a draft decision to amend the MCA for the project on 1 March 2013. The draft decision is available to view on the Commission's website.[77]

What the application is asking for

B3 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.

B4 In this attachment we discuss:

- B4.1 the history of the project;
- B4.2 how the Capex IM applies to the application;
- B4.3 Transpower's basis for costs in the application; and
- B4.4 what interested persons submitted about the application and our draft decision during our consultation.

History of the project that the application seeks to amend

B5 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.[78] At that time, the Electricity Commission was the government-appointed

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76 www.comcom.govt.nz/otahuhu-substation-diversity-project-mca-amendment-application/.

77 www.comcom.govt.nz/otahuhu-substation-diversity-project-mca-amendment-application/.

78 Application, section 1.1 page 1.

body that had the power to approve Transpower's proposed investments and amend approved projects.[79]

B6 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.[80]

B7 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.[81] 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.[82]

B8 The project was completed in November 2011 with a total cost of $106.1 million (in 2009 prices).

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79 The Electricity Commission was disestablished in 2010 and the functions relating to Transpower were assigned to the Commerce Commission and the Electricity Authority.

80 In November 2007, MEUG initiated judicial review proceedings, alleging that the Electricity Commission had wrongly interpreted and applied clause 4.1 of the grid investment test in schedule F4 of section III of part F of the Electricity Governance Rules 2003, failed to consider other viable alternatives, and wrongly assessed the reliability benefits arising from the avoidance of high impact, low probability events. In a decision announced on Friday 14 March 2008, the High Court rejected all three grounds of a judicial review brought by MEUG in respect of the Electricity Commission's decision on Transpower's Otahuhu Substation Diversity Proposal. In the decision issued on Friday 14 March 2008, the High Court endorsed the Electricity Commission's approach to interpreting clause 4.1 of the grid investment test. The Court also found no reviewable error in the alternatives adopted by the Electricity Commission or in the Electricity Commission's approach to analysing high impact, low probability events at Otahuhu. MEUG appealed the High Court's decision on Otahuhu to the Court of Appeal at a hearing held on 15 October 2008. In a judgment on 5 December 2008, MEUG's appeal was dismissed. See the Otahuhu substation diversity proposal – history at the Electricity Authority archive of the Electricity Commission www.ea.govt.nz/industry/ec-archive/grid-investment-archive/gup/2005-gup/otahuhu-substation-diversity-proposal-history/.

81 Under rule 17.2 of section 3 of part F of the Electricity Governance Rules 2003 the Electricity Commission could not revoke or amend approved grid investment or expenditure without the consent of Transpower. This consent was given on several occasions to amend approved grid investment or expenditure.

82 Application, section 1.1 page 1.

How the Capex IM applies to the application

B9 The Capex IM sets the rules applying to Transpower's capital investments, including amendments to major capital projects as asked for in the application.[83] Our decision on the application to amend the MCA must be consistent with the Capex IM.[84] 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

B10 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.[85] 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

B11 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 first evaluate the application in line with the requirements of the Capex IM.[86] Our evaluation, and the criteria we used, is discussed in Attachment C. Our decision, based on our evaluation is presented in Section 2.

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

B12 As outlined above we must treat the Otahuhu Substation Diversity project as if it was approved by us under the Capex IM. We acknowledge that all of the information and standards of the Capex IM may not have been met. As a result some information may not be available or be at the level of completeness expected for a project developed under the Capex IM. The reason for this is that 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.

B13 While we must treat the project as if it was approved under the Capex IM, we note that the forecasts of costs used in the original approval may not meet the

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83 Capex IM, clause 3.3.4(2)(a).

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

85 Capex IM, clause 1.1.4(1).

86 Capex IM, clause 3.3.4(2)(c).

requirements of the Capex IM.[87] We consider the issue with the underestimation of costs in the original approval is the main reason that led to the application for the amendment of the MCA.

Transpower's basis for the costs presented in the application

B14 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 below.

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

B15 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.

B16 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.

B17 The two budgets are not easily compared due to the differences in structure and size.

B17.1 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.

B17.2 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.

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87 The Capex IM Schedule C clauses C1(2)(a) and (b) requires that the Commission does not approve a proposed investment where it is not satisfied with the MCA, or with the proposal in whole or in part. The forecasts used to derive the MCA show a 5% difference between the P90 and P50 costs for a brownfield site, there was only a 10% scope allowance in the P50, there was a higher level of budget uncertainty and lack of detailed investigations when initial approval was sought (Application, section 1.2 page 2). We have not applied the evaluation required by the Capex IM for new major capex proposals to the original project proposal. It is therefore not conclusive or evident whether the Commission would be satisfied, to the extent required by the Capex IM, by the information provided in the original proposal developed under the EGRs.

B18 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).[88] 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

B19 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 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.

B20 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.

B21 Due to Transpower's change in budget structure we cannot confidently assess the $7.1 million (in 2009 prices) in isolation of the entire project costs. There is uncertainty as to how the components of this figure relate to the original budget. While the IDC component is common between the budgets, the remainder of the $7.1 million is not.

B22 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.

All project costs are assessed as part of our evaluation

B23 Our decision on amending the MCA should not be considered on the basis of approving each dollar over the original MCA. Transpower is able to recover all the costs it incurs in delivering the approved outputs out the project up to the MCA. In deciding to amend an MCA we need to consider all the costs incurred by Transpower

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88 Transpower *Otahuhu Substation Diversity Project–Proposal–Application for approval* (11 December 2006) table 9-3, page 35.

for the project. The level of costs that Transpower should recover is that which would be consistent with the Capex IM and promote the purpose of Part 4.

What interested persons submitted about the application and our draft decision during our consultation

B24 We asked for interested persons to provide us with their views on Transpower's application through a process of requesting submissions and cross-submissions. Transpower's application was published on our website in October 2012 and the consultation process was carried out in November 2012.

Responses to our consultation on the application

B25 We received submissions on the application from:

B25.1 Pacific Aluminium on behalf of Rio Tinto; and

B25.2 The Major Electricity Users' Group (MEUG).

B26 We received cross-submissions relating to the application from:

B26.1 Contact Energy;

B26.2 Norske Skog;

B26.3 New Zealand Steel; and

B26.4 Transpower.

B27 The application, submissions and cross-submissions are available on our website.[89]

What views were expressed by interested persons

B28 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:

B28.1 if the application was approved by the Commission then Transpower effectively does not face any risk when it makes its investments. Because of this, Transpower's weighted average cost of capital (WACC) should not be greater than the risk-free interest rate; and[90]

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89 www.comcom.govt.nz/otahuhu-substation-diversity-project-mca-amendment-application.

90 "If the regulatory regime is going to remove all investment risk from Transpower's regulated asset base, then we see no justification for Transpower earning a return on that regulated asset base that exceeds the risk-free rate." Pacific Aluminium *Submission on the Otahuhu Substation Diversity Project MCA*

B28.2 in a workably competitive market Transpower should bear the costs of any project overruns and not seek to recover them from consumers.[91] Submitters claim that this is what they would have to do in their own marketplaces.[92]

How we take these views into account

B29 We evaluated the views expressed and have taken them into account in our decision.

B30 Any decision we make must still be consistent with the Capex IM and promote the purpose of Part 4 of the Act. [93] In taking the views expressed into account we must be aware of the rules set in the Capex IM.

B30.1 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.[94]

B30.2 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.[95] If required, we can amend some secondary components of the approval.[96] These secondary components would be amended if the forecast maximum allowable revenue calculations were affected by our decision.

B30.3 We have no scope to re-open the original approval for the major capex project.

Matters raised by submitters in response to our draft decision

B31 We published our draft decision on amending the MCA of the project on 1 March 2013.

B32 We asked for interested persons to provide us with their views on our draft decision to amend the MCA through a process of requesting submissions and cross-submissions. The consultation process was carried out in March 2013.

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amendment application (9 November 2012) paragraph 16 page 5. Available at www.comcom.govt.nz/otahuhu-substation-diversity-project-mca-amendment-application.

91 Contact Energy cross-submission *Otahuhu substation diversity project MCA amendment application* (19 November 2012).

92 Major Electricity Users' Group *Otahuhu substation diversity project MCA amendment application* (9 November 2012) paragraph 3 page 1.

93 Capex IM, clause 6.1.1(2)(a) and (b).

94 Capex IM, clause 3.4.4(4).

95 Capex IM, clause 3.3.4(1).

96 Capex IM, clause 3.3.4(5).

Responses to our consultation on our draft decision

B33 We received submissions on our draft decision from:

B33.1 Contact Energy; and

B33.2 The Major Electricity Users' Group (MEUG).

B34 We received one cross-submission relating to the draft decision from Transpower.

B35 The draft decision, submissions and cross-submission are available on our website.[97]

What views were expressed by interested persons

B36 Contact Energy and MEUG disagreed with our draft decision to amend the MCA for the Otahuhu Substation Diversity project to $106.1 million (in 2009 prices). Both submissions raised concerns about:

B36.1 how we had applied the Capex IM to our draft decision, in particular the evaluative criteria in Part 6;[98]

B36.2 how our decision will affect future projects, in particular the upcoming North Island Grid Upgrade (NIGU) project amendment;[99] and

B36.3 the incentives that Transpower faces around the planning and forecasting of future major capex projects.[100]

B37 MEUG also suggested that an industry conference may be prudent.

B38 Transpower's cross submission rebutted the MEUG and Contact Energy arguments, but presented no new information.

How we take these views into account

B39 We have carefully considered the arguments raised by interested persons in their submissions on our draft report. We have amended our final report in order to

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97 www.comcom.govt.nz/otahuhu-substation-diversity-project-mca-amendment-application.

98 MEUG *Draft decision on the Otahuhu Substation diversity project MCA amendment"* 15 March 2013, stated at paragraph 4: "The draft decision finds "key factors were foreseeable by Transpower" and "the key factors were controllable by Transpower". On that basis alone the application does not meet the criteria in clause 6.1.1 (5)(a)(i) of the Transpower Capital Expenditure Input Methodology Determination [2012] ....and cannot be approved. The Capex IM does not give the Commission discretion to approve an application that fails to meet criteria specified in the IM."

99 MEUG *Draft decision on the Otahuhu Substation diversity project MCA amendment"* 15 March 2013, paragraph 8; Contact *Draft Decision – Otahuhu Substation Diversity Project Major Capex Allowance Amendment*, 14 March 2013, paragraph 7.

100 This has been addressed in Section 2.

address the concerns raised. It was evident from the submissions on our draft report that some misunderstandings exist as to the manner in which the Capex IM applies, and in the manner in which our analysis is conducted. Summarised below is the framework for evaluating an application to amend a major capex project under the Capex:

B39.1 Part 6 of the Capex IM sets out the "evaluation criteria" the Commission must use when assessing any application for any of base capex proposals, major capex proposals or major capex component amendments.

B39.2 Under clause 3.3.4(4) of the Capex IM the Commission has the discretion to decide the amount of the major capex allowance that may be amended. After evaluating the application and weighing up all the relevant information, we may decide on an amount different to that Transpower applied for. This is unlike other components of major capex proposals where we must either reject or approve Transpower's application, such as approved major capex project outputs and approval expiry dates.

B39.3 Clause 6.1.1(2)(b) requires that the Commission consider "the extent to which what is proposed will promote the purpose of Part 4 of the Act". The Capex IM exists within the Part 4 framework, and as such must be constructed and applied in a way that promotes that purpose. As such this requirement is a restatement and reinforcement of this overriding test which must be applied to *all* applications for base capex, major capex and any amendments under clause 3.3.4. Therefore, all specific criteria set out in the remainder of Part 6 (or other parts of the Capex IM where applicable) must be examined as against this overarching test.

B39.4 There is no prescription in the Capex IM as to what "key factors" are in terms of clause 6.1.1(5). The key factors are those key aspects of the application relevant to the proposed amendment and as such these are likely to vary based on the particular application.

B39.5 Clause 6.1.1(5) requires the Commission to assess "the extent to which" the key factors were "reasonably foreseeable" and "controllable", as well as any mitigation strategies undertaken by Transpower.

B39.6 The facts, key factors, components of and additional information relevant to each application will vary and the Part 6 evaluation criteria must be applied on a case by case basis in each instance.[101]

[101] As such we don't consider that the decision reached in relation to this application pre-judges outcomes of future applications. Each application will be assessed on a case by case basis by weighing up all the relevant criteria in accordance with Part 6.

B39.7 Therefore Part 6 sets up the framework for an evaluative assessment to be carried out by the Commission on a case by case basis, rather than a list of requirements Transpower can individually pass or fail that would consequently lead to a pass or fail outcome of the application as a whole.

We decided not to hold an industry conference on our decision

B40 In its submission MEUG suggested that we hold an industry conference under the Capex IM. We may decide to hold a conference to seek the views of interested persons before we make our decision.[102] In this instance we considered that a conference was not necessary to reach our decision to amend the MCA for the project. Submissions largely focussed on views of how the Capex IM should work, rather than identifying any specific issues with the application that should be worked through.

[102] Capex IM, clause 8.1.1(4)(b).

Attachment C: Our evaluation of the application against the requirements of the Capex IM

C1 We cannot make an amendment to the MCA until we have carried out the evaluation of the application, and any further information we requested from Transpower, in accordance with Part 6 of the Capex IM.[103]

C2 The evaluation for an amendment to a major capex project under Part 6 of the Capex IM covers two main areas. These areas are:

C2.1 a general evaluation of the application;[104] and

C2.2 an evaluation of matters specific to the application.[105]

C3 Specific criteria are required to be used as part of the evaluation of the application. We discuss how we have interpreted these criteria in Attachment B and below.

C4 We have the ability to take into account in our evaluation any other information that we consider relevant.[106]

C5 We also need to assess whether Transpower has met the process requirements of the Capex IM in making the application.[107] The requirements relate to the time an application can be submitted, the information an application must contain and the certification of that information.

General Criteria – Evaluation

C6 We must evaluate an application to amend the MCA against general criteria specified in the Capex IM before we reach our decision.[108] We use the term 'general criteria' for this as the evaluation is required for base capex proposals, major capex proposals and applications to amend major capex proposals. Our evaluation against the general criteria includes considering:[109]

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103 Capex IM, clause 3.3.4(2)(c).

104 Capex IM, clause 6.1.1(2)(a) to (c).

105 Capex IM, clause 6.1.1(5)(a) to (d).

106 Capex IM, clause 6.1.1(1)((a)(ii).

107 Capex IM, clause 3.3.4(2)(a) requires the Transpower complies with clause 7.4.2

108 Capex IM, clause 6.1.1(2) as required by clause 3.3.4(2)(c).

109 Capex IM, clause 6.1.1(2).

C6.1 whether what is proposed is consistent with the Capex IM and the Transpower (Input Methodologies) Determination 2010;[110]

C6.2 the extent to which what is proposed promotes the purpose of Part 4 of the Act; and

C6.3 whether the data, analysis and assumptions provided by Transpower are fit for purpose.

C7 These matters are discussed below.

The application is consistent with relevant input methodologies

C8 Transpower's application is consistent with the Capex IM and other relevant input methodologies.

What is proposed promotes the purpose of Part 4 of the Act

C9 Amending the MCA of the project will promote 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.

C10 '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.'[111] In determining the Capex IM the Commission was guided by the purpose of Part 4 of the Act.

C11 The costs incurred in delivering the approved outputs of the project were reasonable and efficiently incurred. As a result of the amendment consumers will not face inefficient costs for the delivery of the approved outputs and Transpower will have an incentive to invest, knowing it can recover the full amount of efficient costs incurred in delivering approved project outputs.

C12 If Transpower was denied the ability to recover the efficient costs for the delivery of approved project outputs then the purpose of Part 4 would not be promoted. While consumers would benefit in the short term through reduced revenue being collected from them, Transpower would have less incentive to invest, innovate and improve efficiency. This could be detrimental to consumers in the long term.

C13 Our evaluation found that the trade-offs Transpower decided to make between accurate and more developed cost forecasting and timing in this case did not lead to consumers facing inefficient costs for the delivery of the approved project outputs.

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[110] This Determination has been replaced by *Transpower Input Methodologies Determination* [2012] NZCC 17 (29 June 2012).

[111] Commerce Act (1986), section 52A(1).

C14 The uncertainty created by the use of high level cost estimates cannot be remedied or mitigated after the fact. However, we have assessed whether Transpower's forecasting approach had an adverse effect on outcomes. Our analysis suggests that this is not the case. We do not think the inadequate forecasts resulted in Transpower undertaking this project when it should not have, or proceeding with an inferior project, relative to alternatives. Further, although the expenditure on the project was higher than forecast, we have concluded that these higher costs were efficiently incurred.

C15 In relation to future proposals, Transpower is addressing the planning and cost estimation aspect of its business to improve performance.[112] 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. We do not consider that we should prevent Transpower's recovery of efficient costs incurred in delivering approved project outputs as a way of providing an incentive for better forecasting and planning.

The application and supporting information was fit for purpose

C16 We had no material concerns with the information used to develop the application. In making our decision we used the information provided by Transpower in the application, and in response to questions we asked. When we received the information from Transpower we assessed the inputs used, outputs produced and the methodology used. We examined the information provided for consistency and quality. We assessed whether Transpower's conclusions were supported by the evidence it provided.

Specific Criteria - Evaluation

C17 The evaluation of the application against further specific criteria covers three areas.[113] These areas are:

C17.1 the key factors relevant to the proposed amendment;[114]

C17.2 the effect of any amendment on the expected net electricity market benefits for the project; and

C17.3 the extent to which Transpower has already incurred capital expenditure.

C18 These matters are discussed below. More detail on the evaluation of the key factors is presented in Attachment D.

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112 Application, section 7.2 page 35.

113 Capex IM, clause 6.1.1(5) as required by clause 3.3.4(2)(c).

114 This includes if the key factor was foreseeable and within Transpower's control and how Transpower mitigated the key factors outside its control.

The key factors relevant to the application to amend the MCA

C19 In its application Transpower presented a number of key factors that it considers led to the need for an amendment of the MCA.[115] The factors Transpower identified as key to this application constitute a list of project components required for the delivery of project outputs where cost overruns occurred. Transpower's analysis provided a breakdown of the costs for each component.

C20 Following our analysis of Transpower's application and the project component costs Transpower presented as key factors leading to this application, we concluded that the key underlying reason for cost overruns on all the components presented were the high level, insufficiently robust cost forecasts and lack of detailed planning prior to the commencement of the project. As such, we have taken this root cause into consideration in our evaluation of the application.

C21 In summary, the key project components where cost overruns occurred and led to this application as provided by Transpower are: [116]

C21.1 unforeseen environmental requirements for stormwater filtration facilities;

C21.2 the need to relocate existing underground utilities services which were not detailed and in some cases not identified on drawings of the site;

C21.3 a significant underestimate of the cost to install four 220 kV transmission towers;

C21.4 complex and challenging design and installation enabling works for secondary systems, including protection, SCADA and communications;

C21.5 exchange rate fluctuations associated with the design/build contract for the major construction component of the project;

C21.6 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;

C21.7 the unexpected need to include the costs of a property easement; and

C21.8 an underestimate of interest during construction (IDC) due to an over-simplified 'rule-of-thumb' calculation.

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115 As required under Schedule H, clause H6 of the Capex IM.

116 Application, section 6.1.1 page 18.

C22 Our assessment of the key factors set out in Transpower's application informed the following overall conclusion:

C22.1 Transpower's decision to compromise on the robustness and quality of planning and cost forecasts in the interests of timing led to an underestimation of the costs for each key factor listed by Transpower; and

C22.2 the actual costs for each component of spend delivering the approved project outputs were efficiently incurred.

C23 Details on our findings for the evaluation of each key factor are presented in Attachment D .

Evaluation of the application

C24 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.

C25 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[117] and the cost management procedure document[118] 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.[119]

C26 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 in delivering approved project outputs was based on not finding any evidence of inefficiencies in the project costs, rather than individually assessing each cost item.

C27 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, however any conclusions at this point are entirely speculative and we have no evidence that this has or has not occurred.

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117 Application, Appendix B.

118 Application, Appendix C.

119 Application, Appendix D.

The effect of the amendment on the expected net electricity market benefit

C28 We do not consider that the expected net electricity market benefit of the project will be materially lower as a result of amending the MCA. How we reached this conclusion is discussed below.

C29 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.[120] The amendment requested in the application is only for an increase in the allowed capital costs of the project and so our evaluation 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 evaluation. However, we do discuss the effect of some of these changes below.

C30 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).[121] 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,[122] over a period that extends twenty years after the project was forecast to be commissioned. These project costs correctly exclude any cost of finance.

C31 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 correctly exclude any cost of finance.

C32 The result of the updated calculation of the electricity market benefits relating to the capital cost is negative $82.5 million (in 2006 prices).[123] 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

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120 Capex IM, clause 6.1.1(5)(c).

121 Application, table 7-1 page 34.

122 The projects that were considered likely to occur in this forecast due to the approval of the project were called modelled project.

123 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.[124] Transpower has incurred more costs then 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.

C33 Transpower has not presented a full calculation of the expected net electricity market benefit as detailed in the Capex IM.[125] 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.[126] 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.[127] 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.[128] 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.

C34 Transpower's recalculation of the benefits of the project using the actual costs and timing of the project[129] and the calculation of benefits presented in the original proposal is presented in Table C1 below.[130] 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.

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124 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).

125 Capex IM, Schedule D clause D1.

126 Capex IM, Schedule D clause D5(1).

127 Capex IM, Schedule D clause D1(1)(c)(ii).

128 Capex IM, Schedule D clause D3(1).

129 Application, table 7-1 page 34.

130 Transpower *Otahuhu Substation Diversity Project - Proposal - Application for approval* (11 December 2006) table 10-1 page 41.

Table C1: 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)[131]
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.

C35 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.[132] 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.[133]

C36 The other electricity market benefits listed in Table C1 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 evaluate the effect of amending the MCA.

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131 As stated above, this is the only component of the electricity market benefits calculation that is affected by the decision to amend the MCA.

132 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/.

133 Capex IM, Schedule D clause D1(1)(b).

C37 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 the amendment of the MCA.

C38 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 evaluation of the effect of the amendment on the expected net electricity market benefit.

C39 The updated unserved energy values and project delay also affects the calculation of the terminal value. The terminal value is not materially affected as a result of the amendment of the MCA.

The extent to which Transpower has already incurred capital expenditure

C40 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.[134]

C41 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.

C42 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

C43 The Capex IM has a number of process requirements related to an amendment. These include the:

C43.1 timing for submitting the application and our decision;

C43.2 information provided by Transpower in the application; and

[134] Application, section 4.4 page 10.

C43.3 certification of the information provided by Transpower.

C44 These matters are discussed below.

The timing requirements of the Capex IM are satisfied

C45 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.[135] 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.

C46 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 Section 2.

Transpower satisfied the information requirements of the Capex IM

C47 Transpower provided the information required by the Capex IM in its application.[136]

C48 As part of this requirement Transpower has addressed specific matters in the application. These include the effect of any amendment by the Commission on:

C48.1 the project outputs as set in the original approval by the former Electricity Commission;[137]

C48.2 the assets commissioned as part of the project;[138]

C48.3 the functional capability of the transmission grid;[139]

C48.4 any relevant service provided by a third party;[140] and

C48.5 any implications for other approved major capex projects.[141]

C49 In the application Transpower concludes that any amendment by the Commission will have no effect on the matters listed above. Transpower notes that its cost estimation process has since undergone continuing improvement and the risk profile

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135 Capex IM, clause 7.4.2(1).

136 Capex IM, Schedule H Division 1 as required by clause 7.4.2(3)(a).

137 Application, section 7.1 page 35.

138 Application, section 7.3 page 35.

139 Application, section 7.4 page 35.

140 Application, section 7.5 page 35.

141 Application, section 7.6 page 35.

has more consideration in the scope development. We agree with Transpower's assessment 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

C50 Transpower certified the information supplied to the Commission in accordance with the Capex IM.[142] The application was accompanied by the correct certificate signed by the chief executive officer of Transpower.[143]

142 Capex IM, clause 9.3.1 as required by clause 7.4.2(4).

143 The signed certificate can be viewed at www.comcom.govt.nz/otahuhu-substation-diversity-project-mca-amendment-application/.

Attachment D: Evaluation of the key factors submitted by Transpower

D1 In this attachment we discuss our evaluation of each key factor that Transpower identified as being relevant to the application.

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

D2 The Capex IM requires us to evaluate the extent to which each key factor relevant to the proposed amendment:[144]

D2.1 was reasonably foreseeable by Transpower before the project was approved by the Commission; and

D2.2 was or is within Transpower's control.

D3 If the key factor was outside Transpower's control we must assess:[145]

D3.1 the reasonableness of any applicable mitigation strategy devised by Transpower; and

D3.2 the reasonableness and extent of mitigation actions taken by Transpower.

The key factors presented by Transpower

D4 Schedule H of the Capex IM sets out the information Transpower must provide in its application. Clause H6 requires that Transpower set out in its application the key factors it considers led to its application. Transpower's application contains a list of categories of factors that Transpower identified as leading to this application, in particular: [146]

D4.1 Enabling works civil general overspend

D4.2 Transmission line deviations

D4.3 Enabling works secondary systems design and install

D4.4 Enabling works transition station and cable termination

D4.5 Enabling works procurement

D4.6 Design/build contract for GIS/AIS and EHV cable

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144 Capex IM, clause 6.1.1(5)(a).

145 Capex IM, clause 6.1.1(5)(b).

146 Application, section 6 page 18.

D4.7 Land easement

D4.8 Interest during construction

D5 The budget and actual amounts of each key factor identified as leading to this application to amend the MCA are shown in Table D1 below.

Table D1: Key factors and costs relevant to the application[147]

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
TOTAL	76.6	106.1	29.5	82.8	23.3

D6 We have assessed these key factors presented by Transpower in its application under the evaluation framework set out in clause 6.1.1(5) of the Capex IM. These elements are relevant to the amendment of the MCA as they show the outcomes of the trade off between robust cost forecasts and planning and expedient timing for project commencement. Our evaluation of the key factors is presented below in the same categories as Transpower provided its information.

D7 As discussed in Attachment B, 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.

147 Application, table 5-3 page 16.

What we found after evaluating the key factors presented by Transpower

D8 We evaluated the key factors presented by Transpower in accordance with the criteria set in the Capex IM. Our evaluation found that:

D8.1 Transpower's decision to compromise on the robustness and quality of planning and cost forecasts in the interests of timing led to an underestimation of the costs for each key factor listed by Transpower; and

D8.2 the actual costs for each component of spend delivering the approved project outputs were efficiently incurred.

D9 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

D10 In our evaluation we found that in relation to each key factor listed by Transpower:

D10.1 it would have been reasonably foreseeable before the project was approved that the lack of robust cost forecasts and project plans may result in overspend. The decision to progress the project quickly in order to mitigate the single-point-of-failure risk to Auckland outweighed the need for more accurate project costs and led to the lack of appropriate site investigation and design. This meant that costs were not as accurate as they could have been;

D10.2 while it was within Transpower's control to assess the risks of timing against forecasting in favour of more robust cost forecasting and project planning, it is not possible to reach a firm conclusion on whether the decision based on the evaluation of the risk was correctly made at the time. As such, it is not possible to make a conclusive evaluation on actual controllability of costs relating to each key factor; and

D10.3 Transpower took reasonable mitigation actions to control the additional costs incurred in relation to each key factor. 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. In particular:

D10.3.1 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.

D10.3.2 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.

D10.3.3 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

D11 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

D12 The enabling works civil general contains the following components:

D12.1 stormwater drainage;

D12.2 underground services relocation;

D12.3 wastewater;

D12.4 warehouse building relocation; and

D12.5 earthworks and general.

D13 These matters are discussed below.

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

D14 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.[148]

D15 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.

D16 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.

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

D17 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.[149]

D18 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.

D19 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

D20 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

148 Application, section 6.2.1 page 20.

149 Application, section 6.2.2 page 21.

work and budgeted $0.3 million for it. Transpower stated that the work was technically challenging.[150]

D21 It is unclear if additional investigation and design would have provided enough information to accurately estimate the costs involved for the work package.

D22 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

D23 This work package was to replace the warehouse with a new structure on an existing building. Transpower under-estimated the cost of this work.[151]

D24 The underlying reason for the additional costs in this category was the decision to progress the project before carrying out appropriate investigations and design.

D25 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.

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

D26 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.[152]

D27 The underlying reason for the additional costs in this category was the decision to progress the project before carrying out appropriate investigations and design.

D28 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

D29 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

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150 Application, section 6.2.3 page 22.

151 Application, section 6.2.4 page 23.

152 Application, section 6.2.5 page 23.

requirements. It is unclear why the actual site requirements did not inform the foundation costs Transpower used.[153]

D30 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

D31 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.[154]

D32 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.

D33 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.

D34 Transpower competitively tendered for the work and managed the cost and scope variations.

D35 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

D36 This key factor is made up of three different sub-factors. These are:

D36.1 cable terminations;

D36.2 transition stations; and

D36.3 AIS switchyard works.

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153 Application, section 6.3 page 24.

154 Application, section 6.4 page 25.

D37 These matters are discussed below.

Cable terminations $2.1 million expenditure against a budget of $1.2 million

D38 Transpower stated that the additional costs were due to the constraints of terminating cables within the existing switchyard.[155]

D39 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.

D40 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.

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

D41 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.[156]

D42 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.

D43 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

D44 Transpower stated that the scope of this work included two new circuit breakers and relocating an existing circuit to a different circuit breaker.[157] We consider that Transpower's PAD budget for this work was underestimated.

D45 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.

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[155] Application, section 6.5.1 page 27.

[156] Application, section 6.5.2 page 28.

[157] Application, section 6.5.3 page 28.

D46 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

D47 This over-expenditure was mainly to buy the additional protection equipment not included in the original scope.[158]

D48 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.

D49 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

D50 Transpower stated that the increase in costs was mainly due to fluctuations in exchange rate.[159]

D51 We have assessed the amount of overspend attributed to exchange-rate issues and are broadly satisfied with the results Transpower presented.[160]

D52 Transpower faced a number of additional claims from the contractor, based on variations to the original fixed price contract.

D53 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.[161]

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158 Application, section 6.6 page 29.

159 Application, section 6.7 page 30.

160 Exchange rate fluctuations are washed up under the regulation of Transpower.

161 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.

Land easement

$1.2 million expenditure against a budget of $0 million

D54 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.[162]

Interest during construction

$6.9 million against a budget of $3.2 million

D55 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.

D56 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.

D57 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).

D58 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.

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[162] See www.comcom.govt.nz/otahuhu-substation-land-purchase/.