

Review of Electricity Commission's Draft Decision

**Transpower's Auckland 400kV Grid
Investment Proposal**

Report to MEUG

May 2006

Preface

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1. Introduction

This report reviews the Electricity Commission's (the Commission) draft decision to reject Transpower's Auckland 400kV grid investment proposal. The proposal was contained in Transpower's 2005 grid upgrade plan (GUP). Our report has been prepared for the Major Electricity Users Group (MEUG) to assist it to present a submission on the draft decisions. The opinions expressed in the report are NZIER's.

To prepare this report we consulted the draft decision and a wide range of supplementary material that has been made available by the Commission on its webpage.¹ We have also attended two technical briefings the Commission held in Wellington. These covered both engineering and economic matters.

In the report we focus on the following matters:

- The background and context to the Commission's draft decision;
- The extent to which the Commission has correctly followed the processes for applying the grid investment test (GIT), as laid down in Section III, Part F of the Electricity Governance Rules (EGRs);
- The Commission's application of the test contained in Section III, Part F, Rule 13.4, including the application of the GIT;
- The appropriateness of the GIT for making the decision, specifically in the light of the criticism of it by Commissioner Close;
- The robustness of the Commission's draft decision; and
- Whether Transpower should be authorised at this stage to procure a transmission corridor from Whakamaru to Otahuhu even if the final decision is to reject its proposal for a 400kV line.

In an Appendix we provide responses to the questions the Commission has asked in its draft decision.

2. Background and context

On 30 September 2005, the Commission received a GUP from Transpower. Among other things, it contained a proposal for a 'reliability investment' to construct a new 400kV double circuit line between Whakamaru in the central North Island and Otahuhu in South Auckland. Upon receipt of the GUP, the Commission began considering Transpower's proposals in accordance with the requirements in Section III under Part F of the EGRs.

¹ <http://www.electricitycommission.govt.nz/opdev/transmis/400kv>

The EGRs allow the Commission to approve a proposed reliability investment if the Commission is satisfied that the proposed investment:²

- Reflects good electricity industry practice (GEIP) in meeting grid reliability standards (GRS); and
- Complies with the processes set out in the EGRs; and
- Meets the requirements of the GIT.

Of course, before proceeding to approve a proposed investment under these provisions, the Commission has to be satisfied it is a reliability investment. This term is defined in the EGRs.

To meet the requirement of the GIT a proposed reliability investment must:³

- Maximise the expected net market benefit or minimise the expected net market cost compared with a number of alternative projects; and
- If sensitivity analysis is conducted, then the conclusion about net market benefits or costs must be sufficiently robust having regard to the results of that sensitivity analysis.

In the draft decision, the Commission determines that Transpower's Auckland 400kV proposal:

- Is a reliability investment because it 'would have the primary effect of reducing expected unserved energy';⁴
- Is 'not sufficient to maintain the GRS until the end of the analysis horizon (2030)'⁵ and so the proposal does not, on its own, reflect GEIP in meeting the GRS;
- Complies with the processes set out in the EGRs because Transpower has complied;⁶
- Is not adequately analysed by Transpower in an economic sense because Transpower has not adequately considered:
 - alternative investments to a sufficient extent; and
 - all the market benefits and costs as required by the GIT;⁷ and
- Does not pass the GIT test because there are alternative projects that reduce the expected net market cost below that of the proposal plus the other investments necessary to maintain achievement of the GRS.⁸

² EGRs, Part F, Section III, Rule 13.4.

³ EGRs, Part F, Section III, Schedule F4, Rule 4.1.

⁴ Electricity Commission, *Draft Decision on Transpower's Auckland 400kV Grid Investment Proposal*, April 2006, para. 5.1.6. Herein after *Draft Decision*.

⁵ *Draft Decision*, para. 7.1.11.

⁶ *Draft Decision*, para. 7.2.11.

⁷ *Draft Decision*, para. 7.3.30.

As a result of reaching these conclusions, the Commission's draft decision is not to approve Transpower's proposed investment.⁹

In its draft decision, the Commission does not:

- Approve any particular project or proposal;
- Attempt to identify the optimal proposal; or
- Consider non-transmission alternatives like demand management and encouraging generation to locate in Auckland.

To undertake these tasks is not the Commission's role when evaluating reliability investments under the EGRs.

3. Has the Commission followed the correct processes?

Section III of Part F of the EGRs lays down the processes the Commission should use to evaluate proposals contained in the GUP in some detail.

3.1 Failure of Transpower's proposal to satisfy GRS

One potential departure by the Commission from the prescribed process is that it did not actually evaluate the proposal in the GUP as submitted by Transpower. The Commission's technical consultants, SSG, established in the course of their analysis that Transpower's proposal, as set out in the 2005 GUP, was not sufficient to maintain the GRS until the end of the analysis horizon of 2030.¹⁰ The Commission, therefore, included with Transpower's proposal a number of additional investments as modelled projects. These were designed to maintain the GRS until 2030. The Commission refers to Transpower's proposal plus these modelled projects as the modelled proposal.¹¹ It was the modelled proposal that the Commission evaluated. Transpower agreed to the evaluation being conducted on the modelled proposal.

One of the requirements for the Commission to approve a proposed reliability investment is that it 'reflects good electricity industry practice in meeting grid reliability standards'.¹² This requirement can be read in two ways: as meaning that a reliability investment must ensure that the GRS is met; or, as meaning that a reliability investment must contribute towards the GRS being met but does not on its own have to ensure it is met. The plain

⁸ *Draft Decision*, para. 9.1.7.

⁹ *Draft Decision*, para. 9.1.8.

¹⁰ *Draft Decision*, para. 7.1.11.

¹¹ *Draft Decision*, para. 7.1.12.

¹² EGRs, Part F, Section III, Rule 13.4.1.1.

English interpretation of the relevant rule is the second because the words used are ‘in meeting’ and not ‘to meet’ the GRS. We believe from the context this is also the correct interpretation. We do not consider, therefore, that the Commission has failed to follow the process set down in the EGRs as a result of adding modelled projects to Transpower’s proposal.

Even if the first interpretation is the correct one, legally, the Commission’s decision to add modelled projects and get on with the task is justifiable on the grounds of expediency.

3.2 Roles of Commission and Transpower

Less obviously, it is very doubtful whether the relative level and quantity of analysis of the proposals undertaken by Transpower and the Commission is consistent with the intent of the EGRs. From reading Section III, Part F the clear intention is that Transpower should undertake most of the analysis of proposed grid upgrade investments and the role of the Commission should be to *review* Transpower’s proposals, make suggestions and ultimately determine whether Transpower has established its investments meet the requirements for approval.

In this instance, however, the Commission has done a great deal of the analysis itself and has gone well beyond checking and reviewing Transpower’s work. Why the Commission has been so pro-active is understandable. The nature of the investment decision process flowing from a GUP has never been applied before and some Commission guidance on how it understands the process was necessary. The information Transpower provided the Commission supporting the proposal was, in the Commission’s view, inadequate. Moreover, there is considerable political pressure on the Commission to sort out what investments should be undertaken in relation to Auckland grid security.

The upshot is, however, that the Commission has really done much of the work it should have required Transpower to do. We are in danger of having two sets of grid planners and of incurring the cost inefficiencies and communication and accountability difficulties this will create. While expediency might justify the departure in this instance, it is to be hoped that Transpower and the Commission quickly sort out their respective roles in relation to grid planning and investment approval under the EGRs and we avoid the processes used to evaluate the Auckland 400kV proposal becoming entrenched. We heard at one of the technical briefings we attended that this is the intention of the two parties. Our view is that it is important that this intention is acted upon soon and decisively.

The Commission probably now contains staff with more practical expertise at applying the GIT than Transpower, whereas the situation should ideally be the opposite. At a practical level, some of the human capital for applying

the GIT may need to be transferred from the Commission to Transpower. Moreover, Transpower's openness to potential alternative transmission solutions and to consider alternatives to transmission will need to be greater than it was initially in relation to the Auckland 400kV proposal for it to successfully fulfil the grid planning role envisaged for it in the EGRs. Transpower has signalled that is its intention in its response to the Commerce Commission's proposal to declare control.¹³

4. The Commission's application of the tests

The EGRs allow the Commission to approve a proposed reliability investment if it is satisfied that the proposed investment:¹⁴

- Reflects good electricity industry practice (GEIP) in meeting grid reliability standards (GRS); and
- Complies with the processes set out in the EGRs; and
- Meets the requirements of the GIT.

Of course, before proceeding to approve a proposed investment under these provisions, the Commission has to be satisfied it is indeed a reliability investment.

4.1 Reliability investment?

The EGRs define a reliability investments as 'investments by Transpower in the grid, or alternative arrangements by Transpower, the primary effect of which is, or would be, to reduce expected unserved energy'¹⁵ The test the Commission applies to the modelled proposal is exactly in line with this definition and so its application is entirely appropriate.

The importance of whether the modelled proposal is a reliability investment or not is that this shapes both the decision process to be used and the actual GIT to be applied. For reliability investments, the Commission decides whether the proposed investment has met the requirements for approval.¹⁶ For non-reliability investment, called economic investments, the Commission's role is to approve them 'where Transpower has applied the grid investment test reasonably, and followed any agreed consultation process'.¹⁷ For reliability investments the GIT requires that:¹⁸

¹³ Transpower, Submission to the Commerce Commission on the Intention to Declare Control, February 2006, p. 138.

¹⁴ EGRs, Part F, Section III, Rule 13.4.

¹⁵ EGRs, Part A

¹⁶ EGRs, Part F, Section III, Rule 13.4.

¹⁷ EGRs, Part F, Section III, Rule 14.4.

- The proposal maximises the expected net market benefit or minimises the expected net market cost compared with a number of alternative projects; and
- If sensitivity analysis is conducted, then the conclusion about net market benefits or costs must be sufficiently robust having regard to the results of that sensitivity analysis.

So reliability investments can pass the GIT even if they have an expected net market benefit that is negative; even if they will reduce overall economic welfare. Non-reliability investments, however, must have an expected net market benefit ‘greater than zero’ to satisfy the GIT. In other respects, the GIT is the same for the two classes of investment.¹⁹

One consequence of the Commission classifying the modelled proposal as a reliability investment is that it has not had to determine whether the expected net market benefit of the modelled proposal or the investments it evaluates are positive or not. The results of the economic analysis conducted by the Commission do not, therefore, tell us whether any of the proposed investments are economically viable. What they tell us is their net market costs relative to the modelled proposal. As a matter of interest it would be useful to know the value of expected unserved energy if none of the five options analysed by the Commission had been undertaken. Do these proposals add to New Zealand’s economic welfare or not? This information is not able to be readily determined from the extensive material provided by the Commission.

4.2 GEIP meeting the GRS

We have already noted that the Commission’s technical consultants, SSG, established in the course of their analysis that Transpower’s proposal, as set out in the 2005 GUP, was not sufficient to maintain the GRS until the end of the analysis horizon of 2030.²⁰ The Commission, therefore, included with Transpower’s proposal a number of additional investments as modelled projects designed to maintain the GRS until 2030. The Commission refers to Transpower’s proposal plus these modelled projects as the modelled proposal.²¹ It is the modelled proposal that the Commission has evaluated.

On the basis of Australian usage of the term and the definition in Transpower’s current posted terms and conditions, the Commission develops a definition of GEIP. The Commission is of the view that the appropriate test is whether a proposal or alternative investment meets this definition along with some additional conditions related to design processes,

¹⁸ EGRs, Part F, Section III, Schedule F4, Rule 4.1.

¹⁹ EGRs, Part F, Section III, Schedule F4, Rule 4.2.

²⁰ *Draft Decision*, para. 7.1.11.

²¹ *Draft Decision*, para. 7.1.12.

manufacture, testing and maintenance.²² We support the Commission's approach.

The Commission is of the view that using these criteria the modelled proposal reflects good electricity industry practice (GEIP) in meeting the GRS.²³ The Commission has the same view with respect to the four alternative proposals it evaluates. Transpower suggests the alternatives do not meet GEIP on the grounds that they involve:²⁴

- Heavily loading 50 year old plus equipment without careful analysis of the capacity of that equipment to operate under the loading;
- Employing a larger number of system elements for similar cost compared with a smaller number of elements, resulting in lower overall reliability; and
- Considering HVDC systems for meeting capacity requirements in a reliability context.

However, in our view the Commission's staff rebuts each of these claims successfully.²⁵

In undertaking the technical analysis of whether the modelled proposal and the alternatives met GEIP and the GRS the assumptions used are very conservative. No allowance is made in the technical analysis for contributions to reliability from:

- Additional generation in and around Auckland, not even the wind projects already approved or modelled;
- The use of system protection schemes; and
- The use of more demand-side management.

In addition, the GRS requires a minimum on the core grid of N-1 security, but from 2008-30 all the proposals evaluated meet the criterion of N-G-1. This means the system will withstand one key element being out as well as one Auckland generation plant. Except at very peak times, the various investment proposals actually allow the system will meet the standard of N-2G-1 – allow two generators out simultaneously. It is claimed by the Commission that this higher standard of N-G-1 is justified on economic grounds.²⁶

²² *Draft Decision*, para. 6.2.19.

²³ *Draft Decision*, para. 7.1.19.

²⁴ *Transpower Issues and Commission Staff Comments*, March 2006, s. 3.1. Hereinafter *Transpower Issues*.

²⁵ *Transpower Issues*, s. 3.1.

²⁶ *Draft Decision*, para. 6.5.4.

The question of whether even N-G-1 is a high enough standard for Auckland given that the timing of the outages to maintain gas generators is not always able to be planned with certainty was raised at one of the technical meetings. It is an economic question as to whether the expected value of unserved energy that will result would warrant a further increase in the security level. The evidence presented by the Commission's technical advisors, SSG, that for simultaneous forced outages on Otahuhu B and Huntly E3P in 2016 the expected value is just \$340,000, strongly suggests the higher standard is not economic. Even if the probability of the simultaneous outage was 10 times greater, the expected value is low compared with the likely costs of covering the contingency.

4.3 Compliance with processes set out in the EGRs

The Commission argues that the modelled project complies with the process because Transpower complied with the requirements in terms of providing a GUP, keeping with the timetable, as amended, and responding to requests for further information and investigations.²⁷

We have already expressed our reservations about whether the role played by Transpower in assessing the proposals and revising its assessments is in line with the spirit of the rules. We believe that, understandably, the Commission has been less than rigorous in its application of this test in this first instance. We expect that in future it will take a tougher line on what it should receive and that Transpower should carry out the detailed analysis and the Commission should confine itself to mainly reviewing what Transpower provides to it in response to the EGRs and the Commission's requests.

4.4 Compliance with the requirements of the GIT

The EGRs specify in considerable detail how the GIT is to be undertaken. The Commission has very carefully gone through the various components of the GIT. This required the Commission to come up with some alternative investments to compare with the modelled proposal. The four alternatives the Commission came up with all involved completing a low cost set of intermediate investments and, in addition:

- Installing a new 400kV line between Whakamaru (WHK) and Otahuhu (OTA) in about 2017; or
- Installing a new 220kV line between WHK and OTA in about 2017; or
- Installing a new HVDC link between WHK and OTA in about 2017; or
- Duplexing the WHK to OTA 220kV lines before 2012 and installing a new 400kV line between WHK and OTA in about 2021.

²⁷ *Draft Decision*, para. 7.1.11.

Surprisingly, we have not identified any elements of the Commission's application of the GIT, including its conduct of sensitivity analysis of the results, which we would debate.

We are aware that issues in relation to the following aspects of the application of the GIT have been raised by various parties:

- Whether transmission losses should be valued at the short-run or long-run marginal cost of generation;
- The failure to take into account the interdependence between investment in transmission and investment in generation;
- Whether the substantial costs of transmission investment occurring too late have been properly captured; and
- Whether Transpower's proposal gives rise to additional competition benefits that have not been captured.

4.4.1 Valuation of transmission losses

The Commission has valued transmission losses at the short-run marginal cost (srmc) of generation. It has been argued that losses should be valued at the long-run marginal cost (lrmc) of generation because the energy content of losses must be ultimately supplied from new generation.²⁸ Since the loss savings are greater for Transpower's proposal than the alternatives, and lrmc is above srmc, the Commission's use of srmc would bias the result against the Transpower proposal.

The Commission rightly points out that in the New Zealand context there is not a constraint of generation plant; the constraints on the availability of electricity are due to shortages of fuel, specifically water, in dry-years. In this context, losses are not met by adding extra generating capacity but from depleting the fuel supply or, if it is a dry-year, by running reserve plant earlier. This means that in the New Zealand context the costs of losses is the srmc of generation and not the lrmc.²⁹ In other jurisdictions, such as Australia, which from time to time have generating capacity constraints per se it may be appropriate to value transmission losses at the lrmc of generation, but it is not so in New Zealand.

The Commission does concede that by having used the srmc of the most expensive generating plant in the North Island it has tended to understate the value of losses, because in dry-years the appropriate value to use is the Whirinaki reserve plant srmc. However, it notes that the error only relates to the proportion of the time that a dry-year is expected and only to the

²⁸ *Transpower Issues*, s. 6.5.

²⁹ Electricity Commission, *Economic Assessment of Transpower's Auckland 400kV Grid Investment Proposal*, May 2006, pp.80-81. Hereinafter, *Economic Assessment*.

difference between the most expensive generator's srnc and the reserve plant's srnc.³⁰

4.4.2 Interdependence between generation and transmission investment

Investors in generation take into account where transmission investments are likely to go because it will impact on the return they achieve on their investment in terms of the revenue they can expect to earn. One criticism of the Commission's GIT analysis is that it has not taken this interdependence into account.

However, as the Commission points out, the issue is only of any importance if the alternatives lead to materially different transmission capacities. This is not the case in the current situation except possibly during the period 2010-17 when under the modelled proposal capacity is higher than under the alternatives.³¹ The Commission notes the possibility that delaying the investment in the grid might lead someone to invest in generation around Auckland to capture the higher nodal prices. It notes, however, that the value to be captured from exploiting the price differential is relatively small and when this is applied to the low likelihood of any one investing to capture it the expected cost for inclusion in the GIT is low.³² We agree with the Commission.

4.4.3 Risk asymmetry

A further criticism is that the Commission's analysis does not adequately take into account the substantial costs in terms of disrupted supply if transmission investment occurs too late. However, in response the Commission notes a wide range of conservative assumptions built into its analysis that favour increased reliability. These include:

- The conservative assumptions in the technical reliability analysis by SSG we have already noted;
- Not having changed the assumption of an N-G-1 security level in the economic analysis even in scenarios which include more generation being built in Auckland;
- Long lead times assumed for projects;
- Assuming high demand growth during construction of projects;
- The inclusion of probabilities of over-runs and the costs they will incur; and

³⁰ *Economic Assessment*, p. 81.

³¹ *Economic Assessment*, pp. 82-83.

³² *Economic Assessment*, p. 83.

- Not taking into account the ability to arrange temporary measures such as using mobile generators to fill gaps in transmission capacity.³³

We agree with the Commission's assessment that 'as a result of these conservative modelling assumptions, the Commission maintains that its estimation of the real option value of flexible investment timing should be viewed as a lower bound on the actual value.'³⁴

4.4.4 Competition benefits of excess transmission capacity

Castalia, on behalf of Transpower, argues that the Commission's alternate projects involve Huntly being forced to generate at times when it would not generate if there was an unconstrained grid as there would be under Transpower's proposal. According to Castalia, this changes investment incentives and dispatch patterns and specifically the deferral of investment in renewables and the displacement of gas and renewables generation by coal generation from Huntly and more very high priced generation from oil-fired peaking plants. Castalia estimate the present value in 2010 of the impact of these changes at \$190m.³⁵

The Commission rejects Castalia's analysis on the following grounds:³⁶

- Peak capacity is more likely to be supplied by hydro plant than oil-fired plant and so the prices are unlikely to reach the level sufficient to cover the lrmc of much new generation capacity. Hence, the new plant is unlikely to be built as additional capacity with a view to supplanting Huntly as a source of supply;
- It is doubtful that there is sufficient low-cost new generation capacity options available to replace much of Huntly's discretionary generation. The lrmc of the new generation has to be below the srnc of Huntly generation for it to be built to replace Huntly; and
- Huntly's generation is mostly contestable now and will continue to be so because the other Auckland thermal generators have lower srnc than Huntly and so are dispatched before it in times of transmission constraint. The consequence is that contrary to Castalia's assumption, Huntly is only constrained on at the extreme top of the load duration curve.

The Commission estimates that the real option value of excess transmission capacity – the potential to by-pass Huntly generation in the period 2010-16 – as being approximately \$5m of benefit to the modelled project compared with the alternates with the upper bound estimate being \$10m.³⁷ We prefer the Commission's analysis to Castalia's.

³³ *Economic Assessment*, p. 84.

³⁴ *Economic Assessment*, p. 84.

³⁵ Castalia, *Capacity Effects of Alternate Auckland Upgrades*, March 2006.

³⁶ *Economic Assessment*, pp. 62-73.

³⁷ *Economic Assessment*, pp.72-73.

The Commission disregards other competition benefits in the analysis because each of the investments under consideration ultimately provide a similar transfer capacity so that if there were any they would be roughly identical across the various projects and so have no influence on the final ranking.³⁸ We agree with this view.

4.4.5 Results of the GIT

Option	Costs			Benefits			
	Capital cost	O&M cost	Transmission losses	Reliability benefits	Terminal Value	Capacity benefit	Total present value
400kV in 2010	\$775m	\$15m	\$0m	\$0m	\$31m	\$5m	\$754m
400kV in 2017	\$495m	\$6m	\$76m	\$5m	\$30m	\$0m	\$541m
220kV in 2017	\$400m	\$3m	\$118m	\$15m	\$6m	\$0m	\$499m
HVDC in 2017	\$493m	\$10m	\$74m	\$13m	\$15m	\$0m	\$549m
400kV in 2021	\$607m	\$3m	\$109m	\$15m	\$45m	\$0m	\$658m
Notes:	(1) Total present value cost is the sum of the costs minus the sum of the benefits (2) All values are in millions of 2010 dollars.						

The modelled proposal does not generate the highest net market benefit. In fact, all four alternate benefit projects proposed by the Commission have higher net benefits. Between the best of the alternates – the 220kV line in 2017 - and the modelled project, the present value of the difference in net benefits is approximately \$250m.

The Commission is careful to note that it is not saying that one of its four alternates is the optimal transmission upgrade and should be approved. What the Commission is saying is that it has identified several alternate proposals with superior net market benefits and this is sufficient under the EGRs for it to reject the modelled proposal without having to go on and consider proposals containing or consisting of non-transmission alternatives.

³⁸ *Economic Assessment*, p.85.

4.4.6 Sensitivity analysis

Sensitivity analysis is not a required component of the GIT, but if it is conducted then the results have to suggest that the application of the GIT is robust. The Commission conducts extensive sensitivity analysis, and the results of this do support the view that there is a very material advantage of the alternate proposals over the modelled proposal. The results of the GIT are robust.

5. The appropriateness of the GIT

In a ‘concurring opinion, with reservations’ included in the draft decision as Appendix 3 Commissioner Close states:

I have strong reservations about the way in which the grid investment test itself has been developed and applied. The test has been refined by highly skilled staff over many months and has acquired a high degree of complexity. However, it is my view that, in this process, attention has been diverted from some of the objectives of the grid investment test (such as promoting certainty for investment) and from the prime purpose of the grid investment rules ... (“to facilitate Transpower’s ability to develop and implement long-term plans for investment in the grid”).

...

My reservations about the way in which the grid investment test has been interpreted and applied is that it tends to advantage incremental, short-term solutions and disadvantage long-term plans for major upgrades.³⁹

Transpower has also expressed similar concerns about whether the GIT approach used by the Commission places enough emphasis on ‘strategic’ matters in relation to grid development.⁴⁰

We have already expressed our own reservations about the process as adopted on this occasion. In our view, compared with the intention in the EGRs, the role of the Commission and its staff has been more proactive than intended and Transpower’s role has been more reactive. There is a danger that we will end up with the cost inefficiency and confusion and lack of accountability from having two groups of grid planners rather than one grid planner and one reviewer of plans. We welcome indications given at the technical briefings that the Commission and Transpower are seeking to correct this situation.

³⁹ *Draft Decision*, Appendix 3.

⁴⁰ *Transpower Issues*, s. 3.2.

We believe it is possible that some of Commissioner Close's 'strong reservations' stem from the same development as causes us unease. More specifically, the EGRs clearly give a central role to Transpower developing and progressing its long term GUP. It is in the context of the GUP that the Commission is required to review and approve reliability investments and Transpower is required to consult with its customers over economic investments. The greater role taken by the Commission and its staff in evaluating the Auckland 400kV proposal has tended to remove Transpower from its central role and with it the GUP.

If, however, Commissioner Close's concern is that there is something inherent in the version of cost-benefit analysis that is incorporated into the GIT which means it will be biased against good long-term planning in favour of short-term expedients, we do not agree. Cost-benefit analysis is the appropriate decision tool. The requirement to use the GIT ensures that vague notions which cannot be articulated that some investment is 'strategic' will not shape the decisions, but this is as it should be. On the other hand, the long time frame over which analysis can be conducted (longer than 20 years if desired) and the ability to consider real options and competition benefits means long term factors can be properly weighed using the GIT.

6. The robustness of the draft decision

We consider that the draft decision is very robust. In our view, the Commission has:

- Not breached the process laid down in the EGRs, although we think it has been more proactive, and Transpower more reactive, than the EGRs intend;
- Correctly identified the four tests it is required to perform; and
- Correctly carried out each of those tests, including the GIT.

The results of the tests are that the Commission has identified alternate transmission proposals that fulfil the requirements of the EGRS and have very significantly higher net market benefits.

Moreover, the results of the sensitivity analysis that the Commission has conducted are such that the conclusion about net market benefits is 'sufficient robust' to support the conclusion about net market benefits.

7. Should Transpower acquire easements now?

One matter that has been raised during discussion of the modelled proposal is whether Transpower should be authorised by the Commission to purchase

the easements for a line between Whakamaru and Otahuhu now, even if the 400kV line in 2010 proposal is rejected. The thinking is that this would ensure that the route is available if needed and would provide landowners with certainty. The Commission has requested feedback on this issue in its draft decision.

If Transpower is authorised by the Commission to purchase the easement now it could reasonably be expected to charge for it from now. This would mean current consumers paying for an asset which is neither used by them nor useful to them in providing the services they currently want. In a competitive market consumers would not expect to pay for these assets.

Aside from the difficulty of accessing compulsory acquisition provisions, there seems no good reason why the purchase and ownership of such an easement cannot be left to the market to decide. If investors believe it is likely that the easement will be needed in future, they can buy it now and hold it until it is needed. When the easement is needed, the investors should be able to sell it for the cost of the next best alternative available at that time.

Leaving decisions about purchase and ownership of easements to private investors means that they take the risks about whether it is eventually needed or not and decide the optimal time to purchase. Their returns are based on the quality of their decisions. These risks around whether easements are required and when they should be bought exist even with public provision but under a scheme involving compulsory consumer payments, the party making the decisions does not bear the risks and so is unlikely to make as good decisions as investors who are bearing those risks.

That easements will not generate any positive cashflow for many years is not a reason they cannot be purchased and held by private investors. Forestry investments do not provide positive cashflow for long periods of time either and they are generally private investments.

The Commission conducted sensitivity analysis around the rate of increase in easement costs and found that there was very little impact on the overall net benefits of the various proposals; in short for the accelerated inflation if assumed – 3% per year – there was not significant financial advantage in purchasing easements early.

Appendix A Consultation questions

	Question	Response
Q1	Do you consider there may be value in progressing at this stage a transmission corridor that would accommodate a range of overhead line technologies? Do you consider that such a corridor could be implemented under current legislation? If not, what changes do you consider would need to be made?	We suggest the most efficient outcomes are likely to be achieved if it is left to private investors to decide whether and when they want to acquire easements. There may need to be legal changes to support private sector involvement in funding easements by providing access to compulsory purchase provisions.
Q2	Do you agree that the Commission has adequately identified alternatives to Transpower's Proposal?	Yes
Q3	Are you aware of any other information that the Commission should rely on to make its final decision?	No
Q4	Do you agree with the Commission's application of the GRS?	Yes
Q5	Do you agree with the Commission's definition of GEIP? If not, what other definition should be used?	Yes
Q6	Do you agree with the Commission's approach to consideration of costs to use in application of the GIT?	Yes

Q7	Do you agree with the Commission's approach to consideration of benefits to use in application of the GIT?	Yes
Q8	Do you agree with the Commission's treatment of forecast demand?	Yes
Q9	Do you agree with the Commission's approach to modification of the scenarios from the Initial SOO?	Yes
Q10	Do you agree with the Commission's addition of modelled projects to enable evaluation of Transpower's proposal under the Rules?	Yes
Q11	Do you agree with the Commission's choice of a reference case for the purpose of application of the GIT?	Yes
Q12	Do you agree with the Commission's identification of option values?	Yes
Q13	Is the real option value of flexible investment timing justified? Should it be included in the reference case or as a sensitivity?	Yes and include in the reference case as it is a core aspect of the overall difference between the modelled proposal and alternatives.
Q14	How should the benefits of potential surplus capacity be treated in the application of the GIT?	We believe the Commission has treated them appropriately and found the Commission's view they are not large well argued.
Q15	Do you agree that the Proposal and the Alternative Projects effectively provide an equivalent level of	No. The Transpower proposal provides greater capacity from 2010 to 2016. This extra

	transmission capacity into Auckland over the 20-year evaluation period? If not, why not?	capacity is not necessary, however.
Q16	Do you agree with the Commission's decision not to further consider competition benefits? If not, why not?	Yes
Q17	Do you agree with the Commission's statements regarding Transpower's approach to consideration of alternatives?	Yes
Q18	Has the Commission adequately considered alternatives to the proposal in the application of the GIT?	Yes. The test does not require the Commission to try every possibility.
Q19	Do you agree with the Commission's evaluation framework?	Yes
Q20	Do you agree that if either the Proposal or one of the Alternative Projects were built, there would be a reliable supply of electricity to Auckland for the foreseeable future? If not, why not?	At both technical meetings we attended all the consultants and employees of the Commission who spoke gave responses to questions from those attending which we considered to be very credible. We concluded that in the engineering assessment of reliability there were several features that each made the analysis conservative. The overall result when these factors are compounded is very conservative and biased in favour of approving the modelled proposal.
Q21	Do you agree with the Commission's summary of the economic analysis provided by Transpower?	Yes
Q22	Do you agree with the Commission's approach to the calculation of reliability benefits?	Yes

Q23	Do you agree with the Commission's calculation of costs to be included in the application of the GIT?	Yes
Q24	Do you agree with the Commission's approach to the calculation of fuel cost benefits?	Yes
Q25	Do you agree with the Commission's approach to the calculation of reliability benefits?	Yes
Q26	Do you agree with the Commission's approach to the calculation of capital cost benefits?	Yes
Q27	Is the incremental approach to transmission investment adopted by the Commission consistent with the GIT? If not, how should application of the GIT be modified?	We do not consider that the Commission has adopted an incremental approach. We believe that in this instance the Commission has been more proactive and Transpower more reactive than we think the EGRs intend and are concerned we may end up with cost inefficiency and lack of accountability and confusion in planning if this is not corrected. We understand why this occurred and we appreciate that the Commission and Transpower are addressing the matter.
Q28	Do you agree with the Commission's approach to the calculation of loss benefits?	Yes
Q29	Do you agree with the Commission's approach to the evaluation of terminal benefits at year 20 of the analysis timeframe? If not, how should the Commission approach this?	Yes
Q30	Do you agree with the Commission's calculation of benefits to be included in the application of the	Yes

	GIT?	
Q31	Do you agree with the Commission’s approach to sensitivity analysis?	Yes
Q32	Should other sensitivities be considered? If so, which?	No
Q33	Do you agree with the Commission’s assessment of risk in relation to investment delay? If not, what parameters should be used?	Yes
Q34	Is the Commission’s interpretation of the GIT consistent with the purposes of the grid upgrade and grid investment rules listed in rule 2?	See comment above in response to Q27 and also section 5 in the paper.