AEP Ohio
gridSMART[SM] Demonstration Project

Project Description

AEP Ohio and its partners are building a secure, interoperable, and integrated Smart Grid infrastructure in Ohio that demonstrates the ability to maximize distribution system efficiency and reliability, and consumer use of demand response programs to reduce energy consumption, peak demand costs, and fossil fuel emissions. The demonstration area includes 150 square miles including parts of Columbus, Bexley, Gahanna, New Albany, Whitehall, Reynoldsburg, Westerville, Blacklick, Johnstown, Alexandria, Minerva Park, and Pataskala. This area includes approximately 110,000 meters and 70 distribution circuits. AEP Ohio will implement Smart Grid technology over 58 13kV circuits from 10 distribution stations and 12 34.5kV circuits from six distribution stations. Included in this project is a new distribution management system (GE ENMAC), integrated volt-VAR control, distribution automation, advanced meter infrastructure, home area networks, community energy storage, sodium sulfur battery storage, and renewable generation sources. These technologies will be combined with two-way consumer communication and information sharing, demand response, dynamic pricing, and consumer products, such as plug-in hybrid vehicles.

Goals/Objectives

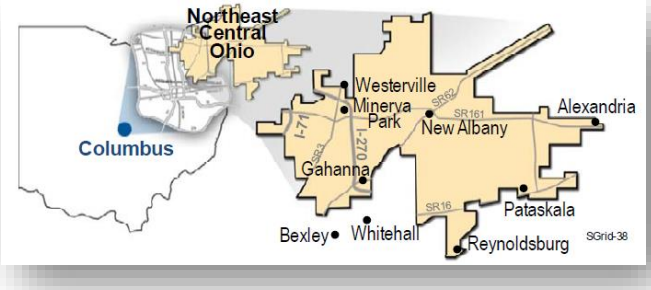
- Reduce energy demand by 15 MW; energy consumption by 18,000 megawatt-hours; CO_2 emissions by 16,650 tons; and save consumers an estimated $5.75 million over the length of the project
- Improve distribution system efficiency and reliability by 30-40 percent
- Integrate more than 100 kW of storage resources into the existing grid

Key Milestones

- 42 of 70 circuits have distribution automation installed (February 2011)
- Completed conversion and deployment of 10 Prius vehicles as PHEVs (March 2011)
- 70 circuits have distribution automation installed (January 2012)
- Install 4 Community Energy Storage Units (July 2013)
- Complete Data Collection (Jan 2014)
- Final Technical Project Report (April 2014)

Benefits

- Decreased energy costs, improved Smart Grid reliability, reduced energy consumption, lowered peak demand, and significantly reduced carbon emissions
- Lower risk of implementing new technologies into existing electrical networks
- Greater U.S. energy security from reduced oil consumption



CONTACTS

Ronald Staubly
Project Manager
National Energy Technology Laboratory
3610 Collins Ferry Road
Morgantown, WV 26507-0880
304-285-4828
Ronald.Staubly @netl.doe.gov

Karen Sloneker
Principal Investigator
AEP
850 Tech Center Drive
Gahanna, OH 43230-6605
614-883-6677
klsloneker@aep.com

PARTNERS

Lockheed Martin
UT-Battelle LLC
General Electric
S&C Electric Company
Schweitzer Engineering Laboratories, Inc.
Silver Spring Networks, Inc.

PROJECT DURATION

1/1/2010–12/31/2013

BUDGET

Total Project Value
$133,769,172

DOE/Non-DOE Share
$66,884,586/ $66,884,586

EQUIPMENT

Reclosers
Automated switches
Capacitors
Regulators
Mesh radios
DA logic software

DEMONSTRATION STATES

Ohio

CID: OE0000193

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

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