

DRET

Demand Response | Emerging Technologies

The **Demand Response Emerging Technologies (DRET)** collaborative facilitates the deployment of innovative new demand response technologies, software and system applications that may enable cost-effective customer participation and performance in California's demand response programs and wholesale market resources.

The DRET collaborative benefits electricity ratepayers from the state's three largest investor-owned utilities and is authorized by the California Public Utilities Commission (CPUC) through 2023.

Full reports of these highlighted projects can be found at www.dret-ca.com.



SCE

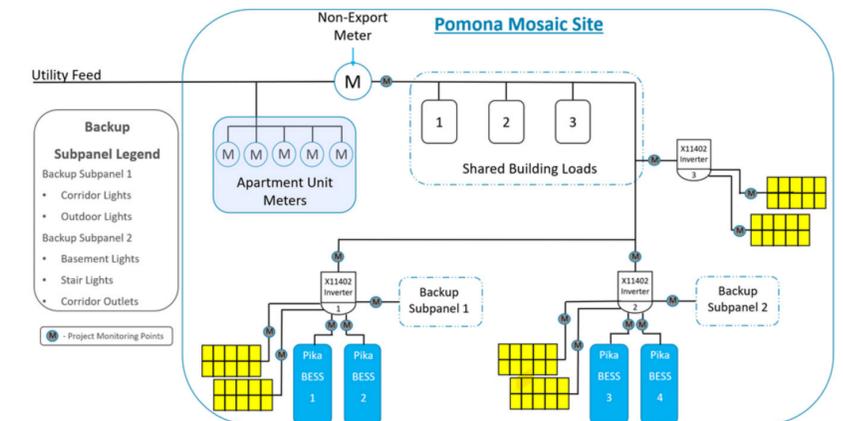
POMONA MOSAIC GARDENS ENERGY STORAGE PILOT

- Qualified income apartment building
- Four battery energy storage = 60 kW
- Two solar arrays = 34 kW capacity
- Two 11.4 kW smart inverters connect to batteries and PV systems with a third inverter operating in solar-only mode



PRIMARY OBJECTIVES

- 1 Demonstrate how customer storage can be leveraged
- 2 Quantify impacts to customers
- 3 Quantify impacts to grid stakeholders



KEY LEARNINGS

TOU AND SELF-SUPPLY BATTERY MODES WITH EFFECTIVE LOAD MONITORING ALLOW:



GREATER UTILIZATION OF STORED BATTERY ENERGY



MINIMIZE POWER TAKEN FROM THE GRID

BATTERIES DISCHARGING DURING ON-PEAK PERIODS



MORE ECONOMIC VALUE TO THE CUSTOMER

COLLABORATION OF BACKUP LOAD DESIGN WITH BESS IMPLEMENTATION CREATES STACKED BENEFITS OF OUTAGE RESILIENCE AND LOWER PEAK GRID DEMAND

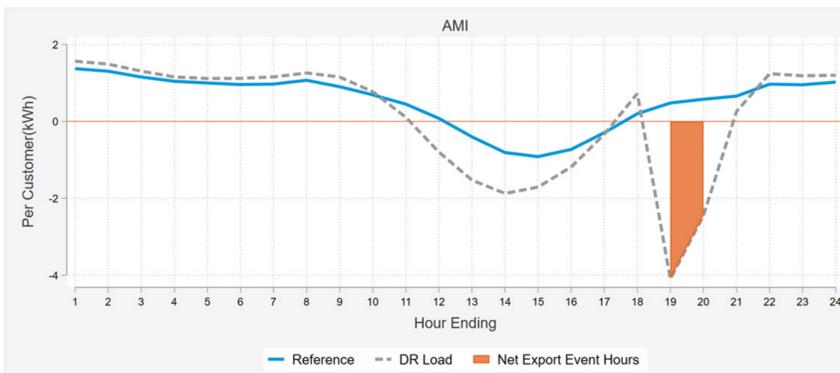
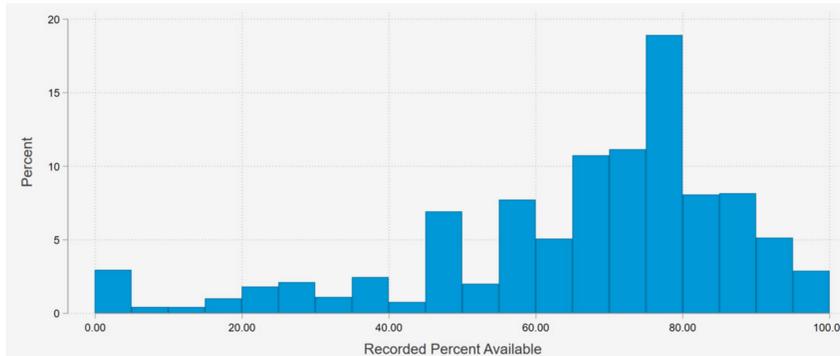
POWERWALL HOME BATTERY SYSTEM AS A VIRTUAL POWER PLANT

PG&E

Battery Study to see if customers' Powerwall home battery systems can create a virtual power plant to support state electric grid reliability in times of high electricity demand. Research areas:

- Customer enrollment
- Load impacts
- Flexible/controllable resource
- Sub-meter vs. household impacts
- Net discharge to grid
- Consecutive event performance
- Full export capability
- EM&V vs settlement results

On average, Tesla participants made 65% battery storage available for dispatch.



During events, batteries exported to grid, not just offset household use.

RESULTS

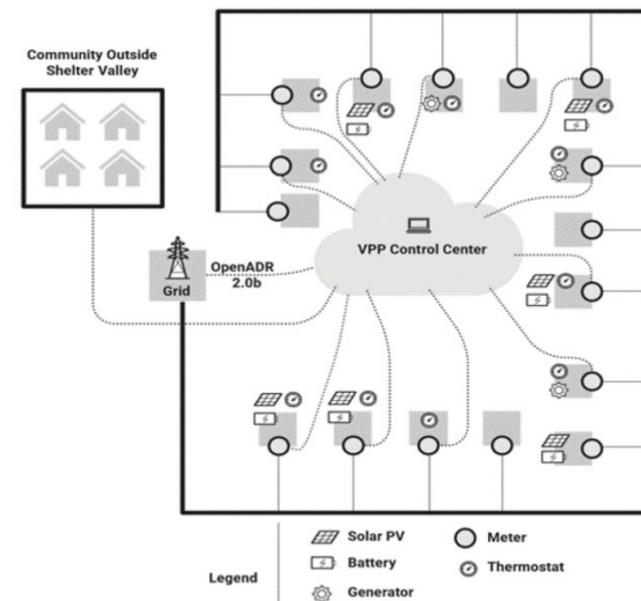
- The batteries delivered consistent dispatch across multiple event days
- Participants highly concentrated in the Bay Area and more likely to be on EV TOU rates
- Settlement impacts are comparable to EM&V Impacts, but were 5% higher on average



SHELTER VALLEY VIRTUAL POWER PLAN

SDG&E

Pilot designed to help strengthen community resilience, electric energy reliability, and emergency preparedness in an unincorporated community located in East San Diego County that is prone to outages and Public Safety Power Shutoffs (PSPS).



Primary Use Cases

1. Curtail load and dispatch storage generation during peak
2. Community resiliency for Public Safety Power Shutoff event mitigation
3. Generac Grid Services' "Concerto" platform
4. Devices installed in single family homes and Community Center



Pilot Status

- Customers engaged via community meetings/events, email, postal mail
- Contractors conducted site visits
- Developed resource mix based on community characteristics
- Customers agree to monitoring of energy usage and control of devices
- Successfully signaling installed devices since Q4 2022 - extended through 2023 Demand Response season