

Atlantic City Electric Company

SGIG Distribution Automation Project

Abstract

The Atlantic City Electric Company's (ACE) SGIG Distribution Automation project is deploying distribution automation assets, direct load control devices, and a wireless communications network. Direct load control devices are being offered that provide financial incentives for customers for allowing ACE to cycle air-conditioners or control thermostats during peak periods. Distribution automation devices, which include feeder monitors, equipment condition monitors, and automated feeder switches improve the reliability and power quality of the distribution system. These systems also reduce operation and maintenance costs as well as distribution line losses.

Smart Grid Features

Communications infrastructure includes a radio mesh network supporting both the distribution automation and the direct load control devices. The network includes data collectors (access points), mesh repeaters, and end devices. The data collectors connect via a point-to-multipoint network to radio towers on a fiber-optic network, which transmits the data to the head end system.

Direct load control devices include 25,000 air-conditioning load control switches. Participating customers can choose from a switch mounted outside near the air conditioning unit, or a programmable communicating thermostat installed in the home. Both devices cycle air conditioning units on and off in response to a wireless radio signal sent by ACE. The direct load control program includes a rebate for participating customers.

Distribution automation systems include automated feeder switches, capacitor controllers, transformer monitors, and electronic relays. Automated feeder switches and electronic relays work together to detect and isolate faults more precisely, and reduce the number of customers affected by the power outage. Monitors analyze the condition of transformer oil to help ACE know when to perform maintenance and avoid equipment failure before it causes a power outage. Together, these distribution automation technologies help improve reliability and operational efficiency.

Distribution system energy efficiency improvements involve the addition of automated controls on capacitor banks. These devices help ACE better regulate reactive power in the distribution system and manage power factors and voltages to tighter tolerances, improving power quality while reducing energy losses.

At-A-Glance

Recipient: Atlantic City Electric Company

State: New Jersey

NERC Region: ReliabilityFirst Corporation

Total Budget: \$37,400,000

Federal Share: \$18,700,000

Key Partner: Pepco Holdings

Project Type: Electric Distribution Systems
Advanced Metering Infrastructure and
Customer Systems

Equipment

- **Customer Systems for 25,000 Customers**
 - Programmable Communicating Thermostats
 - Direct Load Control Devices
- **Distribution Automation Equipment for 24 out of 339 Circuits**
 - Distribution Automation Communications Network
 - Automated Distribution Circuit Switches
 - Automated Capacitors
 - Equipment Condition Monitors

Key Targeted Benefits

- **Improved Electric Service Reliability and Power Quality**
- **Reduced Operating and Maintenance Costs**
- **Reduced Costs from Equipment Failures and Distribution Line Losses**
- **Reduced Greenhouse Gas and Criteria Pollutant Emissions**

Atlantic City Electric Company *(continued)*

Timeline

Key Milestones	Target Dates
Direct load control asset deployment begins	Q1 2010
Distribution automation asset deployment begins	Q2 2010
Distribution automation asset deployment ends	Q4 2013
Direct load control asset deployment ends	Q4 2013

Contact Information

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