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14 March 2008

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Dear Maree

Draft Grid Planning Assumptions for the 2008 SoO

Genesis Power Limited, trading as Genesis Energy, welcomes the opportunity to provide a submission to the Electricity Commission on its suite of papers relating to draft Grid Planning Assumptions (GPAs) for the 2008 Statement of Opportunities (SoO).

Introductory Comments

Genesis Energy views the SoO as a mechanism very much in its infancy and yet to fully establish its form and function. The SoO appears to have an inherently tricky role to fill, with a range of potential pitfalls to be navigated as its place in the regulatory regime is established.

Genesis Energy expects that the development of this SoO, and the life it takes on in future years, will provide a learning experience for all parties – including the Electricity Commission, Transpower, generation developers, consumers, retailers, and others. The SoO has potential to be a valuable source of information for proponents of transmission alternatives, as well as forming part of the regulatory infrastructure for transmission investment.

The SoO has a market information function (especially around transmission alternatives), but is also a component part of the

transmission investment ex-ante approval regime. The SoO needs to balance these purposes, while avoiding inadvertently crowding out the role of competition in the generation development market. There will always be a risk that the complexity of the generation scenario modelling task forces a loss of perspective and becomes a self-fulfilling closed-loop system (where the model ultimately drives reality as much as reality drives the model).

Genesis Energy welcomes the positive and open engagement by the Electricity Commission on the draft GPAs and expects that this should materially improve the eventual output. The Electricity Commission has gone to some lengths to set out the assumptions and methodologies behind the GPAs, but has provided limited information at this stage on how the GPAs will be taken forward to produce the SoO. Without this information, and given that this is in effect the first full SoO, Genesis Energy has taken a necessarily tentative approach to commenting on the Electricity Commission's methodologies and assumptions.

Genesis Energy looks forward to future consultation joining the dots between the GPAs, power systems analysis, the SoO, application of the GIT, transmission to enable renewables, and enabling proponents to identify potential opportunities for investment in transmission alternatives.[1]

Potential pitfalls

This section takes a brief look at three particular pitfalls Genesis Energy believes could be associated with the GPA and SoO mechanism.

Lobbying for an official world view

One potential pitfall is that the process risks becoming a contest of world views, played out as a set of arguments regarding cost, quantity and location of exploitable resources. This risk is heightened to the extent that the GPA process focuses on very long timeframes, takes transmission as following generation, and trends towards an increasingly completist approach to modelling. At some point, the SoO could ultimately begin to resemble the core of a centrally-planned generation development regime.

In a world where generation development was planned centrally but delivered contestably, success in the generation development field could depend as much on lobbying the planner as on any other factor. Perhaps more importantly, the strength that comes from the diversity of views inherent in a vibrant market could be muted.

[1] It is worth noting here that Genesis Energy has recently offered more fulsome comment on the matter of transmission alternatives and GEM modelling in its submission to the EC on "North Auckland and Northland Grid Upgrade Proposal", dated 13 November 2007 (refer in particular, the section on p18 titled 'Determining by Central Planning which Transmission Alternatives Proceed through the GIT'). http://www.electricitycommission.govt.nz/submissions/substransmission/naan

Disclosure tensions

Another potential pitfall is that the process can create a tension between commercial sensitivity drivers and a need to lobby for transmission. On the one hand, there are any number of reasons why generation developers may legitimately wish to keep plans confidential prior to starting the resource consenting process. On the other hand, disclosing prospective projects to the Electricity Commission for use in the GPA process could improve the chances of attracting transmission investment that would be beneficial to the project.

A corollary of this problem is that some parties may face an incentive to 'talk up' their prospects in a given region where project economics are dependent on externalising associated transmission costs.

Diverted focus

A third potential pitfall is that the GPA and SoO process ends up becoming so caught up in the complexities of modelling, that focus on the purpose of the SoO is lost. Genesis Energy finds itself drawn into this very conundrum as it responds to the draft GPA – there is endless scope to be drawn into argument around technical details of the modelling process and lose sight of purpose of the SoO, which is to identify opportunities.

An alternative prescription

Genesis Energy cannot hope to set out in detail an ideal alternative approach to the GPAs and the SoO, but would like to offer the following thoughts.

Focus on opportunities

The purpose of the SoO is to make it easier for Transpower and others to see where opportunities for investment are likely to arise – that is, where transmission constraints are likely to arise. The SoO has a secondary use as one of the inputs for Transpower's application of the grid investment test (GIT), but this is not the purpose of the SoO.

To fulfil its purpose, Genesis Energy suggests that the SoO needs firstly to focus on projected regional energy and capacity supply/demand imbalances over the near term.

This work would require near-term demand forecasting and power systems analysis, but need not require any forecasting of generation or demand-side participation (DSP) developments. Rather, this work could squarely be based on committed projects that would proceed without transmission augmentation. The forecasting period for this aspect of the SoO would depend to some extent on when regional constraints are projected to arise, but could reasonably be limited to not further than 10 years out.[2]

[2] Genesis Energy notes that 10 years is the period used by NEMMCO for the 'supply-demand balance' part of its Australian market SoO. NEMMCO uses a 13 year outlook for the 'annual national

Beyond the work described above, value would be added by considering a range of high-level market development scenarios projected over a longer timeframe. As per rule 10.2.2, market development scenarios could have a timeframe appropriate to investment in long-lived transmission assets. Given the diminishing relevance of far-term (and uncertain) cash flows to present value calculations, Genesis Energy suggests that even this longer-term work need not have a horizon extending beyond the 20 - 25 years needed to support Transpower's GIT analyses.[3]

Market development scenarios could include anticipated and modelled projects, but this should be recognised as secondary to the near-term imbalance forecasting work. It is not clear that a sophisticated generation expansion model need be central to the market development scenario work. Also, it is not clear that there is much to be gained from driving for ever-increasing sophistication from this modelling work.

Genesis Energy suggests that bearing in mind the reasonably secondary place of generation development modelling and acknowledging the uncertainties inherent in any long-term forecasting exercise, generation expansion analysis should be kept to a generic level as far as possible.

Genesis Energy suggests that it would be unfortunate if the perceived strictures of the GIT were to sideline the real purpose of the SoO.

Structured approach to soliciting information

To support the near-term modelling work, Genesis Energy suggests that a more structured approach to soliciting development plans is required.

Due to resource consenting processes, all committed and many 'anticipated' projects should be in the public domain. A structured approach to collating information on these projects, and verifying details should be relatively straight-forward.

Beyond the public-domain projects, there are likely to be numerous projects at various stages of investigation that remain commercially sensitive. There would be value to the Electricity Commission's GPA work in soliciting information on these projects, but in a structured manner designed to preserve confidentiality with respect to proponent and location.

Genesis Energy would be happy to engage with the Electricity Commission further on how such an approach could be developed.

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transmission statement' (ANTS) portion of its SoO. Genesis Energy also notes that the ANTS incorporates generation expansion modelling, whereas the supply-demand balance does not.

[3] Genesis Energy suggests that even a 20 year horizon is a significant 'stretch' given the uncertainties inherent in generation expansion modelling. If it were not for the prescriptive timeframe given in the GIT, then a shorter timeframe would probably be preferable.

Comments on assumptions and inputs

Notwithstanding all of the comments above, Genesis Energy offers the following comments on the assumptions and inputs underlying the GPA modelling work.

Renewables availability

Table 2 of the consultation paper on generation scenarios includes a column characterising the availability of renewables for each scenario. As each scenario is to be weighted equally, the number of scenarios in which a resource is available gives its overall weighting. This is summarised in the table below.

Table 1 - Summary of the weighting given to renewables availability for each resource.

	Wind	Geothermal	Hydro
Scenarios with 'extensive' development	4	3	2
Scenarios with moderate development	1	2	2
Scenarios with limited development	-	-	1

Genesis Energy suggests that the weighting for wind (four out of five scenarios with 'extensive' wind development) appears overly optimistic - especially relative to geothermal energy. Factors that weigh against such optimistic projections for wind energy include price escalation in the turbine market, the poor economics of standalone wind farms (versus hydro-wind portfolio developments), community opposition to wind farms, costs of connection assets, and the costs that wind potentially loads onto other parts of the market (such as reserves, frequency, voltage, etc).

In comparison, Genesis Energy suggests that a strong weighting should be given to development of baseload geothermal in the central North Island. There is already considerable development activity in this area and geothermal energy is not as exposed to the downsides described above.

Thermal peaking plant

Genesis Energy supports the Electricity Commission's intention to carry out further work on the economics of peaking plant. However, this work should not be driven out of the GPA process. Work in this area is necessary in the context of the wind integration project, the 90% renewables target in the NZ Energy Strategy, and the Electricity Commission's market design review project.

It is important that any work done by the Electricity Commission this issue is clearly 'joined-up' across the organisation. Future market development scenario work should reflect the outcome of the Electricity Commission's analysis in this area, but should not drive it.

Thermal moratorium

Genesis Energy queries why the thermal moratorium should be assumed to extend beyond 2018 in two of the five scenarios. These scenarios in effect build in the assumption of a change in government policy. Genesis Energy suggests that if there is a scenario where the moratorium is assumed to be extended, then it is equally plausible to include a scenario where the moratorium does not exist (or is removed prematurely).

Other matters

Genesis Energy also offers the following minor comments:

1. HVDC configuration. As improved information is now available on the operation of Pole 1 of the HVDC link over the coming few years, Genesis Energy assumes that the draft GPAs will be altered accordingly.

2. Electric vehicles. Genesis Energy suggests that the assumptions around electric vehicle uptake in the 'demand side participation' and 'sustainable path' scenarios are exceedingly optimistic – both in terms of how quickly a transition to 100% importation occurs, and in terms of how effective vehicle to grid technology may be at peak shifting in the near- to mid-term.

3. One-off demand increments. Genesis Energy supports the approach of treating one-off demand increments as permanent offsets at a regional level (unless there is specific information in a given case that supports a different approach).

If you would like to discuss any of these matters further, please contact me on 04 495 6357.

Yours sincerely

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