Connecticut Municipal Electric Energy Cooperative

Connecticut Municipal Electric Energy Cooperative Smart Grid Project

Abstract

The Connecticut Municipal Electric Energy Cooperative Smart Grid project ("ConnSMART Program") involves the deployment of advanced metering and multiple pilot programs to introduce dynamic pricing to the customers of the four participating municipal utilities (Groton Utilities, Jewett City Department of Public Utilities, Norwich Public Utilities, and South Norwalk Electric and Water). The program aims to reduce customer electricity costs, peak demand, and utility operating costs. The program deploys about 22,000 smart meters and advanced metering infrastructure (AMI) communication networks to: (1) allow customers to view their energy consumption at their convenience through an energy Web portal and/or an in-home display, and (2) allow the participating utilities to manage, measure, and verify targeted demand reductions during peak periods. The communication and data management systems are aimed to provide enhanced wholesale power purchasing and forecasting capabilities, and ultimately a reduction in the cost of service for customers.

Smart Grid Features

Communications infrastructure includes several advanced network systems for smart meter communications and future integration with other smart grid technologies. This infrastructure provides participating utilities with two-way information feedback capabilities to collect data from, and send signals to, smart meters in the program. This two-way capability allows utilities to optimize energy delivery and system reliability and develop the capacity for expanded customer participation in existing and new energy management programs.

Advanced metering infrastructure includes a roll out of single-phase smart meters to 20,100 residential and small commercial customers as well as 1,900 poly-phase smart meters to larger commercial and industrial customers. These meters provide capabilities to support a variety of current and future customer electricity price and service options and seek to reduce the costs of electricity delivery. Operational cost savings come from meter reading and customer service efficiencies are enabled by automation and two-way communication networks. The AMI system is being integrated with existing outage management systems, distribution management systems, and customer information systems, enabling the utilities to

At-A-Glance

Recipient: Connecticut Municipal Electric Energy Cooperative (CMEEC)

State: Connecticut

NERC Region: Northeast Power Coordinating Council

Total Budget: $18,376,100

Federal Share: $9,188,050

Subrecipients: Groton Utilities, Jewett City Department of Public Utilities, Norwich Public Utilities, and South Norwalk Electric and Water

Project Type: Advanced Metering Infrastructure

Equipment

- 22,000 Smart Meters
- AMI Communications Systems
- Customer Systems for 3,000 Customers
  - Home Area Networks
  - Web Portals
  - In-Home Displays/Energy Management Systems
  - Programmable Communicating Thermostats
  - Direct Load Control Devices
  - Smart Appliances

Advanced Pricing Programs

- Dynamic Pricing (Tiered Critical Peak Pricing and Real-Time Pricing)

Key Targeted Benefits

- Reduced Electricity Costs for Customers
- Reduced Operating and Maintenance Costs
- Increased Electric Service Reliability and Power Quality
- Deferred Investments in Distribution Capacity Expansion
- Reduced Costs from Equipment Failures, Distribution Line Losses, and Theft
- Reduced Greenhouse Gas Emissions
- Reduced Truck Fleet Fuel Usage

Connecticut Municipal Electric Energy Cooperative *(continued)*

respond to outages and customer requests more efficiently.

Direct load control devices includes the piloting of new voluntary load control programs and the deployment of direct load control devices to customers requesting to voluntarily participate in the new device trials. The load control programs are intended to enable participating utilities to better manage peak loads and wholesale power costs while offering greater cost control (and potentially cost reduction) opportunities to their customers.

Advanced electricity service options include additional information services and energy management options provided to customers through pilot programs. This program is undertaking pilot-scale and voluntary deployments of energy management systems, home area networks and energy Web portals. These pilots facilitate two-way information feedback between participating customers and the utility while enabling these customers to better manage their electricity use and costs.

Advanced pricing programs include time variant and dynamic electricity prices combined with information feedback communicated to the customers by advanced meters and customer systems. Critical peak pricing and day ahead real-time pricing will be offered after the AMI and meter data management systems are operational and integrated with utility information systems. These voluntary opt-in pricing options are designed to encourage participating customers to reduce and/or shift their consumption from on- to off-peak periods and thereby provide the customer greater cost control and potential cost savings along with reducing overall peak demand, greenhouse gas emissions, and peak power use.

Timeline

Key Milestones	Target Dates
AMI/meter data management system deployment begins	Q4 2010
All AMI communications network operational	Q2 2011
All meter data management systems operational	Q4 2011
All pricing programs underway	Q4 2012

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