

# North Island Grid Upgrade Project - Application for amendment to the approved major capex project output

## 1 Proposed amendments to approved major capex project output

We seek amendment to an approved major capex project output for NIGU, as follows:

*Procure, construct, commission and operate a 220 kV switching station in the vicinity of Drury by 2010 and upgrade the 220 kV Otahuhu – Whakamaru C line by ~~2010~~2011.*

The proposed amended text is highlighted in red text.

## 2 Explanation as to how proposed amendment was arrived at

When the NIGU Project was being investigated in 2005/2006, Transpower identified that work would be required to prevent transmission constraints into Auckland, before the earliest possible date a new transmission line could be commissioned.

Several “deferral” projects were considered and these were discussed in Appendix D of the NIGU Grid Upgrade Proposal. We considered several options, including a thermal upgrade of the OTA-WKM C line, building a switching station at Drury and a combined option of Drury plus the OTA-WKM C upgrade. The following is an excerpt from Appendix D of the NIGU Grid Upgrade Proposal.

No	Description	ARI-PAK in	ARI-PAK out	Comment	Cost (\$m) <sup>2</sup>	Deferral benefit (years) <sup>3</sup>	Deferral benefit (\$m) <sup>4</sup>	Benefit - Cost (\$m)
		Upper North Island Transfer Capacity(MW)						
1	Base	2665	2510*					
3	Thermal upgrade of OTA-WKM C line upgrade to 80 deg	Minimal	Minimal	By itself, this project has marginal impact on the transfer capacity.	-	0	-	No benefit
7	Drury switching station	2665*	2659*	Increases transfer from Taranaki and Huntly. However, if the generation south of Whakamaru is replaced from the Central North Island generation then the transfer limit drops substantially. Low Huntly generation will also have a similar effect.	23.3	1	31.9	+ 8.6
8	Drury switching station* OTA-WKM C line upgrade	2764*	2736 <sup>1</sup>	Increases transfer from Taranaki and Huntly as well as from Whakamaru. However, if the generation south of Whakamaru is replaced from the Central North Island generation then the transfer limit is likely to reduce.	27.9	1 to 2 <sup>5</sup>	31.9 to 61.7	+ 4.0 to + 33.8

As can be seen, the OTA-WKM C upgrade on its own was ineffective, the Drury switching station on its own was effective (and sufficient to meeting the 2010 need), but the combined option of Drury plus the OTA-WKM C upgrade was the most effective, including in meeting the 2011 need.

This combined option was included in the NIGU Grid Upgrade Proposal and was described by the following grid output:

*Procure, construct, commission and operate a 220 kV switching station in the vicinity of Drury and upgrade the 220 kV Otahuhu – Whakamaru C line by 2010.*

The intention was always that the Drury switching station would be built first, followed by the OTA-WKM C thermal upgrade. Consistent with the approved grid output, the new Drury switching station was planned, constructed and commissioned by winter 2010, following which work commenced to complete the OTA-WKM C thermal upgrade as soon as reasonably possible. Thermal upgrading work can only be undertaken during summer months, so the intention was to complete this work during the summer of 2010/11.

The summer period varies according to weather, but is approximately October to the following May. The OTA-WKM C thermal upgrade was commissioned in stages between November 2010 and April 2011, which met the timing requirement for our planning. The OTA-WKM C thermal upgrade was thus part of a package of small staged projects that had the beneficial effect of deferring the need date for the NIGU Project. In hindsight, there is an ambiguity in the original grid output noted in the Commission's question above, which does not convey adequately the timing of the staged commissioning of the components of these deferral projects – i.e. the commissioning of the OTA-WKM C thermal upgrade after the commissioning of the Drury switching station, with the thermal upgrade works to be commissioned in the summer of 2010/2011.

We therefore seek an amendment to the approved major capex project output for NIGU, as follows:

*Procure, construct, commission and operate a 220 kV switching station in the vicinity of Drury by 2010 and upgrade the 220 kV Otahuhu – Whakamaru C line by ~~2010~~2011.*

### **3 Description of the extent to which each proposed amendment reflects a change to the functional capability of the grid**

This proposed amendment does not reflect a change to the functional capability of the grid.

### **4 Description of the extent to which each proposed amendment reflects a change to the quantum of electricity market benefit or cost elements directly related to the supply of electricity transmission services that are likely to be achieved as a result of undertaking the project**

This proposed amendment does not reflect a material change to the quantum of electricity market benefit related to the supply of electricity transmission services that are likely to be achieved as a result of undertaking the project.

This proposed amendment does not reflect an adverse change to the quantum of cost elements directly related to the supply of electricity transmission services that are likely to be achieved as a result of undertaking the project. The variation to the approved major capex output that Transpower implemented was in fact a lower cost option, as it resulted in a delay in the commissioning of the OTA-WKM C thermal upgrade and therefore a delay in the inclusion of the cost of the upgrade works in Transpower's RAB.

### **5 Description of any current key assumptions different to those relied upon in applying the investment test in the major capex proposal**

There are no key assumptions (in relation to the proposed amended major capex project output) that are materially different to those relied upon in applying the investment test in the major capex proposal for the NIGU project.

**6 Description of the outcome of applying the investment test as it was applied in the major capex proposal modified by the proposed amendments**

There is no material change in the application of the investment test as it was applied in the major capex proposal for the NIGU Project modified by the proposed amendment.

**7 Explanation as to why making the proposed amendment would promote the long term benefit of consumers**

The proposed change to the approved major capex project outputs would promote the long term benefit of consumers as the effect of the changes is the delivery of the same improvements in functional capability of the grid and ultimately the electricity market benefits related to the supply of electricity transmission services likely to be achieved by the NIGU Project, at a lower cost than would have been incurred had Transpower implemented the particular major capex project output in the timetable originally contemplated by the NIGU Grid Upgrade Plan.

**8 Where no application for amendment to the major capex allowance is being made concurrently with this application**

Transpower is not applying for an increase in the major capex allowance for the NIGU Project (of which the OTA-WKM C thermal upgrade forms part) specifically in conjunction with this application for an amendment to the approved major capex project outputs. Transpower has separately applied for an increase in the major capex allowance for the NIGU Project, on the basis set out in its application of September 2013.

**Application for amendment to Approved Major Capex Project Output - where requirements of the Capex IM are satisfied in this or other documents**

Capex IM clause reference	Information requirement	Cross reference to location in document <sup>1</sup>
Schedule H Division 3, H14	Identification of the relevant major capex project and its major capex allowance	Appendix 1
Schedule H Division 3, H15 (1)	Proposed amendments to the approved major capex project outputs;	Included in this application
Schedule H Division 3, H15 (2)	Explanation as to how each proposed amendment was arrived at;	Included in this application
Schedule H Division 3, H15 (3)	<p>Description of the extent to which each proposed amendment reflects a change to the</p> <ul style="list-style-type: none"> <li>(a) assets to be commissioned;</li> <li>(b) functional capability of the grid</li> <li>(c) quantum of electricity market benefit or cost elements directly related to the supply of electricity transmission services that are likely to be achieved as a result of undertaking the project;</li> <li>(d) in the case of a non-transmission solution, description of the extent to which each proposed amendment reflects a change to any relevant service provided by a third party.</li> </ul>	Included in this application
Schedule H Division 3, H16	<p>Description of progress made on the <b>major capex project</b>, including details of-</p> <ul style="list-style-type: none"> <li>(a) planning processes undertaken;</li> <li>(b) resource management consents, other regulatory consents, and property rights and access rights obtained;</li> <li>(c) construction and labour contracts and arrangements made;</li> <li>(d) construction completed; and</li> <li>(e) testing undertaken;</li> </ul>	<p>Section 3</p> <p>Section 3.2</p> <p>Section 3.3 - 3.5</p> <p>Section 3.8 and 10.1.2</p> <p>Section 3.11 and 10.1.2</p> <p>Section 3.12</p>
Schedule H Division 3, H17 (1)(a)	<b>major capex</b> incurred to the date of the application;	Section 4.4
Schedule H Division 3, H17 (1)(b)	forecast remaining <b>major capex</b> ; and	Sections 4.2 – 4.4

<sup>1</sup> All references, other than to this application (being this approved major capex project output amendment application document), are references to our NIGU major capex allowance amendment application dated September 2013.

Schedule H Division 3, H18 (1)	<p>reason for applying, including-</p> <p>(a) description of key factors leading to the application;</p> <p>(b) commentary on the extent to which each key factor is within <b>Transpower's</b> control; and</p> <p>(c) commentary on the extent to which each key factor was reasonably foreseeable by <b>Transpower</b> before the relevant <b>major capex proposal</b> was approved;</p>	Included in this application
Schedule H Division 3, H18 (2)	Description and, where relevant, quantum of any current key assumptions different to those relied upon in applying the investment test in the <b>major capex proposal</b> ;	Included in this application
Schedule H Division 3, H18 (3)	Description of the outcome of applying the <b>investment test</b> as it was applied in the <b>major capex proposal</b> modified by the proposed amendments and <b>key assumptions</b> described in subclause (2), including all relevant calculations and justifications for any exercises of judgment;	Included in this application
Schedule H Division 3, H18 (4)	Explanation as to why making the proposed amendment would promote the long term benefit of <b>consumers</b> ;	Included in this application
Schedule H Division 3, H18 (5)	Where no application for amendment to the <b>major capex allowance</b> is being made concurrently, explanation as to why that allowance will remain appropriate were the proposed amendment to the approved <b>major capex project outputs</b> made;	Included in this application