

INFORMATION SHEET

INSTALLATION OF

SYNCHRONOUS

CONDENSERS

South Australia is a world leader in renewable energy generation. As more of these energy sources such as wind and solar are connected to the grid, traditional power generation sources such as gas-fired units, operate less often.

This has created a shortfall in system strength, which was declared by the Australian Energy Market Operator (AEMO) on 13 October 2017 and a shortfall in inertia which was declared on 24 December 2018.

To respond to this need and strengthen our energy network, ElectraNet is installing synchronous condensers at two locations in regional South Australia.

The importance of system strength and inertia

A secure power system needs adequate levels of both system strength and inertia.

System strength relates to the ability of a power system to manage changes in supply or demand while maintaining stable voltage levels. In South Australia, system strength is provided by gas-fired units, transmission lines, power transformers and voltage control equipment.

Inertia relates to the ability of a power system to manage fluctuations in supply or demand while maintaining stable system frequency. It is mostly provided by large rotating electrical machines that help to maintain the frequency of the power system.

Both are important to ensure a secure power supply for customers. If there is not enough of these services, there is an increased risk of system instability and supply interruptions.

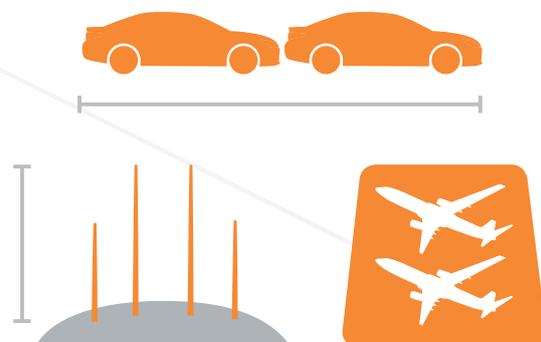
The installation of synchronous condensers will ensure there is adequate minimum levels of both system strength and inertia.

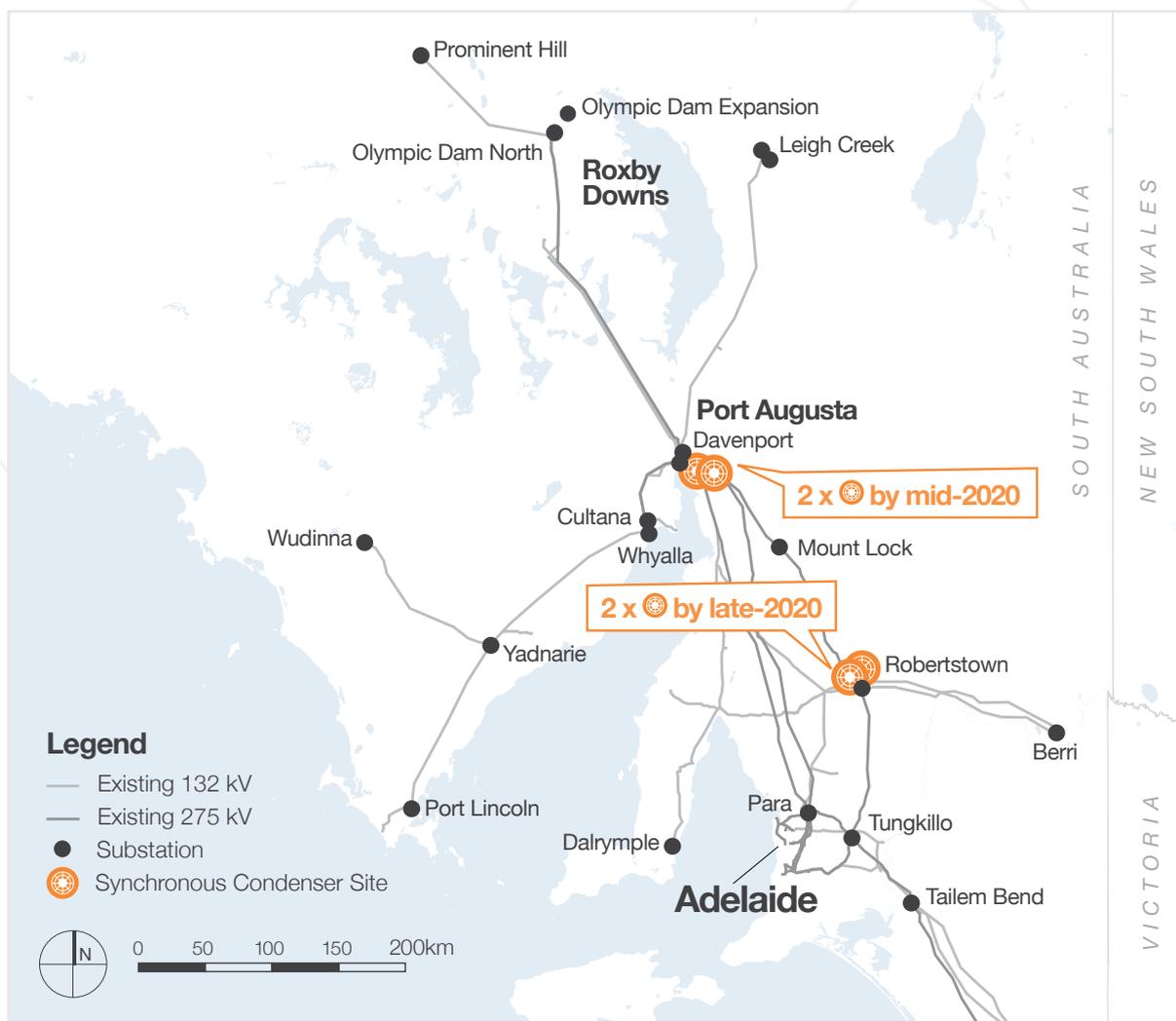
What is a synchronous condenser?

A synchronous condenser works in a similar way to large electric motors and generators. It spins freely to manage changes in system strength, inertia and voltage control to provide a reliable power supply. These machines will also be fitted with flywheels to provide the level of rotating inertia required.



The synchronous condensers to be installed at Davenport are each 8 metres long, 5.6m high and weigh 172 tonnes. That's the length of two Toyota Corolla sedans parked end-to-end, almost as tall as an AFL goal post and the weight of more than two Boeing 737 airplanes.





Where and when will they be installed?

ElectraNet will install four synchronous condensers: the first two by mid-2020 at our substation at Davenport plus two more at our Robertstown substation by late 2020.

In June 2019, ElectraNet applied for contingent project funding to the Australian Energy Regulator, after the AER endorsed our economic assessment for the project in February 2019. While the overall project cost is \$181.8 million, ElectraNet requires a lesser amount of \$166 million, as the project will allow us to defer or replace several other projects for which we have already received funding.

This was approved by the Australian Energy Regulator on 20 August 2019.

Customer benefits

While helping to support a reliable power system, installing synchronous condensers will also avoid the need for costly compensation payments to be made to gas generators when directed by AEMO to provide supply during times of system strength shortfall.

Instead, installing synchronous condensers is estimated to deliver a net cost saving equivalent to \$3 to \$5 per year on a typical South Australian residential electricity bill, after allowing for the cost of their installation, and correspondingly more for larger customers.

Contact Us

For more information please contact ElectraNet.

☎ Phone **1800 243 853**

🖱 Visit us online **electranet.com.au**