Current SCE EPIC Transportation Electrification Projects

Three current EPIC III projects involve transportation electrification with technical implementation of various use cases

- All three moved into execution earlier this year

1. **Service Center of the Future**
   - Fleet and building electrification at facility level, storage, PV, FMS, GMS, DERMS

2. Vehicle to Grid Integration – V2G, light duty, heavy duty

3. Distributed Charging Resources – Presented 9/24
   - Batteries connected with fast chargers, EV Energy Management Systems
Service Center of the Future: Bus Transit Fleet Depot Electrification

• Working with L.A. Metro on first fleet depot electrification, Division 9, El Monte
• As Metro acquires and deploys electric buses, work with Charge Ready Transport on integrated charging infrastructure with project elements:
  • Site energy controller: Microgrid Control System (MCS)
  • SCE energy storage battery (ESIP)
  • Building energy management system – electric HVAC, hot water
  • Electric bus charge management system (LA Metro)
  • EV charging submeters
SCOF Project Elements

- SCE Grid Management System
- DERMS
- Building Electrification
- Energy Storage Controller
- Charging Management System
- Submeters
- Conduit and Wires
- Electric Vehicles
- Energy Storage
- Distribution Grid
- Utility Energy Storage
- Building Management System
- Meter, Panel and Switchgear
Objectives and Use Cases

**Demand Response**
- Microgrid control system (MCS) to communicate and manage demand response (DR) events
- Building management system (BMS) to optimize building energy usage
- Charging management system (CMS) to contain EV peak demand

**Grid Support**
- MCS to support over/under voltage conditions using ESS and controls
- MCS to charge/discharge ESS to support grid capacity needs

**Resiliency**
- MCS to manage island formations
- MCS to manage grid re-synchronization

**EV Charging Management**
- CMS to optimize EV charging schedule, satisfying requirements of fleet operation while minimizing electric fuel cost
Challenges and Value Delivered

- Demonstrate alternative service option and real/controlled capacity needs
- Integration of fleet operational control strategy with site and grid energy management systems
- Secure communication between microgrid and third-party DERs
- Interconnection of ESIP storage system and battery management functions (grid side, customer side, generation, distribution)
- Siting of storage and infrastructure components on customer property and consideration of operational needs, configuration, switching
- Outage resiliency of bus charging with energy storage
- Demonstrate advanced metering options and back office systems
- Learnings to enable further deployment of such technology and lower the cost and time required for large-scale fleet electrification