

Electric Membership Corp

Cobb EMC Smart Grid Program

Abstract

The Cobb EMC project includes the installation of a fully integrated advanced metering system across the service territory. The installation includes smart meters, enhanced communications infrastructure and availability of in-home displays and direct load control devices. The project aims to reduce peak electricity demand, overall energy usage, outage durations, and operations and maintenance costs. The project implements two-way communications and utility applications to: (1) allow customers to view their energy consumption at their convenience through the customer Web portal and in-home displays, (2) allow Cobb EMC to manage, measure, and verify targeted demand reduction, and (3) provide the utility with automated notifications indicating the scope and location of customer outages.

Smart Grid Features

Communications infrastructure includes a wireless radio frequency network that uses radio frequency spectrum licensed by the Federal Communication Commission. Wireless carrier backhaul solutions provide the backbone for energy management programs and allow for integration with distribution automation equipment, smart appliances, and home area networks. This scalable infrastructure provides opportunities to add future service offerings and further optimize electricity delivery, system reliability, and customer participation.

Advanced metering infrastructure (AMI) includes a system-wide roll out to all 192,226 residential and commercial customers. The advanced meters provide the capability for a variety of current and future customer electricity price and service options that when adopted by customers can contribute to reductions in Cobb EMC's wholesale generation and electricity delivery costs. Operational cost savings are derived from the automation of meter reading and customer services activities through both the AMI and meter data management system. New AMI features include outage and restoration notification and remote service switches so that Cobb EMC can respond to outages and

At-A-Glance

Recipient: Cobb Electric Membership Corp

State: Georgia

NERC Region: SERC Reliability Corporation

Total Budget: \$33,787,672

Federal Share: \$16,893,836

Project Type: Advanced Metering Infrastructure

Equipment

- 192,226 Smart Meters
- AMI Communication Systems
- Home Area Networks
- Web Portal access for All Customers
- 3,800 In-Home Displays/Energy Management Systems
- 40,000 Direct Load Control Devices
- Meter Data Management System

Advanced Pricing Programs

- Time of Use Pricing
- Dynamic Pricing (Critical Peak Pricing)

Targeted Benefits

- Deferred Investment in Generation and Generation Expansion
- Improved Electric Service Reliability and Power Quality
- Reduced Ancillary Service Cost
- Reduced Costs from Capacity Equipment Failures, Distribution Line Losses, and Theft
- Reduced Electricity Costs for Customers
- Reduced Greenhouse Gas and Criteria Pollutant Emissions
- Reduced Meter Reading Costs
- Reduced Operating and Maintenance Costs
- Reduced Truck Fleet Fuel Usage

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customer requests more efficiently. The AMI system is integrated with a meter data management system to support collection, analysis, and archiving of data for dynamic pricing programs, distribution system planning, reliability initiatives, and power quality enhancements.

Advanced electricity service options offered through the project include providing in-home displays to the first 3,800 customers who enroll in Cobb EMC’s dynamic pricing programs. In-home displays allow customers to view their electricity usage, electricity prices, and peak usage information to allow them to make more informed decisions regarding electricity use. The displays receive usage, pricing, and peak event information through Cobb EMC’s AMI and backhaul communications network. This facilitates two-way information flow between customers and the utility. The appliance enables customers to respond to and more efficiently manage their electricity use and costs.

Direct load control devices deployed by the project include 40,000 devices for customers who agree to allow Cobb EMC to cycle the use of air conditioning units during peak periods as part of a new load management plan. Customers receive rebate credits for contributing load reductions to the program. The direct load control devices verify load control events via two-way communication through AMI and backhaul networks.

Advanced pricing programs, including time of use and critical peak pricing rates, are being offered to residential and small commercial customers receiving smart meters—which represent more than 99% of Cobb EMC’s service territory. Customers who enroll in these pricing programs are able to access a self-service Web portal to receive information about their energy use. Cobb EMC is coupling pricing programs with information displays so that customers can optimize their energy use and help reduce peak demand and wholesale capacity charges. This helps to defer distribution infrastructure investments, resulting in a lower cost of service for all customers.

Key Milestones

Key Milestones	Target Dates
AMI/customer systems asset deployment begins	Q3 2010
AMI/customer systems asset deployment ends	Q4 2011
Pricing programs begin	Q1 2012

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