

# Planning the Grid of the Future with Distributed Energy Resources

## OBJECTIVES

Endeavour Energy aimed to leverage technology and data to innovate the grid of the future, integrating batteries, microgrids and solar with the traditional distribution network. They sought to enhance network visibility of power quality and develop robust data infrastructure for dynamic operations.



### Requirements:

- Near-term network visibility of power quality including voltage to allow DER hosting
- Long-term Data Infrastructure to enable DSO dynamic operations

## APPROACH

- **Deployment Strategy:** Endeavour Energy engaged Edge Zero to implement network-wide low-voltage (LV) monitoring, targeting 1 in 3 pole-top transformers by 2030, equivalent to a 1 in 75 customer ratio.
- **Complementary Integration:** The deployment complemented the existing Advanced Metering Infrastructure (AMI) deployments, which were projected to cover 50% of the network by 2030.
- **Data Utilization:** The monitoring provided foundational data to enable Distribution System Operator (DSO) functions, such as dynamic operating envelopes and network services for capital expenditure deferral.
- **Regulatory Alignment:** The approach aligned with Endeavour Energy's Regulatory Proposal 2024-2029, emphasizing the critical role of LV monitoring alongside AMI metering.

## RESULTS

Endeavour Energy's investment in LV monitoring, endorsed by the Australian Energy Regulator (AER), delivered an NPV of \$55.9M for distributed energy resource (DER) enabling projects. The solution provided significant operational and capital expenditure benefits, including enhanced voltage management, phase balance, grid augmentation, safety improvements, and increased system availability and reliability.

## AT A GLANCE

### Challenges

- DER Integration
- Network Visibility
- Long-term Data Infrastructure
- Future Scalability

### Benefits

- Enhanced Monitoring
- Improved Reliability
- Operational Efficiency
- Cost Savings
- Regulatory Alignment



"Across all DER targeted use cases for LV Visibility, a common minimum access requirement is 20-25% broad based visibility with increased visibility beyond this targeted to specific areas of the network with high DER utilisation."

**Regulatory Proposal**  
2024 - 2029