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Submission on Electricity Commission's “Options for Enabling Transmission Alternatives – 31 May 2005”

The Forum

The Sustainable Energy Forum (The Forum) is a group of individuals and companies with an interest in a sustainable energy future for NZ. Current membership is about 160, including corporate and individual members ranging from staff in major energy companies to students and retired people. Many members are active in small-scale sustainable energy supply and energy efficiency companies.

The Forum's objective is to “facilitate the use of energy for economic, environmental and social sustainability”. All three elements of sustainability are relevant to the issues covered by the “Options for Enabling Transmission Alternatives” discussion paper.

This submission has been prepared by members of the SEF Electricity Working Group on behalf of the Forum. Due to time constraints, the broader membership of the Forum have not been fully canvassed for their comments. Major contributors to this submission include Molly Melhuish, and Ian Shearer.

1. Introduction

The “Options for Enabling Transmission Alternatives” discussion paper to which this submission is addressed is on the Electricity Commission's web site: at <http://www.electricitycommission.govt.nz/consultation/enabletrans/view>

The central issue of the consultation document is whether alternatives to proposed transmission upgrades can be counted on to eventuate in the present “market” environment, or whether the Electricity Commission must “procure” the alternatives directly or indirectly. Four options for “procuring” are set out in the document.

Which option if any is preferable can only be discerned through an understanding of the actual costs and risks of the various alternatives – large generators behind constrained regions, small-scale generation, demand response when constraints are approached, and energy efficiency investments targeted at peak times. The consultation document contains no data, nor even substantive discussion, of such costs and risks. Therefore the broad discussion of alternatives in section 4 below is largely hypothetical.

It appears from discussions in the consultation document that the preference of Transpower for a "step-change" in transmission capability depends on a pricing methodology that ensures it will be paid for what in other industries would be considered a risky investment.¹ Investors in transmission alternatives face their commercial risks without access to regulated funding or other support.

It also appears that the Auckland business community, in pressing for greater insurance against network constraints, takes little account of the cost of Transpower's proposed upgrade. Their enthusiasm might change if its \$500-odd million dollar cost were added to the power bills of all consumers north of the constraint. Under the present transmission pricing methodology, any upgrade to the core national grid that reduce constraints to a particular region is paid for by all consumers, who therefore cross-subsidise the regional consumers. This pricing system is only provisionally confirmed.

The review of elements of electricity market design, discussed in section 6, adds further uncertainty to the costs and benefits of the choices between transmission and alternatives.

This submission will conclude that "enabling transmission alternatives", as well as pricing methodology and market design, should ensure a proper balance of risk between competing suppliers of the relevant energy services. The objectives not only for enabling transmission alternatives, but also for any review of market structure and implementation, need to cover the full scope of the objectives of the Electricity Act as amended in 2004, including the full scope of environmental sustainability.

2. Answer to Question 1

Q1: Do submitters agree Tables 1 and 2ⁱⁱ contain the correct evaluation criteria, and are they weighted appropriately?

Tables 1 and 2 are a shorthand summary of the seven evaluation criteria chosen by the Commission, and its assessment of how each of the five options performs under each criterion. This question is the sole focus this submission.

The objectives and evaluation criteria are set out in sections 13 and 14. Importantly, they are derived from the Commission's interpretation of how the most recent (2004) amendment to the Electricity Act, and the Government Policy Statement (GPS) should be applied to transmission alternatives.

Most important are the objectives chosen by the Commission. Paraphrased, the objectives for evaluating transmission alternatives are:

- Reduce cost of delivered electricity
- Give reasonable certainty that transmission alternatives will eventuate when needed
- Minimise chance that the trend towards centralised planning, following on from transmission planning, will further increase.

These are, of course, a select set taken from a much wider one. The over-arching objectives for the Electricity Commission, specified in the 2004 amendment, are

- to ensure that electricity is produced and delivered to all classes of consumers in an efficient, fair, reliable and environmentally sustainable manner; and
- to promote and facilitate the efficient use of electricityⁱⁱⁱ.

To narrow these objectives in deciding on transmission investment is wrong, because building a transmission upgrade will determine which "transmission alternatives" are commercially viable in the particular region, and which are not. The economic influence of the lines will extend even beyond the 40-50 year lifetime of the assets themselves.

The proposed upgrades, part of Transpower's "step-change" in transmission philosophy, would lock in the present model of remote generation and long-distance transmission. This is intended to create a single market for wholesale electricity, which would reduce wholesale prices to close to the variable cost of generation.

Unbalanced promotion of transmission upgrades will crowd out some options for serving the energy needs of householders and businesses which would score higher on a national benefit test, and are more environmentally sustainable. It is only because the Grid Investment Test was constructed from the commercial perspective of electricity suppliers that it virtually always prefers the transmission upgrades.

We submit that a narrowing of objectives for the purpose of evaluating options for enabling transmission alternatives, is entirely inappropriate. The evaluation criteria, being based only on the preferred objectives, are equally wrong.

3. Outline of preferred transmission alternatives

A whole raft of dispersed energy services, including "distributed generation" of electricity (DG), energy efficiency (EE), price-responsive electricity demand (PRD), and improved management of distribution networks, can defer transmission investment and therefore compete with it. Each of these services is able to reduce peak demands, the more so when it is targeted to times and locations where transmission constraints arise. They improve security of supply of all consumers in the region, as well as to a consumer who may invest in them.

Peak electricity demands even in Auckland occur in winter evenings, indicating that electric space heating is a major contributor. Residential tariffs that reward moving away from electric heating, whether permanently or at times when constraints are

approached, could reduce the peaks. Likewise, home insulation reduces winter peak demands. Lighting is also important; hence the current compact fluorescent promotions are welcome.

Management of electric load in commercial buildings and industrial premises could lead to substantial savings of peak demand; some of this would require little if any capital investment. Thus a study of how to overcome barriers to cost-effective energy savings would give a better indication of savings potential than just counting "quantities and costs" of transmission alternatives.

Finally, distribution networks suffer high losses, some of them avoidable through reducing resistive losses, others through detailed study and correction of power factor losses. Moves to identify such opportunities would also seem cost-effective in comparison to the first proposed transmission upgrade – the \$500 million Auckland upgrade. Importantly a proportion of all these transmission alternatives can be brought on stream earlier than the proposed upgrade.

In the language of the consultation document, the electricity security of any region where transmission upgrades will "free-ride" on all such dispersed investments. The markets for DG, EE and PRD are retail, not wholesale markets – they are unrecognised by the Electricity Commission's decision processes. Any financial or regulatory bias towards a competitive wholesale market directly suppresses competitive retail markets.

Furthermore, those dispersed investments provide far greater benefits than just deferring transmission. They reduce CO2 emissions. Although recognised in the GIT by noting the carbon tax at \$15/tonne, the assigned value is a severe understatement of its present true economic value much less its future value.

Energy efficiency and renewable energy reduce the need for coal imports and the drain on New Zealand's remaining gas fields, and would forestall importing LNG. Importantly energy efficiency and peak load control reduce growth in electricity demand, thereby reducing the future capital investment requirements of the electricity sector – in turn invalidating the assumption of 2% annual growth used by the Commission's Grid Investment Test and "Statement of Opportunities".

We submit that the Commission's "electricity efficiency" programme be at least partly targeted towards transmission-constrained locations, particularly Auckland, Christchurch and the north of the South Island. The potential for demand reduction indicated by those and other pilot studies should be factored into the "Statement of Opportunities" (for transmission deferral).

4. A more balanced interpretation of the Electricity Act's objectives for the Commission would give weight to the objectives of environmental sustainability and efficiency.

As expanded in the GPS, these include amongst other things promoting and facilitating stronger demand-side participation in electricity markets, and removing

barriers to new generation technologies, renewables and distributed generation, and contributing to meeting Government's climate change objectives.

The Parliamentary Commissioner for the Environment, in its recently released Environmental Performance Assessment, noted its concern that "the GIT seems to disadvantage alternatives, or at least fails to promote or encourage their development. . . . [Its] scope is narrow, as it is based on net economic benefits to market participants. It does not take into account all the costs and benefits to the economy as a whole (including fuel switching), and it must facilitate outcomes acceptable to Transpower and designated customers who have a vested interest in promoting the provision of electricity."^{iv}

In next year's assessment of the Electricity Commission's environmental performance, the Parliamentary Commissioner will report on how the wider public costs and benefits of new or upgraded transmission lines are compared with the narrower GIT test. He will report also on whether the Commission leads market-based initiatives to mobilise and aggregate load shedding and shifting opportunities, as he recommended.

Applying these principles to the GIT, the objectives and criteria for enabling transmission alternatives should give priority to demand-side alternatives – energy efficiency and price-responsive load - and to distributed generation. The effect of implementing these will be to reduce the peak loads on those transmission lines that are approaching constraint. This means that the assumption in the Statement of Opportunities for transmission alternative – that demand will continue to grow by around 2% per year - would also need to be changed.

We submit that the GIT should be amended so that distributed generation, demand side management, and reduction of network losses, have equal competitive advantage to transmission upgrades.

5. The consultation document in context

The consultation document on enabling transmission alternatives is clearly part of a moving picture. At least some of its inconsistencies and conflicts are being addressed already. The Commission's Market Update of 1 June^v says:

"The Commission has to consider possible developments in a number of market elements. These include for example: Financial Transmission rights, energy hedges, gross vs netpool, and capacity market. It is essential that how these elements of market design interact is considered carefully. The Commission is therefore initiating work, and a report, that considers the interaction and effect of various market elements to strengthen market functioning. The report will:

- take stock of the current market design and how this might be improved;
- set out criteria by which different market designs would be assessed; and
- propose a work programme.

Advisory Groups will be involved in this work in due course. It is expected to be September before any documents will be available."

It is of real concern that not only the Commission's consideration of how the current market design might be improved, but even the criteria by which different designs would be assessed, are being done internally with no consultation with interested parties other than electricity Market Participants.

We submit that the Commission's study of market design should give priority to mechanisms that would enable sustainable energy services to play an active part in electricity markets. Proponents of sustainable energy options should be involved in the study, and should be supported by expert advisors of their choice.

END

Signed on behalf of SEF by:

Ian Shearer

SEF Office Manager

ⁱ ELECTRICITY COMMISSION Consultation Paper: "Options for Enabling Transmission Alternatives" 31 May 2005, Sections 1, 11 (b), 139
<http://www.electricitycommission.govt.nz/pdfs/opdev/transmis/pdfsconsultation/pdfstransalt/Transmission%20Alternatives%2031%20May%202005.pdf>

ⁱⁱ Pages 8-10 of the electronic document – the page numbers of the printed document coincide (for a change!)

ⁱⁱⁱ Electricity Act 1992, as amended in 2004

^{iv} "Electricity, energy and the environment: Environmental performance assessment", June 2005, page 24

^v <http://www.electricitycommission.govt.nz/pdfs/opdev/market-updates/1-Jun-05.pdf>