



6 July 2007

Dr J Tamblyn
Chairman
Australian Energy Market Commission
Level 16
1 Margaret Street
SYDNEY NSW 2000

Dear Dr Tamblyn,

CENTRAL DISPATCH AND INTEGRATION OF WIND AND OTHER INTERMITTENT GENERATION

Thank you for the opportunity to comment on the proposed Rules for the "Central Dispatch and Integration of Wind and Other Intermittent Generation". The Planning Council has a strong interest in this area and, in this submission, aims to:

- support the need for these provisions and their general form;
- extend the arguments in support of the proposed semi-dispatch and wind forecasting provisions, recognising their importance in maintaining market efficiency with increased intermittent generation. This importance to market efficiency applies both in terms of the short term operation of the market and longer term investment; and
- propose that the requirements to be semi-scheduled should be widened, especially those provisions applying to the implementation of wind forecasting into the market systems.

The need for these provisions

The Planning Council has carried out a large amount of modelling regarding the impact of wind generation on the power system and the market over recent years driven by the importance of this energy source in South Australia. The importance of this energy source seems set to rise with an increasing awareness of the impacts of climate change and the need to constrain future carbon emissions. By the end of 2008, we expect to have 742 MW of wind generation operating in South Australia with the plant already in service, in commissioning or under construction. Taking into account AGL's public announcement of Hallett Hill, this figure would exceed 800 MW.

The Planning Council provided a major report on the impact of wind generation to the Essential Services Commission of South Australia (ESCOSA) and the South Australian Minister for Energy in 2005. This report analysed four cases with different levels of wind generation in South Australia; 400, 500, 800 and 1,000 MW. The overall outcome of this work was summarised as follows:

The analysis indicates that impacts on power system security with 400 and 500 MW of wind generation should be modest. There are risks to be managed at this level of wind, but they are only expected to occur on rare occasions. However, wind generation at the 800 and 1,000 MW cases raises concerns, under the current arrangements, with growing impacts on system reliability, security and price. In these cases, variability in wind generation will become a dominant influence on the operation of the power system significantly increasing the current variability and uncertainty faced by the power system and national electricity market.

The Planning Council notes that the installed capacity in South Australia has only recently passed 400 MW and, because of some commissioning delays and early teething problems, the maximum wind generation output in a dispatch interval only recently exceeded 300 MW. This analysis highlights that our experience with wind generation to date is limited and that it is vital that efficient and effective mechanisms to successfully integrate it into the market are in place prior to the end of next year.

The need for the Rule change proposed by NEMMCO is therefore strongly supported by the Planning Council. The supporting arguments put forward by NEMMCO are important and the imperative of maintaining system security is acknowledged. However, the proposed changes and the associated introduction of wind forecasting also have important objectives in maintaining market efficiency with higher levels of intermittent generation which are perhaps not raised in the documentation. The National Electricity market has two important inter-related features which were unique in the world at market start:

- self commitment; and
- no inter-temporal optimisation

The market design relies upon individual participants being properly informed to make commitment and operating decisions efficiently without central coordination. The design has been recognised as successful, but has been under-pinned by an outstanding level of information. The analysis by the Planning Council indicated a need to act to maintain that information and hence efficient dispatch outcomes with high levels of wind generation; viz;

An analysis of the impacts on the market again demonstrates a difference between the lower cases (400 to 500 MW) and the high cases (800 to 1,000 MW). The impact in the lower cases, while noticeable, is expected to be modest. Depending upon the incentives and behaviour in the higher cases there are risks of very volatile prices and market inefficiencies.

We further concluded that:

.....the market should be adapted to ensure efficient operation, pricing and cost allocation with increasing levels of wind generation, by:

- *allocating costs efficiently, primarily on the basis of the causer-pays principle;*
- *allowing the periodic curtailment of output to ensure an optimal market dispatch; and*
- *increasing the transparency and accuracy of information to the market.*

The competitive market should, on the whole, be allowed to work. Without appropriate changes to address the above issues, the effects on the market and consumers is expected to rise significantly with over 500 MW of wind generation in South Australia.

The Rule changes proposed by NEMMCO integrate wind forecasting into the market, linking intermittent generation forecasting to the important market information systems of STPASA and pre-dispatch for generators classified as *semi-scheduled*. The Planning Council again strongly supports the implementation of wind forecasting into the market systems as an important element of allowing the market to adapt to deal with increasing levels of intermittent generation.

The proposed Rule changes also have important implications for the long term efficiency of the market in a carbon constrained future. Other jurisdictions internationally have been driven to implement arbitrary caps or other rationing measures on the connection of intermittent generation because of a lack of tools to manage their efficient participation in their market. The implementation of the semi-scheduled category and the proper integration of wind forecasting into the market will assist in allowing open market access to continue and for such forms of generation to maximise their potential role in the future. The intermittent nature of wind generation means that it will be rare for the output from all wind farms in a region to be close to their maximum rated capacity at the same time. Constraints that might be expected to bind under circumstances where wind generation levels are close to their maximum and where other factors such as high customer demand coincide, would therefore only limit output for a small percentage of the time. Any limitation in output under such circumstances would only be expected to reduce the total generation possible at the margin and should still allow wind to be a competitive supplier of renewable generation overall.

The Planning Council also notes that this is not just a South Australian issue. The recent Electricity Annual Planning report published by VENCORP highlights the expected strong growth of wind generation in Victoria, viz:

Based on information provided to VENCORP by wind farm proponents through the new connection application process, wind generation capacity is projected to

increase from 133.7 MW currently to 1,237.7 MW in 2009/10 to account for projects currently under construction and proposals in an advanced planning phase. The forecasts do not include new wind farm projects which are either announced in the media or in an early planning phase (for example, projects completing a feasibility study only). These projects can potentially increase total projected wind generation capacity in Victoria by a further 624 MW over the next ten years;

A relatively high penetration of wind generation is also evident in Tasmania with further growth likely there. The medium term prospect for the market generally would appear to favour the development of renewable intermittent generation depending upon the policy actions of governments. While it is necessary to minimise barriers to entry for such plant, their growth should also not be jeopardised by the lack of appropriate market arrangements to ensure security and efficiency can be maintained.

The need to widen the application of these provisions

The Planning Council, in supporting the above Rule proposal by NEMMCO, proposes that there are efficiency, equity and transparency benefits in extending these provisions to cover all existing, as well as new installations.

The Planning Council is concerned that the proposed changes to the Rules potentially suffer from their narrow application. In the supporting material, NEMMCO states that

There is a widely held view across the NEM that the retrospective application of regulatory requirements is undesirable as it introduces sovereign risk, increases investment uncertainty, incurs higher overall industry costs to cover such risks, as is generally considered poor regulatory practice.

To date, changes to the Rules have been designed to avoid forcing affected participants to upgrade existing plant to meet new requirements that could possibly undermine the financial viability of their investment.

The Planning Council agrees with this statement in principle as uncertainty raises investment costs and can impact on efficient outcomes. However, the proposed changes extend the application of grand fathering over that usually accepted. The market is based on the principle of security constrained, optimised dispatch and offers no guarantee that constraints might not be placed on individual generators as necessary. The introduction of new generators and new generation technology inevitably impacts on existing generators whose positions under current arrangements are not protected. The Rule change process exists to provide for the evolution of the market in accordance with the efficiency objective. This does mean that from time to time participants may have additional requirements placed on them particularly in relation to the provision of information.

The National Electricity Market objective is to promote efficient investment and this could be hampered by Rule changing. However, in this case the impositions are small and it is

axiomatic that any constraint to the operation of a semi-scheduled generator would only occur if its operation otherwise would be inefficient or lead to system insecurity. Protection of incumbents from modest, efficient changes risks dynamic efficiency objectives and, importantly in this case, the long term growth of intermittent generation. The second reading speech implementing the new national electricity law in 2005 notes that the participating jurisdictions remain committed to the goals expressed in the market objectives set out in the old Code and that “any person wishing to enter the market should not be treated more or less favourably than persons already participating in the market”.

The preferred approach to widening the application of these proposed Rules would be to require all intermittent generators greater than 30 MW to be classified as *semi-scheduled*. Transition provisions could then be drafted to have NEMMCO assess, on application, requests for exemptions from some provisions where the existing plant does not have the physical capability to comply with the new provisions. This is similar to the provisions for existing plant to register their own technical standards (or *performance standards*) which respect their actual capability rather than requiring plant modifications or extensions. In many cases those wind farms that will be exempt under the current arrangements have all of the equipment necessary to comply with the new provisions, allowing them to be a full participant in the new semi-scheduled category with only minimal administrative changes to their operation.

The efficiency benefits of incorporating most, if not all, the installed wind farms, would appear to far outweigh the considerations of grandfathering, particularly in those cases where there is no requirement for the proponents to install additional equipment.

The Planning Council considers that such an approach best meets the market objective, but understands that there may be some opposition to such an approach. If a lesser approach is to be adopted, the Planning Council would argue that as a minimum, there is a need to extend the provisions in the following two areas:

1. Central dispatch of wind farms currently controlled by network service providers

Several wind farms can already cause insecure operating conditions on the network and arrangements are in place for their control by the network service provider. In these cases, the generators have the capability to be controlled and are aware of the need to control their dispatch when necessary from a security point of view. The Planning Council agrees with NEMMCO (section 2.1.1) that “good regulatory practice would be to have common NEM-wide arrangements for the dispatch of such plant”. An important structural principle of the market is the formation of NEMMCO as the independent system operator and it would be better on both efficiency and governance grounds to have these plants classified as semi-scheduled and hence centrally dispatched by NEMMCO, rather than controlled by the local NSP.

2. Involvement of all wind farms over 30 MW in wind forecasting

The provisions for semi-scheduled wind farms in these proposed Rule changes are effectively being used to also implement a new wind forecasting regime. Accurate wind

forecasting based on data from the wind farms and centralised processing and forecasting provides a range of efficiency, security and even potentially reliability benefits. These provisions should apply as widely as possible. The provisions with respect to forecasting were applied retrospectively in South Australia by ESCOSA without raising issues. A requirement to classify all wind farms over 30 MW as semi-scheduled (with appropriate exemptions) as suggested would be one way to implement wind forecasting more widely. If this course of action is not to be taken, the specific requirements associated with wind forecasting should be excised from the requirements to be semi-scheduled and applied to all wind farms. One of the strengths of the market mechanisms is the availability and transparency of data. It is important that other market participants are able to anticipate demand levels to enable them to efficiently bid and dispatch plant. By excluding some wind farms from the forecasting requirements, the proposed Rule effectively removes a valuable source of market data.

I would be happy to elaborate on any of the areas highlighted. Please feel free to telephone me (08 8463 4371) or Craig Oakeshott (08 8463 4373) to discuss further.

Yours sincerely,

David Swift
CHIEF EXECUTIVE