New York State Electric & Gas
Advanced Compressed Air Energy Storage

Project Description

New York State Electric & Gas (NYSEG) will build an advanced compressed air energy storage (CAES) plant with a rated capacity of 150 WM using an existing 4.5 million cubic foot underground salt cavern in Reading, New York. The plant is sited between the bulk of U.S. wind resources and the heavy population centers of the East Coast; it is the closest proposed underground storage asset to the New York and New England load areas. The plant will have the capacity to operate 16 hours a day and will provide energy arbitrage for approximately 2,300-2,500 hours each year. It will use off-peak electricity to compress air into the cavern. When electricity is needed the air will be withdrawn, heated, and passed through a turbine to drive an electric generator, burning one-third the amount of fuel compared to conventional combustion turbines. NYSEG's CAES plant will provide flexible generation capability to accommodate fluctuations in load. The plant will be tied to NYSEG's cross-state 230 kV/345 kV transmission system that feeds major metropolitan centers in Central New York. The 230 kV line is the recipient of a large proportion of wind power and is tied to the New York City load areas. It will provide redundancy in capacity, ensure against congestion and power fluctuations, and can provide improved power quality to the grid. Iberdrola USA, the parent of NYSEG, plans to conduct a feasibility study in the future to determine the ability to increase the plant's capacity to 360 MW or greater.

Goals/Objectives

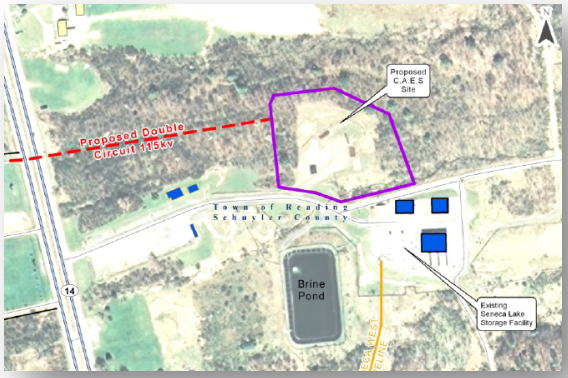
- Create storage and dispatch wind energy
- ***Refine CAES technology and approach***
- ***Integrate with New York's Smart Grid***
- ***Provide black-start capability***
- ***Accelerate commercialization of CAES plants***

Key Milestones

- Final Design, Construction, Testing, and Training completed (2012)
- Commissioning and Operations completed (2013)

Benefits

- Jobs created
- ***Electricity costs reduced***
- Grid reliability improved
- Carbon emission reduced
- ***Renewable energy resource***



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PARTNERS

Electric Power Research Institute

New York State Energy Research and Development Authority

PROJECT DURATION

1/1/10–12/31/14

BUDGET

Total Project Value
$125,006,103

DOE/Non-DOE Share
$29,561,142/$95,444,961

EQUIPMENT

Combustion turbine
Compressors
Heat exchanger/recuperator
Monitors/sensors
Transformers

DEMONSTRATION STATES

New York
CID: OE0000196

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