

Enabling Dynamic System Operations for Distributed Energy Resources

AT A GLANCE

Challenges

- Aging infrastructure
- Network Visibility
- Rising EV Demand
- Data Integration Complexity

Benefits

- Future-proofed Infrastructure
- Enhanced Monitoring
- Cost-effective Upgrades
- Improved Data Accuracy

OBJECTIVES

Ausgrid aimed to enhance monitoring for ground-mounted low-voltage (LV) network transformers across their extensive network in eastern Australia. As the largest distributor of electricity in the region, with 1.8 million customers and over 49,000 kilometers of lines, Ausgrid faced challenges related to aging infrastructure and growing demands for electric

vehicle (EV) charging and community batteries. The primary objectives included improving monitoring accuracy, reducing costs and enabling dynamic network pricing to better manage energy resources. This involved transitioning to Dynamic System Operation (DSO) functions, emphasizing real-time data and advanced grid operational requirements.



APPROACH

- **Long-term Equipment & Data Supplier Collaboration:** Partnered with Edge Zero to roll out LV monitoring for 50% of overhead transformers by 2030.
- **Robust Monitoring:** Ensured network visibility with enhanced data accuracy, especially at critical times and locations.
- **Dynamic Pricing Implementation:** Supported transition to DSO functions with dynamic pricing reflecting real-time conditions.
- **Consumer Energy Resource Integration (CERI):** Utilized Ausgrid's network to safely, efficiently and equitably enable distributed Consumer Energy Resources (CER).

RESULTS

The initiative successfully positioned Ausgrid to meet its ambitious goal of transitioning to a DSO future by 2030, with key advancements in monitoring and dynamic pricing. The project aimed to reduce the cost of connecting EVs by 50% and deliver 620,000 customer energy resources by 2029. By focusing on network visibility and data accuracy, Ausgrid was able to better manage grid operations, contributing to safer and more efficient energy use. The rollout of LV monitoring and the enabling of DER hosting services supported Ausgrid's broader strategy of facilitating net zero goals while enhancing customer and stakeholder satisfaction.

WHAT'S NEXT?

Ausgrid's project showcased how dynamic pricing can help facilitate participation of clean energy solutions such as solar, battery and EV in the energy market while remaining within distribution network capacity limits. The DSO vision to increase customer DER hosting and enable network services to avoid augmentation will be underpinned by efficient real-time LV monitoring and analytics.