Engineers Australia

Public Affairs Note

ENGINEERS AUSTRALIA

AEMO releases the 2017 Electricity Statement of Opportunities (ESOO) for the National Electricity Market

Key points:
- AEMO's analysis shows a heightened risk that the current NEM reliability standard will not be for peak summer periods.
- The highest forecast risk for not meeting the reliability standard in summer 2017/18 is in South Australia and Victoria.
- Expected retirement of coal generation in New South Wales after 2022 highlights the increased risk to capacity shortfalls in 2024-25.
- Current energy policy debates highlight the absence of a national energy transition plan.
- In March 2017, Engineers Australia put forward strong recommendations that the government develop a nation transition plan.
- The Chief Scientist recommended an orderly transition in the energy sector, including a Clean Energy Target (CET) as the most suitable market mechanism to achieve this transition.
- For the proper functioning of the NEM, more engineering expertise is needed in the boards and senior leadership of its governance organisations.

On September the 5th 2017 the Australian Energy Market Operator (AEMO) released its 2017 Electricity Statement of Opportunities (ESOO). AEMO publishes an ESOO each year under clause 3.13.3(q) of the National Electricity Rules. It provides an insight to the current state of the National Electricity Market (NEM), and looks forward to any future opportunities and challenges.

The release of the 2017 ESOO has highlighted a potential heightened risk of significant unserved energy (USE) over the next 10 years[1]. The AEMO ESOO analysis shows a risk that the current NEM reliability standard will not be met for all future peak summer periods, and additional actions are necessary to reduce the risks of supply interruptions. The ESOO states that any material reduction in capacity of the peak summer months could lead to supply shortfalls and the current reliability standard not being met.

The highest forecast risk for not meeting the reliability standard in the summer of 2017/18 in South Australia and Victoria. The ESOO does note that South Australia has an energy plan in place, but does not include the impact of the South Australian Energy Plan as the ESOO only looks to assess the opportunities above permanent generation reserve. The ESOO states:

"Without these actions, in 2017-18:

- In Victoria, the likelihood of a shortfall is between 39% and 43%. The average shortfall projected is likely to be between 218 MW and 229 MW, but could reach 760 MW. If USE occurs, it is likely to last for four to five hours.

[1] AEMO, September 2017. *Electricity Statement of Opportunities for the National Electricity Market.* www.aemo.com.au

- In South Australia, the likelihood of a shortfall is between 26% and 33%. The average shortfall projected is likely to be between 81 MW and 97 MW, but could reach 243 MW. If USE occurs, it is likely to last for two to four hours."

The South Australia energy policy includes plans to install nine temporary dual fuel diesel-gas turbines in Adelaide's north and south by the 1st of December to help avoid load-shedding blackouts[2]. AEMO has also suggested that a heightened risk of a blackout in the state after 2018-19 decreases as demand is moderated by rooftop PV uptake and energy efficiency, as well as additional large-scale renewable generation entering the NEM. It does however recommend strategic reserves of firming capability for this period. Firming capability provides available dispatchable capacity that can be dispatched to maintain balance on the power grid.

The ESOO also casts an eye forward to the expected retirement of coal generation in New South Wales after 2022 and highlights the increased risk to capacity shortfalls in 2024-25, due to a forecast increase in demand. This is the same for Victoria in 2026-27. Without the appropriate replacement of firming capability, there is the increased risk in the possibility of load shedding.

This has sparked widespread debate about national energy policy, and has even led to the Commonwealth Government being involved in discussions with the operator of the Liddell Power Station, about extending the expected closure date of this station beyond 2022. However, consideration must be given to reliability problems that come with aging power stations and the cost associated with extending their lives. Energy policy should not be piecemeal, and government discussions with plant operators could further exacerbate uncertainty in the market. The current debate highlights what is missing for investment certainty in the electricity sector - the need for a national energy transition plan.

In March 2017, Engineers Australia released *The Future of Australian Electricity Generation*, an energy report which recognised the age of many of Australia's high capacity power stations. This report noted there was no transition plan to replace this expected removal of capacity as these stations reached the end of their economic lives[3]. Engineers Australia put forward strong recommendations that the government develop a nation transition plan, that included determination arrangements to be applied in the event that economic circumstances lead to the shutdown of an existing generation plant, which would reduce supply below these requirements.

Without a national energy plan Australia risks losing a large portion of its generation capacity in a short period without any alternatives in place, while at the same time risking its Paris COP21 commitments. Engineers Australia specified that implementation of a national energy plan should take into account affected economies and workforces.

Engineers Australia re-iterates the recommendations made in this report as the energy policy settings in Australia have not significantly changed over the last six months and the recent debate in the media demonstrates that a national energy policy is still required. The Government may have been fast to act on the majority of recommendations made by the Chief Scientist in the Independent Review into the Future Security of the National Electricity Market (The Finkel Review), but pressure is still mounting on the Government to produce a formal energy policy which addresses the only outstanding recommendation, a Clean Energy Target (CET).

Engineers Australia made recommendations in its *The Future of Electricity Generation* report earlier this year that a consistent policy framework and associated technical rules were needed to encourage the adoption of low or zero emissions technologies, noting the age profile of coal fired generation plants. The Finkel Review

[2] ABC News, 6 September 2017. *Energy Market Operator issues mixed forecast for SA, Victoria during summer*. www.abc.net.au

[3] Engineers Australia, 2017, *The Future of Australian Electricity Generation.* www.engineersaustralia.org.au

recommended that the government move forward with the CET as a suitable market mechanism that will reduce emissions in the electricity generation sector without risking the nation's energy security.

At the time of writing, it is widely expected that the government will release a more formal CET position before the end of the year, and the biggest question that still remains is how the government will approach this recommendation. If the government moves for a CET, the crucial policy detail will be if the estimated operating emissions as generated level (Kg CO_2–e/ MWh) will be high enough to allow open gas turbines (OCGT) or ultra-supercritical black coal (HELE) to compete under the target, and whether the emission level set has been evidence-based.

AEMO analysis shows that renewable generation can provide some support to maintain reliability without firming capability. However, if this generation was to lead to earlier retirement of existing thermal generation, the risks to reliability would increase without additional firming capability[4]. The Finkel Review was upfront in promoting the CET as a market mechanism which was suitably placed to meet Australia's energy requirements, which was assessed against a criteria of affordability, adaptability, emission reductions and security and reliability[5]. Having a firm policy in place will help to provide the certainty to investors in the electricity sector, who have been calling out for a stable investment environment for some time.

Engineers Australia publicly praised the Finkel Review[6], as its set of recommendations identified solutions to fundamental problems which have emerged in the NEM. Engineers Australia agrees with the Report's focus that getting through the next few summers is vital. However, it is paramount that the Report's longer term recommendations also be considered to provide policy and investment certainty within Australia, in order to help avoid the boom/bust cycles which have had a stranglehold over the electricity industry for decades.

Crucially, the Review highlights the importance of engineering knowledge to the governance of the NEM, and called for engineering expertise in National Electricity Market bodies such as AEMO. So far we are yet to see any signals to real improvement in this area. Australia's energy future will require the engineering expertise of Australia's engineering profession as engineers have the critical skills that are required in Australia's power system to see a smooth transition.

Engineering technical experts are needed in positions of influence and decision making, such as the Energy Security Board, to help make the decisions that will shape our energy future. Now is the time to seek the advice of our technical experts, such as power systems engineers, to achieve a suitable and stable energy policy.

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[4] AEMO, September 2017. *Electricity Statement of Opportunities for the National Electricity Market.* www.aemo.com.au
[5] Independent Review into the Future Security of the National Electricity Market: Blueprint for the Future (The Finkel Review)
[6] Mark Lendich, Engineers Australia, 2017, *Vigilance needed to implement the Finkel Blueprint.* https://www.engineersaustralia.org.au/News/vigilance-needed-implement-finkel-blueprint-0