California ISO

FAST FACTS

Large Scale Energy Storage Pilots

Although not all energy storage projects may be suitable for participation in grid management, the ISO welcomes exploring its participation in stored energy resources that demonstrate a potential to meeting the ISO's reliability requirements. Pilot projects underway with large-scale grid potential include the following:

- Department of Defense, Los Angeles Air Force Base Vehicle-Grid Integration
  - 525 kilowatt (kV) electric vehicle aggregation
  - Status: progressing through the Southern California Edison and California ISO resource interconnection processes with a goal of market participation by the end of 2014
  - Benefits: support greater optimization of preferred renewable resources such as wind, solar
- Pacific Gas and Electric Company – Sodium Sulfur Battery, Vaca Dixon
  - 2 MW, 14 megawatt-hour (MWh) sodium sulfur (NaS) battery
  - Status: first battery storage resource providing regulation services to the ISO market
  - Benefits: regulation energy management for grid balancing services
- Pacific Gas and Electric Company – Sodium Sulfur Battery, San Jose
  - 4 MW / 28 MWh battery to test telemetry and battery efficiency
  - Status: Currently in development with a goal for ISO market participation by end of 2014. PG&E is developing a new metering design based on ISO discussions which will allow battery to support distribution level services in addition to wholesale market participation.
  - Benefits: can provide energy and ancillary services; voltage support at distribution level; micro-islanding support for local research center
- Southern California Edison – Wind Energy Storage Project
  - 8 MW, 32 MWh lithium-ion battery in Tehachapi area
  - Status: batteries are in ISO interconnection queue with market participation expected in late 2014 or early 2015
  - Benefits: Firming renewable generation; frequency regulation; spin/non-spin replacement reserves; ramp management and energy price arbitrage
- University of California, San Diego – Microgrid Storage
  - 42 MW microgrid is part of a pilot project between San Diego Gas & Electric and UC San Diego.
  - The ISO is collaborating with UCSD on a microgrid whitepaper documenting how a microgrid resources can interconnect and be modeled for wholesale market participation.