Consolidated Edison Company of New York Inc. Secure Interoperable Open Smart Grid Demonstration Project

Project Description

The Consolidated Edison Company of New York and its sub-recipients are demonstrating a secure, interoperable, open Smart Grid that reduces electricity demand and increases energy reliability and efficiency. The demonstration project, in New York City and its New York and New Jersey suburbs, has one of the highest load densities in the world, representing a complex and diverse test bed, including critical organizations such as Wall Street, the Federal Reserve, major medical facilities, and hubs for national and global communications. Distributed thermal and battery storage, advanced metering infrastructure, home area networks, building management systems, photovoltaics, and smart electric vehicle charging have been demonstrated. The demonstrations have illustrated how data from disparate systems are securely communicated, integrated, and displayed to the control center operator through the use of decision-aid tools, thus helping operators identify problem areas and prioritize corrective action in both normal and contingency operations. Other new technologies developed include a rules-based dashboard for operators, a risk management engine to facilitate efficient operation, a transmission decision management engine that aggregates electricity supply data, an adaptive stochastic controller, and an intelligent maintenance system. It is anticipated that the technologies listed above will be scalable across urban utility territories nationwide.

Goals/Objectives

- Improve power quality and lower transmission and distribution losses
- Make power outages shorter and less frequent
- Lower operation and maintenance costs
- Protect secure sites and resources through Smart Grid cyber security
- Create a national blueprint for Smart Grid applications in urban underground networks

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Key Milestones

- Secure Communication Link between Con Ed and Viridity building control operations (January 2012)
- Target Indicating Sensors operating (March 2012)
- Integrated System Model Decision Aid (April 2012)
- Business Rules Knowledge Engine (September 2012)
- Middleware development complete (February 2013)
- Capstone demonstration (July 2013)

Benefits

- Job growth
- Savings for customers
- Reduced dependence on foreign oil
- Prevention of catastrophic security breaches
- Reduction in CO_2 emissions
- Increased diversity of energy generation

CONTACTS

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PARTNERS

Orange and Rockland Utilities Inc.
Siemens
TIBCO
Columbia University
The Boeing Company
Green Charge Networks
CALM Energy Inc.
New York City Economic Development Corporation
Rudin Management Company Inc.
Verizon Communications
Viridity Energy Inc.

PROJECT DURATION

1/4/2010–9/30/2014

BUDGET

Total Project Value
$92,388,217

DOE/Non-DOE Share
$45,388,291/$46,999,926

EQUIPMENT

Solar Modules
Inverter
Smart Storage Generation Units

DEMONSTRATION STATES

New York

CID: OE0000197

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