



Illinois Institute of Technology (IIT) *The Perfect Power Prototype for the Illinois Institute of Technology*

Project Description

Illinois Institute of Technology (IIT) in collaboration with Exelon, the Galvin Electricity Initiative (GEI), S&C Electric and other key partners (the team) propose to develop, demonstrate, promote, and commercialize a system and supporting technologies that will achieve "Perfect Power" at the main campus of IIT. This will be a self healing, learning and self-aware Smart Grid that identifies and isolates faults, reroutes power to accommodate load changes and generation, and dispatches generation and reduces demand based on price signals, weather forecasts, and loss of grid power.

Goals/Objectives

- Demonstrate a 20% permanent peak load reduction
- Demonstrate a 50% peak load reduction on demand
- Distribution system will have demand response capability and spinning
- Reserve capability
- Campus network distribution system is reliable in the case of a
- Single failure to a cable, switch, or substation feeder breaker
- Complete the Perfect Power system to reduce overall peak
- Demand and provide uninterruptible power to critical facilities using
- Local demand response resources, solar power, and battery backup

Key Milestones

- Advanced Distribution Automation and Recovery System demonstrated (September 2013)
- Buried Cable Fault Detection and Mitigation demonstrated (September 2013)
- Intelligent Perfect Power System Controller undergoing testing (November 2011)
- ZigBee Wireless for energy efficiency demonstrated (September 2013)
- Ancillary Service demonstrated (February 2011)
- Distribution System Automation demonstrated (August 2011)
- Distribution Level Peak Load Reduction demonstrated (December 2011)
- 50% Peak Load Reduction Capability demonstrated (September 2013)

Benefits

- Reduced energy usage and emissions
- Reduced peak load

CONTACTS

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PARTNERS

Galvin Energy Initiative
Illinois Institute of Technology (IIT)
Exelon
S&C Electric
Schweitzer Engineering
Endurant Energy

PROJECT DURATION

9/30/2008–9/30/2014

COST

Total Project Value
\$13,575,621
DOE/Non-DOE Share
\$7,648,682/\$5,926,939

EQUIPMENT

Communications Gateway
S&C Vista fault clearing switchgear
SEL relays
Remote Terminal Unit

DEMONSTRATION STATES

Illinois

CID: NT02875

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