11 February 2022

Mr Elijah Pack

Manager Integrated System Planning

Dear Mr Pack,

Re: 2022 Draft Integrated System Plan

ElectraNet welcomes the opportunity to comment on AEMO's draft 2022 Integrated System Plan and acknowledges the increasing level of engagement from AEMO in supporting this large task.

ElectraNet's recommendations relating to South Australia in summary are as follows:

1. Consider reconfiguring the 132 kV Mid North network as a low-cost staged development of the Mid North Renewable Energy Zone (REZ) to defer the need for larger augmentation.
2. Consider the South East of the State as an offshore wind region
3. Remove the 100 MW cap on transmission connected solar in the South East region
4. Adopt a new double circuit 275kV twin conductor option for the South East REZ stage 2 expansion.
5. Consider expansion of the Heywood Interconnector along with the South East REZ.

Further information is provided as follows.

Mid North Renewable Energy Zone

The Mid North REZ has almost 1,500 MW of transmission connected wind and solar generation (including the Yorke Peninsula REZ). Being well supported by the 275 kV and 132 kV transmission network, this REZ has consistently demonstrated high quality renewables and relative ease of development. In addition, the REZ directly supports ongoing development of both the Davenport REZ and the Riverland REZ in accessing the Adelaide load centre. These regions continue to be the zones that attracts the most attention from renewable energy developers in South Australia.

The REZ is reaching the limit of its capacity to continue further renewable development. The parallel 132 kV network will emerge as a more frequent limitation on renewable generation, preventing the utilisation of the higher rated parallel 275 kV network. ElectraNet's forecasts indicate that, over the period to 2030, congestion on the 132 kV corridor will increase steadily to around 1,000 hours per annum. By 2040, this corridor would be congested for around 4500 hours per annum, or about half of the year.

There exists the potential for a staged development of the Mid North expansion with a low-cost reconfiguration of the 132 kV network, which would allow the 275 kV network to be used more effectively. The expansion could be staged prior to the development of the much larger Option 1

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Mid North SA development in AEMO's Transmission Cost Report and may even defer the need for the larger project.

The low-cost reconfiguration would include decommissioning the Waterloo to Templers 132 kV line and a second 275/132 kV transformer at Templers West as presented in ElectraNet's 2021 Transmission Annual Planning Report (TAPR).

We recommend consideration of the 132 kV reconfiguration as a staged project prior to consideration of Option 1 from the Transmission Cost Report.

South East Renewable Energy Zone

AEMO's Optimal Development Path has listed South East REZ expansion across two stages as potential future ISP projects, as shown in Figure 1 below.

Figure 1: Options for the South East SA (S1) REZ expansion

Source: AEMO ISP

ElectraNet supports AEMO's examination of the South East as a quality REZ for both solar and wind.

ElectraNet notes that there is ongoing examination of the region for both solar and wind and the nascent offshore wind industry has flagged an interest in the southern regions.

We recommend that this region is considered in future examination of offshore wind generation locations.

AEMO's Input Assumptions and Scenario Report limits development of South East solar to 100 MW. We are not aware of any strong basis for this. As a result, AEMO is finding significant expansion potential in the South East REZ for wind and little to no forecast expansion in further solar.

We recommend that this limitation on solar developments be removed.

AEMO's cost database report identifies two options to expand the South East REZ which are largely dependent on the generation type that is utilised. Option 1 strengthens connection between Tailem Bend and Tungkillo (effectively Adelaide), whilst Option 2 strengthens connection between the South East substation and the Heywood terminal station in Victoria, as shown in Figure 2 below.

Figure 2: South East SA (S1) REZ expansion options

Source: AEMO Transmission Cost Database Report

The choice of option is dependent on the type of renewables investment the REZ attracts. The northern region of the REZ is well suited to solar with Tailem Bend already home to one solar farm and there are plans for further connections at this site.[1] On the other hand, the southern region is well suited to wind and home to four operational wind farms (Lake Bonney stages 1, 2 and 3 and Canunda).

There is little activity along the corridor, due to the use of series compensation mid-way along the corridor to improve the import and export capability of the Heywood interconnector.

The Stage 2 development AEMO has identified (shown in Figure 1 above) would therefore open up economic development of renewable generation in this zone. However, this option was not featured in the transmission cost database report.

We recommend AEMO adopts a new double circuit 275kV twin conductor transmission line between Tailem Bend and the South East substation as the scope for stage 2.

[1] AEMO's generator information page – February 2022.

The South East REZ is strategically situated along the Heywood corridor. The Stage 2 expansion would also warrant examination in conjunction with Option 2 as this would have the effect of further strengthening interconnection between South Australia and Victoria.

We recommend consideration of an expansion to the Heywood interconnector be considered as a combined Stage 2 and Option 2 (as presented in the transmission cost database report).

This is illustrated in Figure 3 below.

Figure 3: Combined South East SA (S1) REZ expansion options

Source: AEMO ISP & Transmission Cost Database Report

ElectraNet appreciates the opportunity to comment on these important aspects of the ISP, and looks forward to engaging further on the issues raised in this submission. Should you have any queries, please contact Brad Harrison in the first instance on (08) 8404 7568.

Yours sincerely,

Simon Appleby

A/Group Executive Asset Management