



Pacific Gas & Electric Company Advanced Underground Compressed Air Energy Storage

Project Description

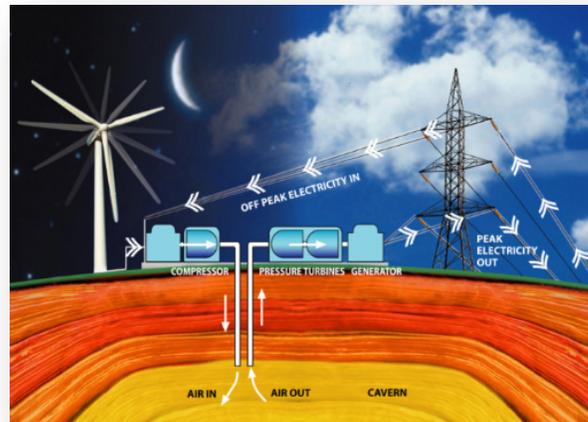
Pacific Gas & Electric (PG&E) will validate the design, performance, and reliability of and, build an advanced, underground Compressed Air Energy Storage (CAES) plant in California, using a porous rock formation as the storage reservoir. The CAES plant will be approximately 300 MW with 10 hours of storage. Porous rock formations are much more plentiful than the salt domes now used by the two operational plants in Alabama and Germany. If this geology is proven viable, this technology has the potential to be replicated throughout California and elsewhere in the United States. The project is also differentiated by its potential use of a new CAES plant design that is much more efficient than first generation Alabama and German designs. Furthermore, an experimental and innovative aspect of this project will involve an option for future use of thermal storage to test the potential of adiabatic CAES, a "third-generation" technology that would completely eliminate the use of fuel for a CAES plant.

Goals/Objectives

- Verify the technical performance of advanced CAES technology using a porous rock formation as the underground storage reservoir
- Integrate intermittent renewable resources
- Maintain emergency spinning/non-spinning reserve and perform volt-ampere reactive/voltage support

Key Milestones

- Preliminary CAES Facility Site Selections (January 2012)
- Construction Complete (December 2016)
- Approximately 475 jobs created or retained during facility construction
- Approximately 25 permanent jobs created to operate the facility
- Lower electricity costs
- Greenhouse gas emissions reduced
- Grid reliability improved



CONTACTS

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PARTNERS

Electric Power Research Institute

PROJECT DURATION

1/01/2010–12/31/2018

BUDGET

Total Estimated Project Value
\$355,938,300

DOE/Non-DOE Share
\$25,000,000/\$330,938,300

EQUIPMENT

HP/LP Expander Generator
Air-Air Heat Exchanger/Recuperator
Air Compressors
Combustion Turbine

DEMONSTRATION STATES

California
CID: OE0000198

Managed by the National Energy Technology Laboratory for the Office of Electricity Delivery and Energy Reliability

