

PXiSE Energy Solutions

Overview

PXiSE Energy Solutions is a leading grid controls technology company with over 1 GW of projects across three continents including Australia, Asia, and North America. We empower utilities, developers, and asset owners to manage their energy resources and energy delivery more reliably and efficiently with renewable power plant controls, distributed energy resource management systems, and microgrid controllers. The PXiSE team has a deep bench of collective utility power system, software, and controls experience that we draw on to support our customers. Backed by 13 U.S. patents, our platform enables both a market-based approach and directly controlled DER integration philosophy. PXiSE's leading software assists utilities shifting from centralized grids with one-way power to a more dynamic, high-speed two-way grids that use autonomous controls to achieve a harmony of resilience, safety, efficiency, and cost-effectiveness.

Project EDGE DER Marketplace

Australia's energy ecosystem is rapidly transforming into a more decentralized and two-way energy system, driven by the country's worldwide leadership in household and commercial solar generation and energy storage capabilities. The increasing DER presence in the Australian market presents both technical challenges and opportunities that AEMO intends to address through its DER Program. A DER Marketplace is one solution AEMO is exploring as it adapts its market systems and operation capabilities to support Australia's evolving energy distribution system.

As experts in two-way grid control technology, PXiSE Energy Solutions is providing software that will act as the market intelligence hub driving the DER Marketplace. This integrated software solution will enable the trading of distributed energy services between buyers and sellers in a trial entitled "Project EDGE" being conducted in the National Electricity Market (NEM) in Victoria.

PXiSE software addresses requirements in the DER Marketplace for both wholesale market services and local network support services with a set of market business rules and participation by aggregators according to operational limits published by the Distribution Network Service Provider (DNSP). It will enable DER resources to meet both wholesale and local electricity needs, through wholesale real-time balancing, bid-clearing, verification, and reporting.

This groundbreaking DER Marketplace aims to achieve several "firsts":

- First market/system operator and distribution system operation collaboration to demonstrate DER delivering services using dynamic operating envelopes to ensure DER operate within a

predetermined capacity. This will ensure reliability of the distribution network while maximizing available DER participation in the market.

- First in the industry to integrate and dispatch DER to simultaneously provide services for wholesale and local network requirements such as non-wire alternatives (resulting in capital deferral) and low-energy reinforcement needs (addressing outages and voltage problems).
- First to demonstrate economically optimized operating envelopes and security-constrained energy dispatch using DER.
- First to demonstrate a cloud-based DER Marketplace solution designed to scale.

A Complete Solution

The market continues to shift from primarily large power plants to decentralised smaller-scale consumer-owned generation. In order to facilitate DER participation, market operators need increased visibility into DER availability across their networks.

PXiSE's solutions take into account how DER can maximize value in the wholesale market while satisfying the local service needs of distribution network service providers. Our technology selects the distributed resources to dispatch according to a set of business and market rules. This includes security constrained energy dispatch, and economically optimized capacity allocation at the distribution-network level, providing a reliable and cost-effective energy resources dispatch tool to meet dynamic system demands.

Combining this market-based approach with PXiSE's proven ability to coordinate resources and operate the modern grid through fast and accurate advanced controls, we provide a complete solution for any market in the world--from a direct control solution at a single utility to a regional grid with an organized market model.

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