Media Release

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Arrival of more key equipment marks leap forward for the energy transition

Australia's largest electricity project EnergyConnect has taken another leap forward with the arrival of key components of two synchronous condensers.

EnergyConnect will allow energy to be shared between NSW, South Australia, and Victoria and enable the connection of more new renewable generation.

Transgrid and construction partner Elecnor Australia are building the 700-kilometre NSW section of the project from Wagga Wagga to the South Australian border, and a connection to Red Cliffs in Victoria.

The 120MVAr synchronous condensers will sit at the heart of the project to help maintain voltage on the transmission network and provide system resilience services such as inertia.

Each unit is designed to rotate at a speed of 750 rpm and generate inertia of 7 MWs/MVA.

Transgrid Executive General Manager of Major Projects Gordon Taylor said: "These condensers will play a key role keeping the grid stable as we build the energy superhighway to make Australia's transition to renewable energy possible.

"Construction is powering ahead on EnergyConnect, and we are getting on with the job of delivering this national critical project which will unlock greater renewable energy sharing between three states. This project is a key enabler for Australia's decarbonised future," he said.

Elecnor Australia Project Director Samuel Basanta Lopez said: "The world is watching as we transform Buronga into one of the biggest and most sophisticated substations in the Southern Hemisphere. It will act as the main hub for the connection between NSW, South Australia and Victoria.

"There has been impressive progress despite the huge engineering challenges. I'm immensely proud of what our team has achieved from the pouring of the foundations, to the steel in the synchronous condenser building, the installation of the gantry crane, and now the arrival of the synchronous condensers," he said.

The synchronous condensers were supplied by Andritz with components built in Austria, Spain and Brazil. They were shipped to Melbourne before a three-day road journey to Transgrid's Buronga substation near Mildura.

Transgrid's Electrical Site Manager Jason Scott said: "This is a huge milestone having them arrive on site and is a big step in the project moving forward. The condensers will form the backbone for stability throughout the new substation.

“A massive logistical effort was required with four prime movers needed to transport the two lower halves of the condensers which weigh 110 tonnes each and the rotor units which weigh 85 tonnes,” he said.

The machines will now undergo five months of commissioning and testing.

Elecnor Australia Electrical and Installation Manager Darren Parkinson said: “The condensers are very important to Australia’s renewable targets as we start bringing new solar and wind farms onto the transmission network.

“It’s great to be involved in something so big and complex which makes the project extremely interesting to all the engineers and everybody on the project,” he said.

The synchronous condensers will be housed in a 60m long 1200m^2 machine hall manufactured in Geelong by Thornton Engineering.

Delivery teams on site battled rain and high winds and worked tirelessly to install cladding on the machine hall so the condensers would be protected from the elements and dust.

The foundations for the condensers required 1,700 cubic metres of concrete which had to be poured in two all-night operations earlier this year.

The machine hall includes a 130-tonne bridge crane that played a critical role in the assembly of the synchronous condensers on site.

The lift and installation of the equipment was achieved safely and on time thanks to collaboration between Crane Systems Australia, George Rydel, and B&M Dorrington.

The 16ha Buronga site will be one of the most complex in the Southern Hemisphere for technology and engineering with equipment including:

- Five 200MVA phase-shifting transformers
- Four 330kV 60MVAr shunt reactors
- Two 120MVAr synchronous condensers
- Two 120MVA 330/12kV step down transformers
- Three 200MVA 330/220kV power transformers
- Two 330kV 52MVAr capacitor banks

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