Grid-interactive Efficient Building Solutions

TECHNOLOGY: MelRok Energy IOT Touch Gateway
LABORATORY: Oak Ridge National Laboratory

TECHNOLOGY OVERVIEW
MelRok’s Energy IOT Touch (www.melrok.com) is a low-cost, OpenADR2.0B-compliant gateway that enables facility data gathering, fault detection, and bi-directional system control. GEB capabilities include energy optimization, load shed and load shift, and enhanced resilience. Ideal technology applications include buildings with the following characteristics:

- Medium commercial low-rise
- Existing Building Automation System (BAS)
- Utility demand charges, critical peak pricing, or variable TOU rates
- Engaged facility management staff
- Buildings with DERs

Demonstration Overview
Alternative Energy Systems Consulting (www.aesc-inc.com) will install the MelRok gateway, perform building retrocommissioning, and deploy a series of existing and new Python control algorithms (schedule based, predictive, and dynamic) to validate technology-enabled customer and grid benefits, including energy efficiency, demand cost savings through load shifting, and demand response (DR) benefits through load shedding.

FIELD VALIDATION SITE
Judicial Council of California (JCC) Appellate Courthouse

- Location: Santa Ana, CA
- Area: 52,000 sq. ft.
- Description: Constructed in 2009, rooftop DX HVAC units serving VAV boxes with hot water reheat. Natural gas-fired boiler for reheat. Johnson Controls automation system.
- Utility: Southern California Edison; Rate: SCE TOU GS-3-E rate
- DERs: 82 kW rooftop PV and 120 kW/240 kWh battery energy storage system planned.
- Expected GEB strategies: RCx, load shift, load shed, enhanced resilience.

Measuring Success
- Establish baseline and counterfactual operation.
- Evaluate impacts on energy and cost savings, load shed, load shift, and resilience capacity.

Learn more at betterbuildingssolutioncenter.energy.gov