

# Unlocking new revenue and stabilising large electric grids with energy storage

## e-mesh PowerStore high-power grid-forming inverters



Unlock new revenue for your network. Stabilise your grid. Reduce curtailment of local renewable generators. Provide continuous power to businesses and residences.

Here's how ABB Grid Edge Solutions use microgrid functionalities to make it possible to make smarter investments in your network.

ABB Grid Edge Solutions provide unique high-value services that can unlock new revenue for your network. These services, including black start, fast power injection, virtual inertia, fault current injection, seamless islanding, and voltage control are a few of the ways that ABB is leading the way in pioneering new solutions that keep electricity flowing.

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With ABB's e-mesh solution, the Dalrymple BESS drastically reduced outages from 8 hours to 30 minutes within its first 6 months of operation.

A recent project in South Australia, delivered for the state's high-voltage transmission network owner ElectraNet, demonstrates how ABB's e-mesh™ Automation and Control solutions work together with ABB PowerStore™ to operate as a Virtual Synchronous Machine to provide virtual inertia to strengthen the network. PowerStore further unlocks the power of battery energy storage with its Virtual Generator Mode to improve reliability and resilience in the network.

The project brings in new revenue streams from both improving network operations and selling services in energy markets. With ABB's e-mesh solution powering the Dalrymple BESS, the Energy Storage for Commercial Renewable Integration (ESCRI) project

drastically reduced outages from 8 hours down to 30 minutes within its first six months of operation. The solution improved local network reliability to minimise renewable curtailment, maximise reliability, and reduce operating costs.

### PowerStore reduced outages 93%

The Dalrymple BESS began serving more than 100 km of radial feeders in South Australia's lower Yorke Peninsula in late 2018. Prior to the e-mesh solution, local energy consumers were exposed to reliability issues due to frequent lightning strikes.

ABB's 30 MW e-mesh PowerStore with intelligent control and automation was a key technology for the Dalrymple BESS. The e-mesh solution limits curtailment from the 91 MW Wattle Point Wind Farm and distributed rooftop solar panels. It also enables the local network to seamlessly island when required. While islanded, customers in the local network continue to receive secure, reliable power from 100% renewable sources.

The e-mesh solution enables value stacking to the power grid:

- Ancillary services, including frequency and voltage support
- Provide energy services in the national market
- Secure, autonomous operation of the local network
  - Grid-forming inverter featuring proprietary Virtual Generator Mode for seamless transition to island
  - Reliable, resilient power for local network customers
  - Reduced wind farm and distributed rooftop solar PV curtailment
- Black start capability

## Commercial success where reliability meets renewables

Whether enabling reliable renewable power to local consumers, or providing support to the regional grid, ABB Grid Edge Solutions make electric networks stronger, smarter, and greener. As a result, the ESCRI project delivers significant revenues from the high value it provides to the local Yorke and regional South Australia grids.

## Bring the success of the Dalrymple BESS to your network

ABB is a pioneer in energy management, with 30+ years of experience in microgrids and energy storage solutions and an installed base of more than 470 MW across over 170 installations globally. ABB's Grid Edge Solutions serve a wide range of customers including remote communities, islands, utilities, commercial and industrial sites and renewable operations.

The Grid Edge Solutions e-mesh portfolio includes battery energy storage solutions, microgrid functionalities, an energy management system, advanced control and automation, SCADA, and monitoring applications. The e-mesh portfolio enables optimisation of energy production, improves reliability and resilience of power networks, and increases profitability while reducing both CO<sub>2</sub> footprint and operational costs.

## See for yourself!

See real-time operations of the ABB PowerStore in the Dalrymple BESS at <https://www.escri-sa.com.au/>

