



# Transactive Energy Challenge Kickoff

## Workshop: Resilient Energy (Microgrid)

- **Area of Interest:** Enabling Resilient and Fault Tolerant Distributed Energy Systems through Transactive Energy
- **Functionality / Capabilities:** Microgrid with intelligent critical load management and balancing. Optimization through grid (wide area) and premise (local area) resource service bidding.
- **Proposed Scenario:** Model and predict performance of a medium sized commercial microgrid in both connected and islanded state of operation.
- **Impacts/Why:** Help to demonstrate viability of TE architecture/platform to offset initial infrastructure costs (through monetizing grid services) and also core TE applications to scale down to smaller islanded operation (critical load balancing).
- **Partners Needed:** Software simulation, energy storage system vendor, building controls company



# Transactive Energy Challenge Kickoff Workshop: Vehicle-Solar-Grid (VSG)

- **Area of Interest:** Allowing Grid-Interactive EVs to present their available battery storage capacities to market services
- **Functionality / Capabilities:** Bidirectional power flow controlled by optimizing economic algorithms. Evaluate logical aggregation of roaming (ie non-home connected) EVs and prediction of load diversity and variability.
- **Proposed Scenario:** Model and predict performance of a medium sized commercial EV fleet that has predictable drive time duty cycles and known tethered charger availability. Demonstrate V1G, V2G, demand responds, peak shaving, frequency regulation and spinning reserve. Identify optimal kW power level for bidirectional inverter sizing.
- **Impacts/Why:** Help to demonstrate viability of VSG with premise-based solar PV smart inverters and other local DER components. Identify constraints on flexibility for system wide resource aggregation.
- **Partners Needed:** Controls company, vehicle manufacturer, wholesale market participants.