

Cobb Electric Membership Corporation

Cobb EMC Smart Grid Program

Scope of Work

The Cobb Electric Membership Corporation (Cobb EMC) project involved the installation of a fully integrated advanced metering infrastructure (AMI) solution across the service territory. Cobb EMC installed more than 194,195 smart meters, 12 new communication towers, and 15 Tower Gateway Base stations. The new two-way network infrastructure and meter data management system (MDMS) allow Cobb EMC to collect and process interval usage data for customers and improve outage management and power restoration efforts by integrating the AMI data and functionality into operational and maintenance procedures.

Objectives

The project's primary objectives were to significantly reduce operations and maintenance costs, improve outage management capabilities, and empower customers to more efficiently manage their energy consumption. The AMI solution enabled automated, remote meter reading, diagnostics, and troubleshooting, and peak load reduction through both time-based rate programs for customers and voltage regulation using AMI-enabled voltage monitoring.

Smart Grid Tools and Technologies

- **Communications infrastructure:** Cobb EMC deployed a wireless radio frequency (RF) network for meter communications and connected to a wireless service provider for the backhaul. This scalable infrastructure can be leveraged for future distribution automation and home area network applications and provides opportunities to add additional AMI service offerings.
- **Advanced metering infrastructure:** Cobb EMC implemented a system-wide rollout of 194,195 meters to residential and commercial customers. The advanced meters provide the capability for a variety of current and future customer electricity rate programs and other service options. New AMI features include outage and restoration notification and remote connect/disconnect capabilities. These features allow Cobb EMC to respond to outages and customer requests more efficiently. Although only 9% of Cobb's AMI meters currently have the remote service switches, these enabled meters represent 40% of all of Cobb's disconnects. The AMI system is integrated with an MDMS to support collection, analysis, and data processing for time-based rate programs, distribution system planning, reliability initiatives, and power quality enhancements.
- **Customer system devices:** As a part of their MDMS implementation, Cobb EMC rolled out customer Web portal program, which provides customers with access to their hourly electricity usage data.

At-a-Glance

Recipient: Cobb Electric Membership Corporation

State: Georgia

NERC Region: SERC Reliability Corporation

Total Project Cost: \$31,610,349

Total Federal Share: \$15,805,174

Project Type: Advanced Metering Infrastructure
Customer Systems

Equipment Installed

- 194,195 Smart Meters
 - AMI Communications Systems
 - Meter Communications Network
 - Backhaul Communications
 - Meter Data Management System
 - Customer Web Portal access to 194,195 customers
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Time-Based Rate Programs

- Time of Use
 - Critical Peak Pricing
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Key Benefits

- Reduced Meter Reading Costs
 - Reduced Operating and Maintenance Costs
 - Improved Electric Service Reliability and Power Quality
 - Reduced Costs from Equipment Failures and Theft
 - Reduced Truck Fleet Fuel Usage
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- **Time-based rate programs:** Time-of-use and critical peak pricing rates are offered to residential and small commercial customers receiving smart meters—which represent more than 99% of Cobb EMC’s service territory.

Benefits Realized

- **Reduced operating and maintenance costs:** As a result of AMI and MDMS deployments, operational cost savings have been realized through automation of meter reading and customer service activities.
- **Reduced fuel usage:** The AMI project reduced truck rolls by 11,438 through April 2013, resulting in reduced fuel costs and greenhouse gas emissions.
- **Improved power quality:** Cobb is using data from a portion of the meters to regulate line voltage, which allows the utility to identify power quality problems, make power factor corrections, and meet its objective to reduce its peak load by 25 megawatts.
- **Improved distribution system reliability:** Cobb is now collecting 15-minute and hourly meter data that allow near-real-time analysis of usage and voltage readings. Utility personnel can locate and fix power system faults quickly and cost-effectively.
- **Improved customer service:** New AMI features, such as outage and restoration notification and tamper detection, enable Cobb to respond to outages and customer requests more efficiently. In addition, integrating AMI data with Cobb’s customer information system provides additional operational efficiencies and improved customer service.

Lessons Learned

One of the key benefits of Cobb EMC’s AMI deployment is the increased flexibility provided by the new functionality, which provides the company with alternate paths to meet its peak load reduction goals and increase system efficiencies. After testing several types of in-home devices and home area networks to encourage customers to reduce their peak demand, Cobb EMC decided to set those customer-dependent strategies aside for the time being and focus on utility-controlled peak load reduction strategies such as voltage optimization. In the meantime, Cobb EMC continues to work with vendors to find ways to resolve interoperability issues to accommodate the load management devices.

Future Plans

Beyond the SGIG project, Cobb EMC has already taken advantage of the AMI system to institute a new prepay option within their service territory. They are also experimenting with the use of remote disconnect meters as controls for capacitor banks within their distribution system.

Cobb EMC plans to couple rate programs with information displays and load management devices so that customers can optimize their energy use and help reduce peak demand and wholesale capacity charges. Successful load management will help to defer distribution infrastructure investments, resulting in a lower cost of service for all customers.

Contact Information

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