

AUSTRALIAN ENERGY MARKET COMMISSION
Strategic priorities for energy market development
Submission EMO 0030

GENERAL COMMENT

The three major political parties are agreed on a significant increase in the proportion of renewable generation in the Australian power system. The federal election in 2016 will confirm the necessary rate of increase together with the proposed manner of implementation.

Previous political initiatives have affected the financial component of the power system but this further promoting of renewable generation will begin to affect the power system in other ways. There is a strong case for the Australian Energy Market Commission (AEMC) to move from a reactive mode towards a more proactive mode in understanding the implications of such a significant increase in renewables on existing rules and considering the necessity for new rules. This could mitigate the suggestion of tardiness made in the recent governance review.

Two matters are of immediate concern. The first is concern with the increase in investment in non-dispatchable generation, solar and wind, presaging corresponding significant increase in necessary reserve margin as foreshadowed in the AEMO 100% Renewable Generation Report.

The second is concerned with the geographical extent of the high voltage network and its stability because of this investment in non-dispatchable generation. Both are described in more appropriate sub-sections below.

SPECIFIC COMMENT

MARKETS AND NETWORKS PRIORITY

The prime focus must necessarily be on continued informed economic investment in all aspects of the network. The political imperative of increasing renewable generation will focus on wind and solar in the first instance because of their competitive position among renewable technologies. However both are non-dispatchable, requiring a significant increase in reserve margin because of their relatively low availability and dependence upon the weather.

This necessary increase in reserve margin is economically inefficient in needing so much generation capability available but not used. A simple means of overcoming this deficiency is the development of one or more rules covering interruptible supply. This would operate in a reverse manner to existing interruptible demand arrangements. Reserve generation could contract to supply appropriate demand when available but not required for system requirements. Because it not available at all times this power would be at a discount for those industries that are suitable such as copper refining and other electrolytic processes, hydrogen production, etc.

TECHNOLOGY AND NEW BUSINESS MODELS

The development of rules governing interruptible supply would allow development of suitable new business models while at the same time offer an additional source of income for generation investors in wind and solar generation.

NETWORK EVOLUTION

The coming network evolution from a deterministic to a stochastic regime is dependent on the rate of commissioning of non-dispatchable solar and wind generation. In effect there will be a change from a weather compensating power system to one where the network follows the weather and provides additional dispatchable generation to maintain system stability.

As part of this the present network, which is geographically north /south along a fairly narrow range of longitude because of coal reserve deposits and major load centres along the coast, will change. Adding solar and wind generation capability to the existing network will result in a larger solar surge at noon increasing with additional solar generation together with limited wind availability.

On the other hand additions to transmission networks towards an east/west regime covering a broader range of longitude will allow solar generation to cover a significantly broader time slot together with a superior range of weather patterns suitable for wind generation.

The change could be effected over time and in the longer term by connecting Mt Isa with the Darwin power system and/or extending the NEM from Olympic Dam towards Kalgoorlie picking up geothermal generation from South Australia on the way. This could allow assistance from solar generation for up to 12 hours per day without resorting to storage technologies. Australia is one of the few economies that could take advantage of this.

I am reminded that AEMC has powers with respect to the transmission network. Previously transmission has been a follower of generation decisions but this ability could be used by AEMC to allow government to guide generation development by extending transmission network facilities in desired directions as set out above.

WHOLESALE MARKETS

The potential advantages of a secondary market for power would complement the existing wholesale market and provide a further incentive promoting effective investment in Australian power systems.

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