



NRG Flinders Operating Services Pty Ltd

Adelaide Office
168 Greenhill Road
Parkside SA 5063

GPO Box 2535
Adelaide SA 5001
Australia

Telephone (+61) 8 8372 8600
Facsimile (+61) 8 8372 8610

6 May 2005

Wind Energy Policy Working Group
c/- Office of Energy Planning and Conservation
GPO Box 936
HOBART TAS 7001

Email: rdgworkgroup@dier.tas.gov.au

INTEGRATING WIND FARMS INTO THE NEM – DISCUSSION PAPER

NRG Flinders is pleased to provide the following comments on the above discussion paper, released by the Wind Energy Policy Working Group and prepared with the input of the Wind Energy Technical Advisory Group (WETAG).

Introduction

Clearly, the National Electricity Market was not originally designed to accommodate wind generation as a significant source of capacity and energy. Nevertheless, wind power is rapidly emerging as a significant generation source at a regional level, particularly in areas such as Tasmania and South Australia.

A range of urgent improvements are therefore required to ensure that wind generation operates on an appropriate footing within the market framework, and faces the correct incentives and cost drivers to ensure that its development and operation occurs on an efficient basis.

In the absence of such reforms, it appears that the regional concentration of wind farm development will impose a disproportionate burden of the distortions and inefficiencies introduced into the market upon these smaller regions, to the detriment of market participants and ultimately end users.

Accordingly, the WETAG has identified a series of issues that require urgent attention at both the policy and technical level to address the increasing penetration of wind generation.

While supporting the thrust of these recommendations, NRG Flinders believes that the range of measures identified should be guided by the overall goal of market efficiency. This can best be achieved by correctly incorporating wind generation into the established market framework. In this way, wind generation should face the correct pricing signals and incentives to drive efficient behaviour and optimal investment decisions, delivering efficient market operations and pricing outcomes.

Issues

The WETAG has identified the following as urgent priorities:

- Managing the impact of intermittent generation on network flows, and short-term variability;
- Wind farm modelling in respect of power system operational implications;
- An urgent review of the technical standards for connection;
- Provision of dynamic plant models.

NRG Flinders supports urgent action on these fronts. NRG Flinders also considers that the following issues identified by the WETAG warrant urgent attention:

- Disclosure of market information in relation to plant dispatch and aggregate output;
- Cost recovery of Regulation Frequency Control and Ancillary Services (FCAS).

The above issues are addressed in turn below.

Managing Network Flows

All significant generation sources should be treated equally in managing network constraints, regardless of technology.

The most appropriate means of ensuring adequate network management in the face of significant levels of intermittent generation is to appropriately incorporate significant wind generation into the dispatch process. This alone allows an appropriate economic trade off of all significant generation sources to ensure efficient dispatch and pricing outcomes and incentives.

To this end, the WETAG has recommended consideration of a form of 'semi dispatch' in the case of binding network constraints. NRG Flinders strongly supports steps in this direction. However, options involving more widespread participation in dispatch on a cost efficient basis should not be dismissed, to ensure all significant generation operates on an equal footing. It is therefore suggested that the MCE endorse the principle of participation by all significant wind generation in the dispatch process.

It would be extremely unfortunate to rely on the alternatives of arbitrary constraints, manual instructions, directions, and other forms of intervention that otherwise become necessary manage network loading and system security.

In addition to participation in dispatch, other market-based mechanisms may also provide potential benefits - such as additional NCAS options - and should be considered. It would also be desirable to appropriately represent in dispatch other innovative measures, such as the Generation Dispatch Limiter feature applied by ElectraNet SA to optimise network flows based on dynamic network ratings.

Power System Operation

As recommended by the WETAG, further investigation of the potential power system security issues associated with increasing wind energy penetration is supported, noting in particular the regional nature of many of these issues. It is noted that NEMMCO has commenced investigations in this area, working in conjunction with ESIPC. Clearly, power system security is paramount, and adequate protections and safeguards must be in place, such as automatic run-back schemes, appropriate protection, and other operating arrangements. The prospect of regional islanding must also be considered and appropriately addressed.

Again, the focus should be on market-driven solutions, avoiding the use of arbitrary constraints, directions, and other interventions wherever possible. Consideration should be given to an additional role for ancillary services in managing interconnect flows within suitable limits, and perhaps opportunities for greater use of Murraylink to this end in South Australia.

Consideration should also be given to the remuneration of services currently unfunded in the market, such as inertia and ramp rate capability, to ensure the correct incentives apply for continued provision of these increasingly important services.

Technical Standards

There is clearly a need to ensure that the NEM remains at the forefront of international best practice standards in the installation of new generation, particularly for new and emerging technologies. Keeping pace with developments will ensure that Australia is not seen as a market for outdated and obsolete technology by equipment manufacturers. In this regard, it is noted that recent work by ESIPC has found that other markets have tended to introduce tighter standards for wind generation, and at lower penetration levels, than has been the case in the NEM to date.

In large part, this may be achieved by clarifying the relevant standards applicable to wind generation, as the WETAG has recommended. It is noted that work has already commenced on Code changes to address this issue. The arbitrary distinction that has existed to date between scheduled and non-scheduled generation can no longer be sustained, and standards should be appropriately modified to focus on desired outcomes, regardless of technology type. In addition,

any clear shortcomings in the standards relating to wind should also be corrected, with regard to internationally accepted standards.

It is also important to take this opportunity to correct the existing weaknesses and shortcomings in the grandfathering process that has been applied to the technical standards of existing plant. In a number of respects, it appears that the intentions of the ACCC at the time of authorisation have not been given full effect in the Code.

Dynamic Plant Models

NRG Flinders supports the proposition that appropriate dynamic generating models should be provided to support essential power system operational studies. Again, all generators should be treated on an equivalent basis. Any Code changes required in order to achieve this should proceed as a priority. Provision of guidelines and verification processes are also supported, as is the need to maintain non-confidentiality.

Information Disclosure

As noted by WETAG, there is an urgent need for disclosure of aggregate forecast and real time wind generation across all relevant operating timeframes, and the publication of post dispatch plant level data on a trading interval basis for all significant wind farms, on an equivalent basis to all other sources of generation. It is noted that draft Code changes are currently on foot to address this issue.

Release of such data will support the vital transparency needed to ensure efficient decision-making by market participants, in particular the commitment and de-commitment of plant.

In the absence of such data, the market no longer has access to a meaningful measure of total demand in regions with significant wind generation under the existing convention of defining demand relative only to scheduled generation dispatched. The lack of historic output data also denies the market access to valuable information needed to build understanding of wind farm output patterns and reliability, and to incorporate this in efficient commercial decisions and risk management practices.

It is unfortunate that the previous forecasting Code changes were not progressed to address these information disclosure issues. NRG Flinders considers that this issue should be pursued as a matter of urgency, with reference to the list of data and timeframes WETAG has identified.

Regulation FCAS

The WETAG has noted potential ambiguities in the current arrangements for participation by wind farms in the 'causer pays' funding arrangements for regulation FCAS. NRG Flinders supports any Code changes necessary to clarify the requirement that all market generators larger

than 30MW are required to participate in these arrangements. It is also suggested that there should be no major barriers to the application of causer pays factors, noting that other non-scheduled parties are presently subject to this process (namely market customers).

More broadly, it appears that the existing treatment of non-market generation sources in the NEM should be reconsidered. Such generators are at present excluded from a range of obligations and pricing signals that apply to all other generation sources, including the funding of both regulation FCAS and contingency FCAS services. Arguably, it was never envisaged that large volumes of non-scheduled generation would emerge and obviate these mechanisms. With the rapid growth in the number of wind farms, a number of which are seeking non-market classification, the continued exemption of such generation sources from these market arrangements appears to create distortions and inefficiencies.

Other Issues

The WETAG has not directly addressed the issue of forecasting, noting that this issue is being managed by the AGO. Noting that implementation is unlikely to commence inside a timeframe of 2-3 years, this underlines the need for adequate forecasting methods in the interim.

The issue of optimised connection of discrete projects to the network is clearly not limited to the question of wind generation. Any policy decision in this respect should be taken with care, as any suggestion of central optimisation raises concerns over unwarranted intervention in the market.

The importance of developing and refining suitable methodologies for estimating the contribution of wind generation to system reserves can not be underestimated. The development of NEMMCO procedures to this end is supported as a priority, given the increasing importance of this issue from a reliability modelling perspective due to the quantity and regional concentration of wind generation.

Conclusion

Based on the work of WETAG, a number of issues require urgent attention at both a policy and technical level to ensure that wind generation is able to operate on an appropriate footing within the current market framework, facing the correct cost drivers and incentives to deliver efficient outcomes.

To ensure a coordinated response to these issues, the MCE may wish to consider approving an overall project plan, outlining broad timeframes and processes to resolve the identified issues. This would provide a measure of certainty for both participants and project proponents alike.

It is also noted that ESIPC has reported separately to the South Australian jurisdiction on this matter, outlining a series of measures to be adopted before wind generation can expand further in South Australia. This should be suitably reflected in the findings of the WEPWG.



NRG Flinders appreciates this opportunity to share its views on this important issue. Should you have any queries in relation to this submission, please contact Simon Appleby on (08) 8372 8706 or myself on (08) 8372 8726.

Yours faithfully

Reza Evans
Manager, Regulation and Market Development