



## San Diego Gas & Electric (SDGE) Borrego Springs MicroGrid

### Project Description

San Diego Gas and Electric (SDG&E) will conduct a pilot scale proof-of-concept test in San Diego, California of how advanced GridWise™ information-based technologies and DER may increase asset utilization and reliability of the power grid in a nationally scalable approach. The application of appropriate technologies in an integrated fashion has the potential to allow more power to be delivered through existing infrastructure and reduce the need to build more in the future.

### Goals/Objectives

- Achieve > 15% reduction in feeder peak load through the integration of multiple, integrated DER – distributed generation (DG), advanced energy storage, and price driven load management
- Demonstrate capability of Volt-Amperes-Reactive (VAR) management - coordinating the DER with existing VAR management/compensation tools.
- Demonstrate 'self-healing' networks through the integration of Feeder Automation System Technologies (FAST) into microgrid operations
- Demonstrate the integration of Advanced Metering Infrastructure (AMI) and Outage Management System/Distribution Management System (OMS/DMS) into microgrid operations
- Demonstrate the capability to use automated distribution control to intentionally island customers in response to system problems

### Key Milestones

- Integration of Existing Distributed Generation (DG) and Volt Ampere Reactive (VAR) (began demonstration activities in November 2011)
- Integration of Feeder Automation System Technologies (FAST) (began functionality test cases in March 2013)
- Integration of advanced energy storage (conducted initial demonstrations in October 2012)
- Integration of Outage Management System (OMS) for Microgrid (September 2012)
- Integration of Price-Driven Load Management (PDLM) (February 2013)

### Benefits

- Improved stability of a microgrid
- Improved effective capacity of feeder/substation
- Improved visibility into the operation of a microgrid

### CONTACTS

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### PARTNERS

Pacific Northwest National Lab  
University of San Diego  
California Energy Commission  
Lockheed Martin  
Xanthus Consulting Int'l  
Horizon Energy Group  
SAFT  
S&C Electric Co.  
Oracle

### PROJECT DURATION

10/01/2008–9/30/2013

### BUDGET

#### Total Project Value

\$12,399,925

#### DOE/Non-DOE Share

\$7,477,811/\$4,922,114

### EQUIPMENT

Distributed Energy Resource (DER) and VAR  
Feeder Automation System Technologies (FAST)  
Advanced Energy Storage (AES)

### DEMONSTRATION STATES

California  
CID: DE-FC26-08NT02870

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