

**Demand Side Participation  
Trial and Grid Support  
Contract Development**

**An IGE application by Transpower**

**Report to MEUG**

**May 2007**

## Preface

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# 1. Introduction

On the 9<sup>th</sup> May 2007 Transpower New Zealand Limited (Transpower) submitted a proposal to the Electricity Commission (the Commission).<sup>1</sup> This sought the Commission's approval under the transitional Interim Grid Expenditure provisions for expenditure of up to \$8.27 million to conduct a demand side participation (DSP) and grid support contract (GSC) project in the Upper South Island (USI).

The proposed project comprises:

- The setup, running and analysis of a DSP pilot programme in 2007;
- Development of a specialised GSC product drawing on the learnings from the 2007 pilot;
- The setup, running and analysis of a DSP trial in 2008 using the GSC product developed; and
- Refinement of the GSC product drawing on the learnings from the 2008 trial.

This is the first application by Transpower to the Commission for approval of a non-transmission project. The application is significant because of any precedents for this class of investment it may create and for what it may reveal about the rules when they are applied to transmission alternatives. In view of the potential significance of the application for these reasons, MEUG has asked NZIER to provide it with an analysis and report.

## 2. Non-transmission projects

Variations in the terminology used in Part F of the Electricity Governance Rules (EGRs) means that the provisions relating to Transpower's powers and obligations in regard to considering investments in things other than physical grid type are confusing. In Part F, Section III the term used is "transmission alternatives". These are defined in Part A to be "alternatives to investment in the grid, including investment in local generation, energy efficiency, demand-side management and distribution network augmentation set out in part F".

It is clear from the definitions in the EGRs that investment in transmission alternatives qualify as "reliability investments" because the definition of these includes not just investments in the physical grid but "alternative arrangements by Transpower". On the other hand, under the EGRs, "economic investments" do not include investments in transmission

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<sup>1</sup> Transpower, *Demand Side Participation Trial and Grid Support Contract Development*, May 2007.

alternatives because the definition of economic investments is limited to investments in the physical grid.

Under Part F, Section III, Transpower is permitted to propose reliability investments, economic investments and, until the Board makes final decisions on the first grid upgrade plan (GUP), interim grid expenditure (IGE).

In the Grid Investment Test (GIT) in Part F, Section III, Schedule F4, however, the terminology used is “proposed investments”, “alternative projects” and “non-transmission projects”. A “proposed investment” is a reliability or economic investment proposed by Transpower. “Alternative projects” means any alternative transmission augmentation project and transmission alternatives to the proposed investment which meet a set of criteria relating to technical feasibility, practicality and likelihood of proceeding. “Non-transmission projects” are projects consisting of transmission alternatives. The GIT involves comparing the expected net market benefit (cost) of the proposed investment with the net market benefits of a number of alternative projects.

The upshot of the rather confused drafting and terminology in Part F and the GIT is that:

- Transpower cannot propose transmission alternatives as economic investments although it has to consider them when a proposed investment that is also an economic investment is being assessed using the GIT; and
- Transpower can propose transmission alternatives as reliability investments or as IGE, provided they meet the other requirements to qualify.

### **3. Is the proposed expenditure IGE?**

Transpower has submitted the proposal under the IGE provisions of rule 16 of Part F, Section III. It argues that its proposed expenditure meets all the requirements to be IGE. More specifically, that:

- The expenditure has been proposed by Transpower before the Commission makes a final decision on the first GUP, and that no expenditure has been incurred or committed prior to the application for approval for the proposal; and
- The proposed expenditure is additional to Transpower’s normal ongoing grid expenditure; and
- The expenditure is “prudent expenditure on preparatory work necessary for other grid expenditure that has not yet been approved in a grid upgrade plan”.<sup>2</sup>

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<sup>2</sup> Transpower, p.13.

We have no doubts about the validity of the first two claims made by Transpower, but we believe the third is not correct.

Transpower argues that the proposed expenditure is prudent expenditure on preparatory work necessary to develop the GSC product “before the GSC is put forward within a GUP as either a reliability or an economic investment.”<sup>3</sup> When developed, a GSC (i.e. a grid support contract) will be a transmission alternative and, as we have already noted, transmission alternatives can qualify as reliability investments (although contrary to both what Transpower suggests and commonsense, transmission alternatives cannot be economic investments). So, in this regard Transpower’s argument is correct. However, rule 16.2.3.2 does not relate to preparatory work necessary for reliability investments or economic investments; it relates to “preparatory work necessary for other **grid** expenditure”.

The word “grid” is in bold in rule 16.2.3.2 and hence is used as defined in part A of the EGRs. This point appears to have been missed by Transpower when it quoted rule 16 in its proposal as it did not reproduce the bold for the word grid, although it used bold letters for most other defined terms.<sup>4</sup> The definition of “grid” in the EGRs is “the system of transmission lines, substations and other works, including **the HVDC link** used to connect **grid injection points** and **grid exit points** to convey **electricity** throughout the North Island and South Island of New Zealand.” Thus, **grid** is the physical assets making up the transmission network, and other **grid** expenditure is other expenditure on these assets.

Expenditure on preparatory work for a grid support contract or GSC could be expenditure on preparatory work for a **transmission alternative** and so may be preparatory to a **reliability investment**. However, expenditure on preparatory work for a GSC cannot be expenditure on preparatory work necessary for other **grid** expenditure as the intended outcome will not be investment in the physical grid.

The consequence is that Transpower’s proposed expenditure does not qualify as IGE under rule 16.2.3.2. Nor is the proposed expenditure prudent or necessary to meet Transpower’s current grid reliability standards or emergency expenditure. It, therefore, fails to satisfy the other two options under 16.2.3. Thus, the proposed expenditure is not IGE and cannot under the current rules be approved by the Commission as if it were.

Transpower could not circumvent this issue by reapplying for the proposed expenditure as a GUP. We have already noted that transmission alternatives may be reliability investments but they cannot be economic investments. The expenditure proposed by Transpower would not currently pass the test

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<sup>3</sup> Transpower, p.13.

<sup>4</sup> Transpower, p.11.

to be a reliability investment because the requirement for an investment to be a reliability investment is that it will have the “primary effect” “to reduce expected unserved energy”.<sup>5</sup> The proposed project involves a pilot study and contract development and is really a research proposal and so will not have the required primary effect. The unserved energy is not expected in 2007 and 2008 when the project is underway; it is expected later than this and the study is intended to develop methods for later use.

What our analysis highlights is two major inadequacies in the drafting of the rules in Part F relating to transmission alternatives. In our view, Transpower should be able to propose transmission alternatives as economic investments and the IGE provisions should cater for prudent expenditure on preparatory work necessary for reliability or economic investments that have not yet been approved in a grid upgrade plan.

## **4. Desirable expenditure**

Setting aside the technical issues preventing approval of Transpower’s proposal by the Commission, we consider the actual proposal is worthy of approval. While the summation of the various benefits identified by Transpower is not detailed, we consider it is adequate to show the benefits clearly outweigh the maximum costs for which approval is sought. More detailed analysis would not alter this conclusion. Even if it turns out from the pilot study there is little available demand side participation in practice we would consider the limited expenditure which would be occurred in this case was well justified by the value of the knowledge gained.

Transpower has sought approval for expenditure up to \$8.27 million but recognises the expenditure could be considerably less than this. It is unable to specify in advance the precise level of expenditure because much of it will be determined by a tendering process. Transpower has undertaken to adopt good practice in its tendering in order to achieve competitive prices and to be as open as possible about its tender results and other costs. In our view, Transpower’s approach is appropriate and should be supported.

## **5. Conclusion**

Transpower’s proposal is easily justified by considering its potential benefits relative to its proposed costs. If it turns out there is not much demand side participation available, then the costs will be largely the administration and analysis costs and significant and important knowledge will have been gained for a relatively small outlay.

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<sup>5</sup> EGR’s Part A, definition of “reliability investments”.

The drafting of the rules relating to transmission alternatives in Part F of the EGRs is confusing due to the inconsistent use of terminology.

In our opinion, there is a flaw in the drafting of rule 16.2.3.2 of Part F, Section III. This rule relates to IGE. The wording should not refer to “other **grid** expenditure”, it should refer to “**reliability** and **economic investments**”. This provision ceases to be operative when the Commission approves its first GUP, and so the benefits relative to the costs of amending it are likely to be very small.

In our opinion, there is also a flaw in the definition of economic investments in the EGRs because they are restricted to be investments in physical grid assets. Transmission alternatives that involve investments in non-grid assets should be able to be put forward by Transpower as economic investments. Currently, they can only qualify for proposals as reliability investments. The definition of economic investments should be amended urgently. In our opinion, it is very obvious that the benefits of doing this will outweigh any costs of consultation and approval.

Our analysis shows that under the current rules Transpower’s proposal cannot be approved by the Commission. This is very unfortunate.