

Australian Energy Market Operator
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Melbourne VIC 3000

Submitted via email: isp@aemo.com.au

AEMO Integrated System Plan Consultation

Dear AEMO,

As the NEM transitions to lower emissions sources of supply, there will be significant uncertainty and variation over time due to technology cost changes, variations in end use patterns, and changes in government targets and policies. In this environment it will be essential to ensure that consumers are shielded from the risk and cost impacts of inefficient or stranded investment. Transmission investments pose a material risk to consumers because they will pay for these investments over decades, even as the assets potentially become stranded. Delta believes the current RIT-T process can help ensure that consumers don't pay for transmission over-investment.

AEMO's Integrated System Plan considers substantial transmission investment as essential to facilitating this development. The inclusion of renewable energy zones, and other major transmission system rearrangements, are of concern due to stranding risk in a highly uncertain future. This could occur, for example, if distributed technologies develop faster than expected and provide more than their expected contribution to supply.

Consumers have experienced the price impact of substantial and inefficient network investment. Electricity prices for households increased on average by 72% for electricity in the 10 years to June 2013¹. This increase was largely attributable to network investment and the uplifted prices are locked in for decades so that network businesses can earn a regulated return even though demand has reduced since the investment was undertaken. The current RIT-T process should determine the allowable investment in transmission and help ensure that transmission investment levels are appropriate under a range of future scenarios.

Renewables Integration

Delta would appreciate AEMO presenting the results of the ISP modelling with a high level of granularity to help the industry and policy makers understand the potential operational constraints that may arise as increased levels of renewables enter the market. Extending on this detailed analysis should be a further analysis to understand the level of dispatchable plant that is required for any given level of reliability. This is necessary prior to designing mechanisms to incentivise investment, for example the national energy guarantees which are currently being considered. Delta is concerned that without this detailed understanding, regulators risk providing ineffective incentives and incentivising inefficient investment across the NEM.

New investment in renewables will increasingly incur additional costs, even as the technologies themselves get cheaper. The most obvious additional cost is the need for sources of backup generation for reliability purposes that leads to a virtual doubling of installed generation capacity to meet load. However, having enough capacity available is not the only issue to be resolved in relation to accelerated renewables deployment.

Delta is deeply concerned that there is a widespread lack of insight at this point in time by the industry, policy makers and regulators into the role required of firming plant in a system with high

¹ Source: Australian Bureau of Statistics



renewables penetration. Many of the studies undertaken thus far deliver aggregated results of production on an annual basis for different technologies. Few actually simulate granular dispatch over even limited periods of time. Delta believes AEMO is very well placed to provide additional insight. One of the few studies that did so identified required operating profiles ill-suited to almost all forms of firming generation.

This dynamic is illustrated in Figure 1 which shows modelled generation output by fuel type in a future 45% renewable energy scenario. At times of high solar and wind output, it can be seen that dispatchable generation is not operating. These periods of high renewables are interspersed with periods of low renewable output that requires supply from dispatchable generators.

The example shown applies to the NSW jurisdiction. The Queensland jurisdiction has a different duty cycle for dispatchable plant, due to solar domination, and southern states are quite different again due to wind domination.

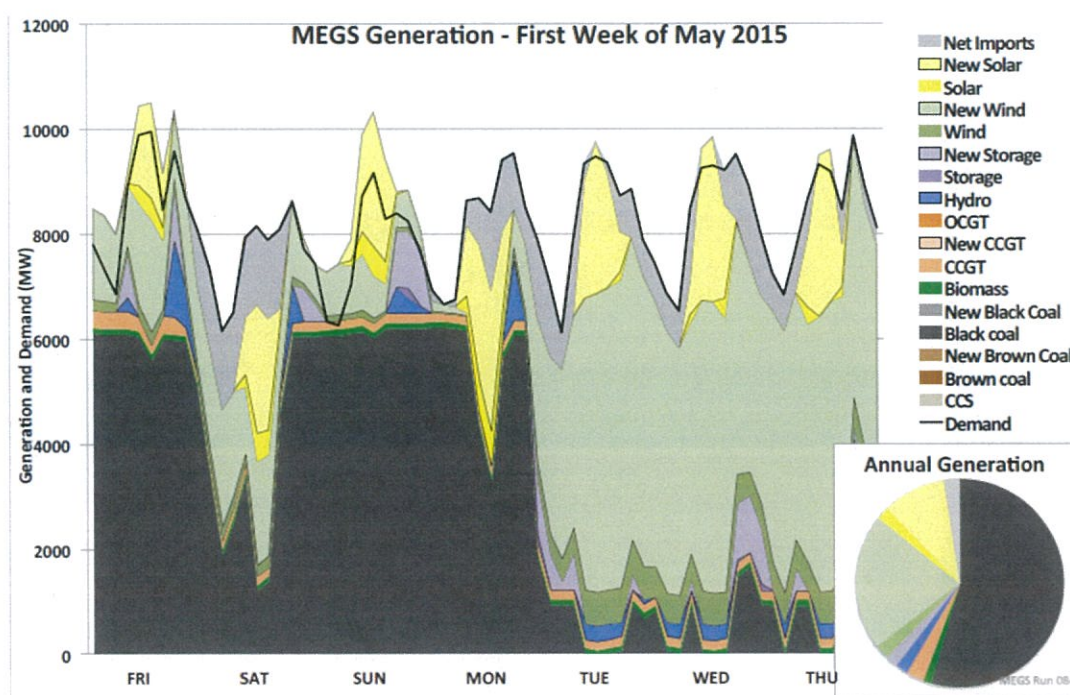


Figure 1: output from renewables and other sources on an operational timescale under a 44% renewables scenario²

Delta would appreciate AEMO's Integrated System Plan presenting results that highlight these issues to policy makers to ensure that as markets evolve, incentives for investment remain efficient and new capacity is built with clear insight into the impact on the operations of the electricity system.


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² Boston, A., Bongers, G., Byrom, S. and Staffell, I. (2017), *Managing Flexibility Whilst Decarbonising Electricity - the Australian NEM is changing*, Gamma Energy Technology P/L, Brisbane, Australia.