

27 March 2015

Thomas Dargue  
AEMO  
GPO Box 2008  
Melbourne VIC 3001

By Email: [planning@aemo.com.au](mailto:planning@aemo.com.au)

Dear Thomas,

**RE: 2015 PLANNING STUDIES – CONSULTATION PAPER**

TransGrid welcomes the opportunity to provide comments on the 2015 Planning Studies – Consultation Paper. AEMO is seeking stakeholder views on how to improve the modelling methodology associated with long-term generation expansion plans and suggestions on the scope that AEMO should consider for this year's National Transmission Network Development Plan (NTNDP).

TransGrid appreciates AEMO bringing attention to the wide range of issues raised as part of this consultation. The short to medium term generation expansion and retirement plans have a direct impact on our planning activities. Please see the attached detailed comments and suggestions in relation to the modelling of renewable generation and plant retirements.

TransGrid welcomes AEMO's high level assessment of the impact of connection or retirement of generation and large loads on inter-regional power transfers. However, it considers that AEMO's diverting its technical resources to the assessment of new transmission connections or asset condition driven needs within the regional networks will distract AEMO from the delivery of its primary responsibility of national transmission planning. Further, it is unlikely to add any incremental economic value to market participants.

If you require further information, could you please contact TransGrid's Manager / Power System Analysis, Nalin Pahalawaththa by telephone on (02) 92843032 or by email to [Nalin.Pahalawaththa@transgrid.com.au](mailto:Nalin.Pahalawaththa@transgrid.com.au).

Yours Faithfully



Gerard Reiter  
Executive General Manager / Asset Management

Encl:

**Appendix:**

## **Detailed comments and suggestions on modelling renewable generation and plant retirements**

### **1. Improve methodology for modelling renewable generation**

Market benefit estimation of a new transmission or existing transmission upgrade project is a complex task that requires covering the whole range of issues from short-term market simulation to long term capacity expansion.

AEMO has provided detailed discussion in their consultation paper as to why a least-cost modelling approach incorporating SRMC generator bidding would result in insufficient renewable generation to enter the market and thus over-estimate Large-scale Renewable Energy Target (LRET) non-compliance. It has suggested a number of approaches to address the problem; one is by making some adjustment to either the cost of renewable generation, or the LRET penalty price within the model, to enable new entrant renewable generators to at least recover the full cost of their investments. These adjustments may overcome the problems referred to above but may also cause undesirable consequences. Over the longer term expansion plan – which is required for an assessment of network augmentation - there could be a disproportionate amount of renewable new entrant generation favoured, over gas fired plant. Thus the long term generation expansion plan could end up being too far-removed from reality.

TransGrid wishes to suggest an alternative approach to the above. Under the SRMC bidding scenario, resulting wholesale prices are too low thus providing insufficient revenue for a new entrant renewable generator to be viable in the market. However, least-cost models used for producing long term generation expansion plans are not necessarily restricted to just use SRMC bidding. They can also be configured to use actual market generator bidding information, and in this context will be referred to as historical bidding. This type of bidding has been used extensively in the past for economic assessment of network augmentation proposals, and usually verified through a process called back-casting where simulation results using the bid data closely match those of historical outcomes. This is particularly the case when using a set of market indicators such average pool prices, outputs from generating station, interconnector flows, region total export and import.

The pool prices obtained from using historical bids closely reflect actual market conditions and would be much higher than that obtained from using SRMC bids. Thus the revenue obtained by a new entrant renewable generator plus the revenue from its sale of large-scale generation certificate (LGC) could be enough to service the full costs of operating in the market. In addition, it also enables gas fired plant to enter the market in a timely manner.

### **2. Revise methodology for modelling plant retirements**

In many long-term generation expansion models, the retirement of generation is assumed to occur at no cost. That is, retirement considers only the reduction in the cost of generation operation and maintenance. However, in reality the complete retirement of a generating station results in significant cost relating to removal of the physical infrastructure, site rehabilitation and redeployment of staff.

As the least-cost model optimises both generation investments and operation, the decision to retire an existing generating station is based on minimising the total costs of operating the system, over the entire study period as a whole. One of the factors that affect retirement of existing generating stations is the inclusion of retirement cost. This would increase the total costs and may delay or may even cause retirement not to occur.

The other factor affecting the retirement of existing plant is the entry of new generating plant. AEMO has stated in point 2 of their consultation paper that SRMC bidding may not provide a sufficient premium for a new entrant other than meeting a minimum reserve level requirement. The lesser the additional capacity entering the market, the greater the likelihood of existing plant remaining in operation. In essence, the effect is similar to the inclusion of retirement cost.

Given a set of assumptions about how the market will operate within the study timeframe, the least-cost model will produce a retirement schedule on the basis of minimising the total costs of meeting demand. However in reality, there may be a raft of commercial issues that owners of existing generating plant will have to consider before making their decision to retire a plant. It is highly possible that the modelled retirement schedule is too unrealistic compared to actual market expectations. If indeed this was the case, the set of assumptions will have to be adjusted or the methodology revised to bring the modelled results closer to market expectation.

AEMO is also seeking views whether an alternative methodology could be employed to fine tune the least-cost model with the aim of addressing the limitations inherent in the model. This particular methodology is based on a market driven approach. Such an approach is arguably a much more realistic reflection of how investors in new generation assets decide when to invest. It is based on a set of criteria applied to the results obtained from time sequential market simulation studies, where market premiums derived from the pool for each new entrant candidate are assessed to determine whether they are sufficient to service their total costs. TransGrid considers that using the market driven approach to be an appropriate mechanism to fine tune the least-cost model over the short and medium term – 5 to 10 years.