Macquarie Generation

Relibiability standard and settings review 2014

Powering Our Community

21 June 2013

Reliability Panel
Australian Energy Market Commission
PO Box A2449
SYDNEY SOUTH NSW 1235

Dear Panel

RELIABILITY STANDARD AND SETTTINGS REVIEW 2014

Macquarie Generation makes the following submission in response to the Reliability Panel's *Issues Paper, Reliability Standard and Settings Review 2014*, released publicly on 9 May 2013.

Macquarie Generation is of the view that there is presently no material reason for adjusting or amending the National Electricity Market reliability standard or settings from 1 July 2016. The NEM is likely to remain oversupplied throughout the course of the current decade. However, that is not say that reliability risks may not emerge if governments continue to impose policies that encourage the otherwise uneconomic new entry of renewable plant. Any technology specific mandate or subsidy that displaces existing thermal plant with less reliable and highly intermittent technologies could threaten system reliability.

Since its inception the energy-only NEM design has functioned well, with incremental adjustments made to the reliability settings through time. Periods of short term price volatility have encouraged investors to build new plant, generally in the right location, of the right technology type and at the right time. Average wholesale prices, when viewed over a reasonable time horizon, have fallen well within independent estimates of new entrant costs. The NEM track record of system reliability is near faultless.

Macquarie Generation's concern is that governments have increasingly used the NEM to meet policy goals unrelated to ensuring a competitively priced and reliable electricity supply. At some point, constantly loading up the electricity industry with new trading schemes and a myriad of other regulatory measures must affect the integrity and workability of the wholesale NEM design. In our view the Renewable Energy Target (RET) scheme provides a guide to how poor policy design could affect NEM reliability.

Impact of the Renewable Energy (Electricity) Act – low reliable wind farms displacing highly reliable thermal generators

The Federal Government's RET scheme has the potential to force more new renewable generation output into the NEM over the next 7 years than likely demand growth over the same period. With legislated annual targets increasing out to 2020, the large scale RET scheme is likely to see a significant expansion of less reliable technologies in the NEM. This may have profound consequences for the operation of the electricity supply industry.

Modeling commissioned by Climate Change Authority in 2012 forecast that some 80% of the additional 29,000 GWh of new renewable generation output in 2020 would be supplied by wind farms. Given the intermittency of wind operations, AEMO in assessing reserve margins assigns a maximum 15% of capacity is available. In contrast, the Reliability Panel's 2006 Comprehensive Reliability Review included data that implies a minimum of 84% of thermal generation capacity is available.[1]

Renewable output displacing thermal capacity

Chart 1 shows under nearly all forecast demand scenarios that a significant level of displacement of existing capacity by subsidized new renewable entry will occur (represented by the difference in the LRET trajectory in bold red and the other lines showing AEMO forecasts of incremental demand growth).

Macquarie Generation is of the view that AEMO's demand forecasts are overly optimistic. The following chart shows the history of AEMO ESOO demand forecasts (medium growth scenario) versus actual over the past decade. There is persistent pattern of AEMO forecasting a return to growth trends that were experienced a decade ago. In recent years total NEM demand has flattened and fallen. While AEMO scaled down its demand forecasts for the NEFR 2012, actual demand has fallen further. Macquarie Generation has little faith in AEMO's projections of a recovery in growth in the medium to long term given past experience.

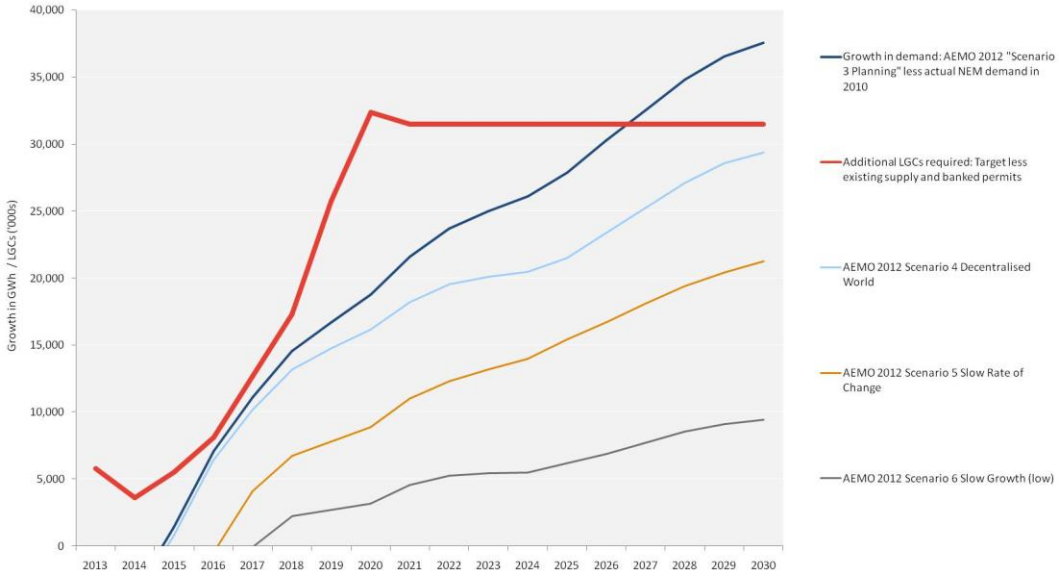
On this basis, Macquarie Generation considers that NEM demand growth is likely to fall below the scenario 3 medium growth forecast (shown as the dark blue upper demand

[1] Reliability Panel, Comprehensive Reliability Review, Issues Paper, 2006 (Table 4).

7line in Chart 1). The likely level of displacement of existing generation by renewable entry is better represented by some of the lower demand forecasts in Chart 1.

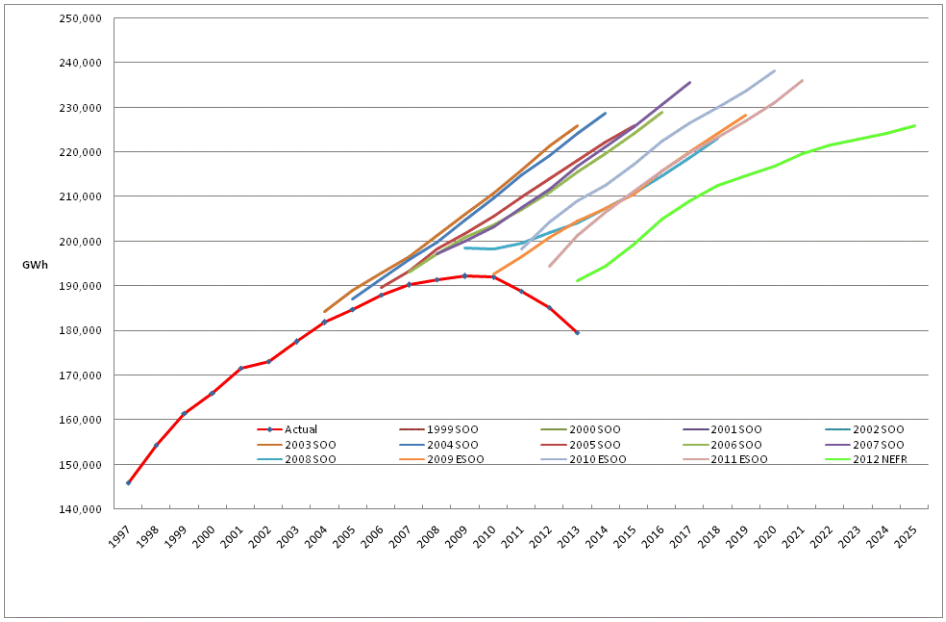
The point at which we will see a return to demand growth is a matter of conjecture, like all modeling work. The displacement may be further compounded by the loss of large smelter loads[2] and significant manufacturing operations.

Chart 1: LRET targets and demand growth scenarios, GWh, 2013 to 2030



[2] The Point Henry smelter received a package of Federal and Victorian Government financial assistance in mid 2012 following a period of operating losses. The smelter owners made a commitment to keep the plant operating for a further 2 years from that date.

Chart 2: NEMMCO/AEMO ESOO NEM energy demand forecasts versus actual



How the RET scheme could impact NEM reliability

Thermal generators rely on returns from the NEM energy only market and financial hedging contracts struck against the underlying wholesale pool price to cover fixed and variable operating costs (fuel, labour, maintenance). In contrast, the owners of renewable projects earn an additional revenue stream from credits produced through the RET scheme. Importantly the value of the LRET credits adjust to ensure new renewable generation occurs, making new renewable projects much less reliant on spot and forward contract price signals from the NEM.

Macquarie Generation is of the view that the subsidized entry of renewable plant that is not needed to satisfy demand growth from investors who are indifferent to the level of spot prices post-investment could see a deterioration of supply reliability through time. This could play out in a number of ways:

- *No new high reliable generation investment to occur*: investors will be reluctant to commit to any new long-lived thermal project, including peaking plant which may be necessary to cover for an increasingly unreliable and intermittent supply base. The setting of a higher MPC or CPT becomes irrelevant if investors perceive that subsidized renewable plant will suppress

spot and forward contract prices below levels necessary to provide a reasonable return on investments facing greater market risk.

- *Existing high reliable generation will become less reliable*: for existing generators one way of minimising operating losses is to cut back on major and routine maintenance work. If a generator is unsure as to its longer term viability, particularly for older facilities, it may be willing to trade-off the risk of major plant failures in the future with short term savings in maintenance expenditure and reduced outage times.

- *Existing generation unavailable to be directed*: existing generators are taking plant out of service for extended periods, meaning that there is no prospect of covering fixed costs or earning a return on past investments. At some point permanent closure decisions will be made. It is highly likely that plant removed from operation for extended periods will not be available to return to service at short notice if it is necessary to cover any unforeseen supply shortfall caused by intermittent renewable output or the failure of other thermal plant.

- *Increasing reliance on low reliable generation*: wind farms have a low reliability by virtue of their intermittency, and from a system wide perspective is less reliable than thermal plant.

AEMO directions power may not be effective

The Reliability Panel notes that the AEMO reliability directions power can be used as an intervention mechanism to ensure supply adequacy. Macquarie Generation forecasts that in an industry where conventional thermal generators have had to shut down power stations, taken plant older plant out of service for extended periods and cutback on maintenance expenditure due to the RET, the directions power is no longer a reliable safety net mechanism. If thermal plant is unavailable for recall at short notice to respond to an unforeseen increase in demand or drop in intermittent supply, the likelihood of load shedding increases.

Summary

As a merchant operator, providing low-cost baseload generation into the NEM, Macquarie Generation is concerned that the RET scheme could have a serious detrimental impact on NEM reliability. Any policy that subsidises or distorts investment, dispatch or consumption decisions must inevitably have a bearing on existing participants with the most likely outcome a decline in the reliability of the existing generation stock. In addition, the RET forces the displacement of high reliability generation with predominately intermittent renewables.

The NEM cannot rely on its safety net AEMO directions power to intervene to instruct participants if plant is out of service, in no condition to operate or is intermittent in nature. Future adjustments to the reliability settings, such as the raising the MPC and CPT, may not ensure the existing reliability standard is maintained where external policies undermine the returns of high reliability plant.

Yours sincerely

TIM ALLEN

GENERAL MANAGER, MARKETING & TRADING

Macquarie Generation

Contact Details

Corporate Office
34 Griffiths Road
Lambton NSW 2299
Australia

Postal Address
PO Box 38
Hunter Region MC
NSW 2310
Australia

Telephone 61 2 4968 7499

Facsimile 61 2 4968 7433

Business Hours
8am–5pm Monday to Friday

Liddell Power Station and Bayswater Power Station

New England Highway,
Muswellbrook NSW 2333
Australia

Postal Address
Private Mail Bag 2
Muswellbrook NSW 2333
Australia

Liddell Telephone 61 2 6542 1611

Bayswater Telephone 61 2 6542 0711

Business Hours Administration
8am–4pm Monday to Friday

Security and Operations
24 hours 7 days

Web site address
www.macgen.com.au

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