

5 May 2005



Wind Energy Policy Working Group
c/- Office of Energy Planning and Conservation
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By email: rdgworkgroup@dier.tas.gov.au

Dear Sir

**Integrating Wind Farms into the National Electricity Market
Discussion Paper**

ElectraNet would like to thank the Working Group for the opportunity to make a submission on the above discussion paper. In general the paper is well considered and highlights the many potential issues that may need to be addressed as a result of large quantities of wind driven electricity generation connecting to the Australian National Electricity Market.

ElectraNet considers that many of the issues raised in the discussion paper apply equally to all forms of non-scheduled generation in the National Electricity Market, including embedded generation, and not just to wind generation.

The following comments are provided for your consideration in the order that the potential issues have been presented in Section 5 of the WETAG Report in the discussion paper.

1. Management of Network Flows

ElectraNet concurs with the potential issues that have been raised regarding the inability to fully manage network flows associated with non-scheduled generation under the provisions of the National Electricity Code (NEC). ElectraNet is supportive of the concept of centralised dispatch of significant non-scheduled generation by NEMMCO. However, ElectraNet is of the view that such a dispatch mechanism should equally apply to all non-scheduled generation (including embedded generation) that has the potential to add to a network constraint or impinge on system security and not merely wind generation and further believes that 30MW capacity at any one connection point would be a valid criteria.

ElectraNet's experience is that while wind farm output cannot be readily predicted or controlled due to the variability of the wind, control facilities are generally available within the wind farm that can be used to limit the maximum output of the plant to a defined and adjustable level. The use of this control facility would provide a means of capping the output from non-scheduled generation in order to ensure that network loadings are maintained within plant capability and system security requirements. ElectraNet currently has a "run back capability" clause included in every wind farm Transmission Connection Agreement.

ElectraNet is supportive of a dispatch mechanism that is based on a "proxy bid" arrangement for non-scheduled generators with a bid value of say \$0 unless specifically advised otherwise by the wind farm operators. The principles contained within clause 3.8.16 of the

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NEC that apply to scheduled generators with effectively equal bid prices could be adopted to dispatch any constrained non-scheduled generation.

2. *Short Term Variability*

ElectraNet notes that short term variability in network flows is caused by a number of factors, which includes load changes, generator dynamic interaction, network outages and switching AGC dispatch error, and fluctuations in wind associated with wind generation.

In the case of short term variability associated with wind generation, the relative diversity of wind farm sites and individual wind turbines within a site needs to be considered in order to assess the total impact on network flows. In order to do this significant statistical data will be required. ElectraNet is of the view that sufficient statistical information is not presently available to make this assessment with any degree of accuracy.

The use of "5 minute" or "real time" ratings for transmission lines may provide NEMMCO with an additional "margin" to assist with the dealing with short term power flow variations associated with wind generation.

ElectraNet is of the view that the market is the appropriate means of determining the trade off between reduced network transfer limits and controlling the output of wind farms to reduce their variability. Ultimately, it should be the total cost of electricity delivered to market participants that determines if additional ancillary services are justifiable, or if additional costs are imposed on wind generators to mitigate variability.

However, present ancillary service market pricing and allocation mechanisms are not perfect and the principle of "causer pays" is not always achieved. A "pareto" outcome to finalise and support more CHG free generation would be preferable to any delays for a more perfect solution.

3. *Modelling of Power System Operational Implications*

ElectraNet considered that the modelling of power system operational implications is a NEMMCO responsibility under chapter 3 of the NEC. Network Service Providers (NSPs) can assist NEMMCO in this area by providing relevant data and information to support their studies.

NSPs also assist NEMMCO in this area by involving NEMMCO in the determination of negotiated access standards as required under Clause 5.3.4A of the NEC. In such cases the NSP is required to accept NEMMCO's advice regarding the negotiated access standard.

Present Code provisions require generators to register their plant performance standards with NEMMCO and to establish a compliance program regarding these standards. In this way NEMMCO would be in the best position to undertake the necessary operational modelling.

4. *Network Connection of Large Scale Wind Generation*

ElectraNet considers that the present NEC provisions are adequate in this area.

5. *Islanding*

ElectraNet notes the potential issue of frequency control under islanded operation where large quantities of non-scheduled generation are involved. ElectraNet is aware that in many cases non-scheduled generation utilise asynchronous generators which are not capable of operation under an islanded situation without a source of synchronous generation. In such situations this generation would automatically disconnect from the islanded power system. While many solutions may be possible, relatively low cost augmentation and increased flexibility of interconnectors could provide the same solution with this additional capacity held in reserve when non-scheduled generation exceeds a determined level of regional demand.

6. Contribution of Wind Generation to System Reserves

ElectraNet agrees with the approach suggested by WETAG in this area.

7. Optimising Shared Network Connection Assets

ElectraNet is cognisant of the issues in this area. However, these matters are covered by the connection process, and the regulatory and pricing arrangements outlined in the NEC. Every effort is made when connecting multiple customers at the same connection point to optimise the contestable connection process. This process is outside the scope of the regulated transmission business.

8. Technical Standards

ElectraNet agrees that the technical standards contained in the NEC should be reviewed regularly to ensure currency with technological development in the power industry. ElectraNet also agrees that the drafting of the existing technical standards could be improved to enhance clarity and application.

ElectraNet considers that an appropriate independent industry body should undertake the review and updating of technical standards. The process should involve extensive consultation with affected NEM participants, in particular NEMMCO, the generators and the Network Service Providers.

Suitable grandfathering provisions should be included in any technical review to reasonably accommodate existing plant which is already connected to the network that may not meet revised technical standards.

ElectraNet considers that the opportunity should be taken when reviewing the technical standards to build on work undertaken internationally to ensure that the technical standards applied in Australia are compatible to the maximum extent possible with those applying overseas, for example in Europe, the UK, and the USA.

9. Provision of Dynamic Generating Plant Models

ElectraNet agrees that the present NEC provisions regarding the provision of dynamic generator models and plant modelling data are unclear in some areas and should be altered to clarify the obligations of the various market participants.

ElectraNet considers that all generator proponents (scheduled and non-scheduled) should be responsible under the NEC for the provision of validated dynamic models of their proposed (and existing) generating facilities. These models should not be confidential and be provided to both NEMMCO and the relevant NSP(s).

ElectraNet is not adverse to the use of "black box" models that contain compiled proprietary information and intellectual property, providing that the performance of the model has been validated against the actual plant being installed.

ElectraNet also recognises the data and model provision obligations under the present NEC contain timelines that do not require the provision of specific information until such time as the connection agreement entered into or the plant is connected or commissioned. ElectraNet supports the position that this information must be provided a prior to the application to connect process.

This delay in obtaining validated data can impact on the ability to adequately model the plant and determine the optimal connection arrangement or plant configuration needed. ElectraNet is of the view that these validated models should be provided within a defined time frame after first connection to the network is made. ElectraNet proposes that a time frame of 3 months should apply as this also represents the normal time commissioning staff are on site to support validation testing.

The obligation to provide validated, non-confidential models for generators should be with the proponent and at the proponents cost. This should include undertaking any relevant validation tests on the plant and the network following connection to the power system.

10. Contingency FCAS Services and Cost Recovery

ElectraNet has no additional comment to make in this area.

11. Regulation FCAS Services and Cost Recovery

ElectraNet has no additional comment to make in this area.

12. Information Disclosure

ElectraNet has no additional comment to make in this area.

13. Forecasting Wind Generation

ElectraNet has no comment to make in this area at the present time, but would like the opportunity to provide further comment once the AGO work in this area has been released.

If you require any additional elaboration, please contact Mr John Thompson, Network Planning Manager on (08) 8404 7188.

Yours sincerely

A handwritten signature in black ink, appearing to read 'I. Stirling', with a stylized flourish extending from the bottom right.

Ian Stirling
CHIEF EXECUTIVE OFFICER