New South Wales, Australia

Wärtsilä and Origin deliver Australia's largest energy storage system

The multi-stage, 700 MW / 3.16 GWh Eraring BESS supports system strength, firming, and the retirement of Australia's largest coal plant.

Partner

Origin, one of Australia's leading energy companies, generates and delivers energy to over 4 million people. As Australia's largest energy retailer, they have an important role to play in providing electricity, natural gas, solar, and liquid petroleum gas to communities across Australia.

Supporting New South Wales' energy reliability as coal exits the system

Australia is undergoing one of the world's most ambitious transitions to renewable energy, and the pace of change is placing pressure on the electricity system. With the phase-out of coal-fired generation – historically the backbone of New South Wales' reliability – the region faces an urgent need for large-scale energy storage to ensure grid stability and reliability. Meeting this challenge is essential to maintain system strength, avoid reliability gaps, and ensure the National Electricity Market (NEM) can function through this transformation.

Delivering the Southern Hemisphere's largest battery to support renewables at scale

Wärtsilä Energy Storage partnered with Origin to deliver the Eraring Battery Energy Storage System (BESS) – the largest energy storage project in the Southern Hemisphere. The system, totaling 700 MW / 3,160 MWh, is being developed in four stages, presented on the next page.

The challenge	Wärtsilä solution	Benefit
• Partially replace Eraring's coal plants with advanced battery energy storage solutions • Ensure grid stability and reliability as intermittent renewable energy sources are added onto the grid • Support Australia's ambitious goal to achieve net-zero emissions by 2050	• The modular architecture of Wärtsilä's GridSolve™ Quantum and Quantum High Energy systems improves constructability, simplifies onsite installation, and will support efficient expansion as the project scales • The GEMS platform manages and optimises multi-GWh assets by processing millions of datapoints in real time to ensure safe, reliable, and efficient operation. • Customised noise solution to meet stringent site-specific requirements	• Boost renewable integration with advanced grid services • Reduce system-level costs while ensuring safety and scalability • Support Australia's energy transition and provide firming capacity and stability to the National Electricity Grid as coal-fired generation is phased out

Stage 1
460 MW / 1,070 MWh using Wärtsilä's Quantum BESS and control and optimisation software, GEMS.

Stage 2
Added 240 MW / 1,030 MWh with Quantum High Energy storage system, enabling grid-forming capabilities.

Stage 3
Increased capacity to 700 MW / 2,800 MWh for extended energy dispatch.

Stage 4
Fourth expansion to 3,160 MWh total capacity. Key technologies include Wärtsilä's modular Quantum systems for high energy density and fast deployment, and the GEMS platform for real-time monitoring, control, and grid support. Wärtsilä also implemented tailored, site-specific noise mitigation and secured a long-term service agreement.

Enabling a stable, secure, and accelerated clean energy transition

Once complete, the Eraring Battery Energy Storage System will deliver critical grid services that maintain energy security and reliability in New South Wales. It will enable the dispatch of stored energy for extended periods, which is essential for supporting the integration of renewable energy sources into the grid. The system will power approximately 150,000 households annually when cycled daily, providing increased reliability to consumers.

Stages 2 and 4 of the project will enhance system strength and stability through a grid-forming operating mode, incorporating Virtual Synchronous Machine (VISMA) capabilities that provide synthetic inertia and reactive current support. Through this configuration, the Eraring BESS will play a key role in stabilising supply during periods of system variability.

Finally, the project marks a significant milestone in Australia's clean energy transition and sets a benchmark for large-scale battery storage globally.

Partner: Origin

Site location: Eraring battery facility, New South Wales, Australia

Capacity: 700 MW / 3,160 MWh

Solutions: Quantum energy storage system, GEMS platform, long-term service agreement

Delivery: 2025 (Stage 1 and 3), 2027 (Stage 2 and 4)

Related Resources

Wärtsilä sets new global benchmark with fourth stage of Origin's Eraring battery energy storage system

Wärtsilä to deliver one of the world's largest energy storage systems with third stage of Origin's Eraring battery project in Australia

Wärtsilä selected by Origin to deliver second stage of the Eraring battery in Australia, 240 MW / 1030 MWh

Wärtsilä selected as the preferred contractor to deliver one of Australia's largest energy storage projects

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