

2020 Highlights

Project EnergyConnect

A new 330 kV interconnector from Robertstown in South Australia, to Buronga and Wagga Wagga in New South Wales.

Transfer capacity will be up to approximately 800 MW



Implementation will increase the maximum amount that can be transferred across the Heywood interconnector to about 750 MW

In January 2020, the AER published a RIT-T determination including that Project EnergyConnect remained the most “credible option that maximises the net economic benefit” in the NEM, ultimately benefitting electricity consumers.

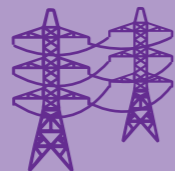
AEMO's 2020 ISP identifies Project EnergyConnect as part of the optimal development path for the NEM.

Project EnergyConnect will support Australia's growing renewable energy industry with new wind and solar projects planned for South Australia, New South Wales and Victoria expected to benefit from the new interconnector.

The AER is currently considering two Contingent Project Applications, one for ElectraNet and one for TransGrid, to provide funding for each business to undertake their portion of the works to create Project EnergyConnect.

The AER's determinations are expected by the end of 2020.

Eyre Peninsula Link



To continue to meet reliability requirements and address asset condition on the Eyre Peninsula, we plan to establish Eyre Peninsula Link:

- replace the existing 132 kV lines between Cultana and Yadnarie with a new double-circuit line that is initially energised at 132 kV, with the option to be energised at 275 kV in the future
- replace the existing 132 kV line between Yadnarie and Port Lincoln with a new double-circuit 132 kV line.

In future, upgrading the operating voltage of the planned new Cultana to Yadnarie transmission lines from 132 kV to 275 kV would enable potential large loads to connect on the Eyre Peninsula.

In April 2019 The AER determined that the preferred option satisfies the requirements of the RIT-T.

On 28 September 2020, the AER published its determination on our Contingent Project Application to provide funding for Eyre Peninsula Link.

We plan to implement the preferred option by the end of 2022.

System security and power quality

Synchronous Condensers

We are installing synchronous condensers at Davenport and Robertstown in 2021.

These will:

- address the system strength and synchronous inertia needs that AEMO identified in 2018 for South Australia
- contribute to the ongoing provision of adequate voltage control for the South Australian transmission system, including at times of low demand
- allow the amount of non-synchronous generation that can be dispatched at times of minimum conventional generation in South Australia to be increased from 2,000 MW to about 2,500 MW.

Market benefit opportunities

A range of projects is proposed to reduce the impact of existing and forecast network constraints to deliver net market benefits.

This includes the projects that form ElectraNet's 2018-19 to 2022-23 Network Capability Incentive Parameter Action Plan (NCIPAP).

We have identified that the project we had proposed to turn in the Taillem Bend to Cherry Gardens 275 kV line at Tungkillio no longer meets the criteria for inclusion in our 2018-19 to 2022-23 NCIPAP, and we are working to identify another suitable project or projects to replace it in the plan.

Fast frequency response

AEMO has published the 2020 inertia requirements in South Australia, replacing the 2018 inertia requirements.

AEMO proposes for **fast frequency response (FFR) to be made available for network support** on a basis that enables AEMO to determine a reduced inertia shortfall.

We have initiated the procurement process and plan to engage soon with the market for the provision of FFR services.

New connections

The South Australian transmission system continues to have capacity to connect new load, generators, and storage. Generation output may occasionally be limited by system constraints, particularly at times of very low system demand.

We are aware of significant interest in new generator and load developments, especially in the Mid North, Eyre Peninsula and Riverland regions.

To allow increased power transfers between these regions and South Australia's load centre in metropolitan Adelaide, **we are investigating opportunities to increase transfer capability through the Mid North to the Adelaide metropolitan area.**

We are also **investigating ways to further increase the transfer capability between the South East region and the Adelaide metropolitan area**, to address potential future interest in the South East.

We have extended the 275 kV system to develop a new 275/132 kV connection point at Mount Gunson South to service OZ Minerals' new and existing mines in the area.

Network asset retirements & de-ratings

We plan to address emerging condition needs for a range of assets on South Australia's electricity transmission network during the planning period.

Asset replacement programs are based on an assessment of asset condition, risk, cost and performance.

Managing voltage levels at times of low system demand

We have identified an emerging need to reduce the system's reliance on dynamic reactive power devices to satisfactorily manage voltage levels at times of low system demand.

Potential solution: install a suite of up to five 50 Mvar 275 kV reactors at various locations.

Control schemes

We are collaborating with AEMO to augment the existing System Integrity Protection Scheme to a more sophisticated Wide Area Protection Scheme, which will satisfy the requirements of AEMO's 2018 Power System Frequency Risk Review.

AEMO's July 2020 Final Power System Frequency Risk Review – Stage 1 report identified that a high level of distributed energy resources in the system may result in inadequate under frequency load shedding response being available to arrest frequency declines following a separation event.

- A Protected Event is proposed to manage this challenge. AEMO has also identified that imports on the Heywood interconnector need to be limited in some periods to address the challenge of losing distributed energy resources in response to credible contingency events
- A preliminary constraint has been implemented by AEMO, and ElectraNet is completing analysis to provide refined network limit advice that will enable the preliminary constraint to be refined
- Control schemes are potential solutions to manage these challenges, to reduce the need to apply constraints.

With the rapid evolution of the power system, we expect a growing need for emergency control schemes to manage both credible and non-credible system events.