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Presented by

Smart Panel Demand Response and Load Management Study

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Project Summary

- SDG&E®'s Smart Panel Demand Response and Load Management Study is examining the demand shed and shift potential of the smart panel devices under real world conditions.

- The study is leveraging a field demonstration project that has been initiated through CalNEXT, the statewide electric energy efficiency emerging technologies program, which is looking at the energy efficiency and electrification benefits of smart panels.

Technology Background

- Cross-cutting technology has potential to bring together energy efficiency, demand response, electrification, clean transportation and renewable energy benefits while responding to changing grid conditions

- Smart panels allow customers to monitor, understand their energy usage similar to dedicated energy monitoring services

- Smart panel functionality can enable the throttling or management of circuit-level power through software or programming

- The circuit-level control of the smart panel allows the system to shut off dynamic combinations of non-critical loads during demand response events

- The smart panels may also be able to help control the flow of renewable and stored energy for resiliency or load flex purposes

Project Overview

- Study will identify host sites to demonstrate smart panel capabilities, gather occupant and installer feedback, quantify costs and assess benefits

- Smart panels to be installed at up to five residential customer sites that replace or augment typical electric panels

- Tested configurations will depend on selected sites, but each will include accompanying measures enabled by the smart panel, such as a heat pump water heater, heat pump HVAC system, and/or EV charger

- Site recruitment is focused on sites that include photovoltaics (PV), energy storage, and/or smart loads in an effort to evaluate ability to control the Distributed Energy Resources (DERs)

- Final report will outline qualitative and quantitative findings in support of market adoption, future research directions, and/or program design

Potential Research Questions

- Can smart panels allow dynamic control of critical loads by controlling circuit ampacity?
- Do smart panels allow unwanted circuits to be turned off during an event or outage?
- Can smart panels allow for dynamic control of certain non-critical loads during a demand response event?
- Can smart panels manage PV and/or energy storage systems?
- How do customers interact with smart panels and utilize energy data monitoring functionality?

Project Status and Next Steps

Status

- Project contracted in Q3 2024
- SDG&E and vendor are working with installation contractor to identify and recruit customer sites
- Multiple smart panel manufacturers have expressed interest participating in study

Next Steps

- Customer site recruitment expected to be complete in Q4 2024
- Smart panel installations and provisioning expected to take place in Q1 2025
- Demand Response testing expected to take place thru 2025 DR Season
- Analysis and final report to be prepared in Q4 2025

This project is funded by
SDG&E's Demand Response - Emerging Technologies Program

For more information, contact Jeff Barnes at jbarnes@sdge.com.

The project report will be published to the ETCC web site
upon completion (tentatively Q1 2026).

Related Projects

Residential Smart Panel Field Demonstration / ET23SWE0061:
https://etcc-ca.com/reports/residential-smart-panel-field-demonstration

Laboratory Evaluation of Residential Smart Panels / ET24SWE0039:
https://etcc-ca.com/reports/laboratory-evaluation-residential-smart-panels

Smart Electrical Panel Market Characterization Study / ET21SCE0015:
https://etcc-ca.com/reports/smart-electrical-panel-market-characterization-study

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