

10 February 2020

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By email: forecasting.planning@aemo.com.au

Dear Alex

Response to AEMO's consultation on 2020 forecasting inputs and assumptions

ElectraNet appreciates the opportunity to comment on AEMO's 2020 forecasting inputs and assumptions, which are to be applied across AEMO's various forecasting and planning activities.

ElectraNet considers that transparent consultation and discussion around the forecasting inputs and assumptions is essential, both to provide a firm basis for AEMO's forecasting and planning activities and to ensure that stakeholders can understand, contribute to, test and ultimately have confidence in the development of those inputs and assumptions. Going forward, maintaining a firm basis for these inputs and assumptions will remain a cornerstone for ensuring the success of the proposed actionable ISP reforms.

In this light, ElectraNet supports AEMO's proposed consultation process on the 2020 forecasting inputs and assumptions, which we consider to be comprehensive and well structured. We also appreciate the detail provided by AEMO in the supporting documentation and rationale.

In setting these planning inputs and assumptions for the purposes of the final ISP and other modelling exercises, ElectraNet recommends that AEMO:

- Review the appropriateness of its adoption of minimum capacity factors for South Australian gas plant, considering the observations made by the Australian Energy Regulator (AER) in its recent Determination on the South Australian Energy Transformation (SAET) RIT-T;
- Review the methodology and outcomes for distributed PV forecasts in South Australia based on the latest information;
- Review the methodology and outcomes for minimum demand forecasting, based on current outcomes in South Australia; and

- Adopt the 90% POE 'shoulder season' minimum demand forecast (the period most likely to lead to minimum demand) alongside the summer 10% POE forecast in constructing the demand traces to be used in the ISP (and other) modelling exercises.

These recommendations are discussed in more detail in the remainder of this submission.

1. Assumptions around South Australian gas plant operation

The AER's recent Determination which confirmed the conclusions of the SAET RIT-T¹ makes several observations about the inputs and assumptions adopted in the RIT-T assessment.

In particular, the AER commented on the appropriateness of inputs and assumptions relating to gas plant usage and retirements and expressed concern over the minimum capacity factor assumptions adopted for SA gas plant, concluding that these assumptions were not reasonable in the form they were applied.

ElectraNet applied AEMO's 2018 planning assumptions as the starting point to the modelling it undertook for the SAET RIT-T Project Assessment Conclusions Report, drawing on AEMO's 2018 assumptions workbook and accompanying database which followed the 2018 ISP consultation process.

Many of these planning inputs remain the same in the material released by AEMO for the 2020 forecasting inputs and assumptions consultation, including the application of minimum capacity factors to the key gas plant in South Australia.

We therefore recommend that these minimum capacity factors and the source of these inputs be reviewed by AEMO as part of its current consultation process. We consider this is particularly important given the introduction of the actionable ISP framework, which will tie TNSPs more closely to adopting AEMO's planning assumptions.

In working through this and addressing the issues raised by the AER, ElectraNet is willing to work with AEMO to review alternative approaches to modelling the future operation of South Australian gas generators that more accurately capture the underlying constraints and limitations on the physical and economic operation of this plant.

This might include for example refinements or additions to existing published inputs and assumptions or different approaches to the use of those inputs in the modelling analysis.

2. Distributed PV forecasts

In South Australia, there has been rapid uptake of distributed PV systems, growing from almost zero capacity in 2010 to 1,258 MW installed as of 1 January 2020, as shown in Table 1.

¹ AER, South Australian Energy Transformation, Determination that the preferred option satisfies the regulatory investment test for transmission, 24 January 2020.

Table 1: Total capacity and annual change in distributed PV systems in South Australia

	Unit size	Total capacity as at 1 January 2020 (Annual change)
Category 1	≤ 30kW	1,085 MW (▲ 153 MW)
Category 2	> 30kW, ≤ 200kW	98 MW (▲ 55 MW)
Category 3	> 200kW	76 MW (▲ 59 MW)
	Total	1,258 (▲ 267 MW)

Source: SA Power Networks

ElectraNet expects the growth in PV systems to continue. The next 12-month period may set a record in distributed PV system investment in South Australia. The pipeline of new potential projects for category 3 installations currently sits at around 250 MW, which is an about 300 per cent increase in the current size of this category should they all occur. This represents continued strong growth.

If last year's growth rate for category 1 and 2 systems also continues this year, another 150 - 200 MW PV could also be added. This implies a total increase in PV installations over the next year alone in the order of 400 MW.

Based on the current rapid growth and development of PV systems in South Australia, we consider that AEMO's proposed central forecast is likely to underestimate the growth of PV systems, whereas AEMO's proposed 'step change' PV growth rates appear closer to what may be most reasonably expected in the near term for South Australia.

ElectraNet recommends AEMO review this recent experience and consider adjusting its forecasting methodology and outcomes for distributed PV forecasts in South Australia to better align with current experience and short-term projections.

3. Minimum demand

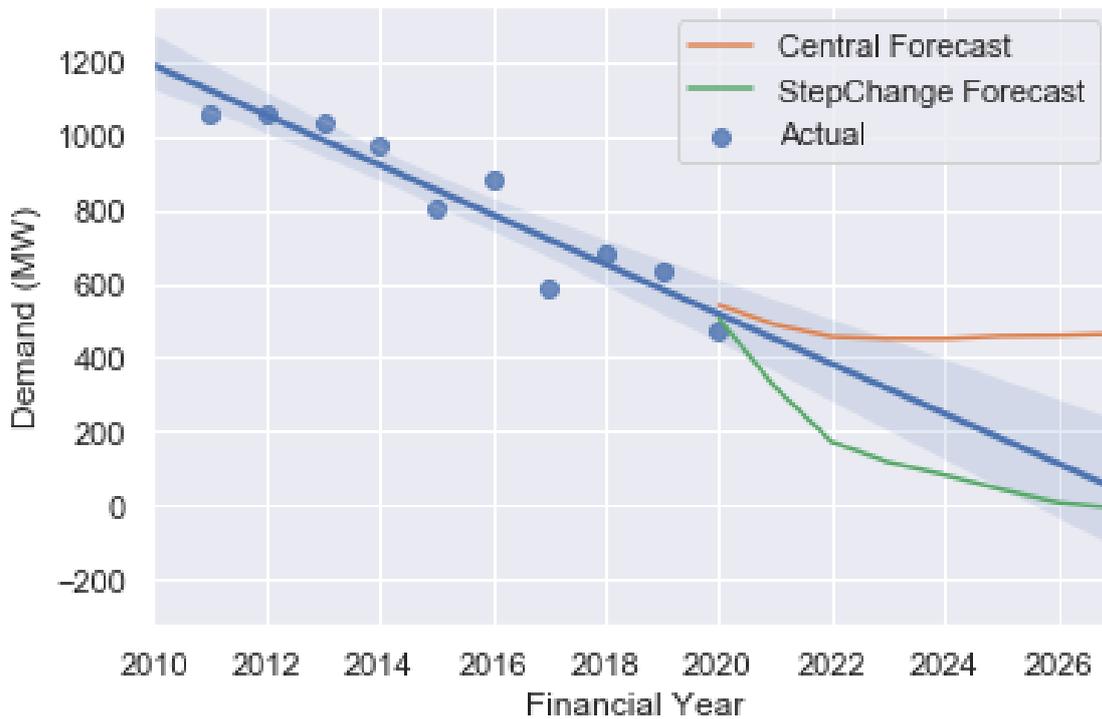
The increase in distributed PV discussed above is pushing down grid demand in the middle of the day. South Australia experienced a new minimum grid demand of 475 MW on Sunday 10 November 2019. This event occurred during the 'shoulder period' of October – November when Adelaide experiences mild weather conditions for some weeks. The weekend conditions where new minimum demand records were set suggests that the conditions for minimum demands will be repeatable over a single shoulder season. As a result, the gap between the 50% and 90% POE shoulder forecasts going forward is expected to be small.

Should the increase in distributed PV installations continue as it has for the last ten years, zero grid demand is expected by 2027. This outcome aligns with AEMO's step change summer forecast.²

This can be seen in Figure 1 below, which highlights recent history and compares a linear extrapolation of minimum demand for South Australia with AEMO's central and step change summer minimum demand forecasts.

² AEMO's Step Change 'shoulder' forecast may demonstrate that this threshold is crossed earlier.

Figure 1: Extrapolation of actual minimum demands for SA and AEMO summer forecasts



For the central forecasts to hold, minimum demand would need to stop falling any further immediately. This appears highly unlikely based on current trends.

While distribution network limitations are leading to some curtailment of distributed PV, this is not likely to materially halt declines in total minimum demand. Further, most residential homes are yet to install solar PV. ElectraNet therefore considers that in the short term there remains substantial scope for further declines in minimum demand.

Should development accelerate as discussed above, South Australia may reach zero grid demand in as little as two to three years from now. This may occur earlier in the step change shoulder forecast (by 2023) where the step change in the trajectory occurs in 2022.

We therefore consider AEMO's minimum demand forecast for the central scenario to be unrealistically high, given that observed minimum demands are already outside of the bounds of this forecast, and given the likely trend in PV developments over the next 12 months. This is highlighted in Figure 2 below.

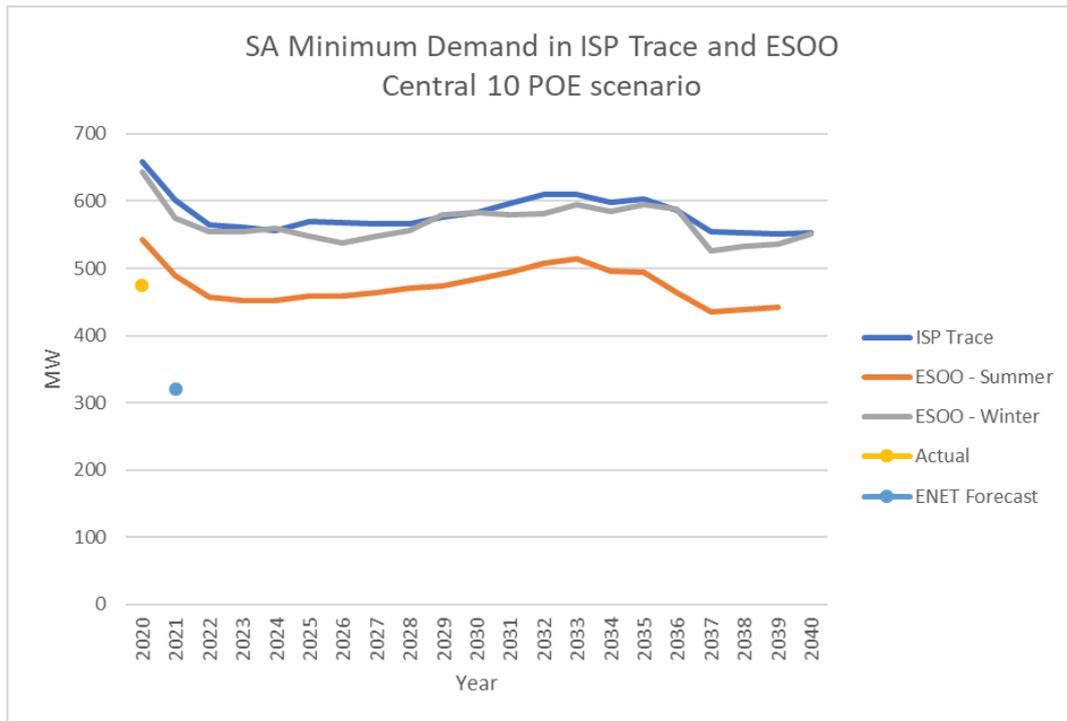
The discrepancy between current outcomes and AEMO's central forecast, as well as the 'slow down' reflected in AEMO's current step change forecast from 2022, masks the urgency of assessing key future thresholds for minimum demand, and the implications that this will raise for the planning and operation of the power system.

We therefore recommend AEMO considers adjusting the methodology and outcomes for its minimum demand forecasts based on the latest information as discussed above.

4. Minimum Demand traces

In addition to AEMO's minimum demand projections appearing to underestimate the impact of distributed PV, the demand traces from the ISP database appear to be following the Winter 90% POE minimum demand forecasts (ESOO 2019). This is illustrated below in Figure 2.

Figure 2: Comparison of ISP modelled minimum demand to ESOO minimum forecasts



We note the winter minimum demand forecasts are not as low as the summer minimum demand forecasts, and therefore less relevant for planning purposes. Further, we consider that shoulder periods are likely to lead to even lower minimum demands than those for either summer or winter as discussed above, given that the conditions leading to minimum demand tend to occur in the seasons of milder weather.

For South Australia, we therefore recommend that AEMO use the shoulder season 90% POE minimum demand forecast in constructing the minimum demand traces to be used in the ISP (and other) modelling exercises.

We appreciate this important opportunity to comment on AEMO's planning inputs and assumptions consultation and look forward to working with AEMO to address the issues raised above.

For any immediate queries, please contact Brad Harrison on the first instance on (08) 8404 7568.

Yours sincerely

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