

## South Kentucky Rural Electric Cooperative Corporation

### *Advanced Metering Infrastructure Deployment*

#### Abstract

The South Kentucky Rural Electric Cooperative Corporation's (SKRECC) project includes the installation of a fully integrated advanced metering system across the service territory. The installation includes smart meters, enhanced communications infrastructure, in-home displays, and direct load control devices. The project implements two-way communication 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 SKRECC to manage, measure, and verify targeted demand reduction, 3) provide the utility with automated notifications indicating the scope and location of customer outages, and 4) reduce operational costs.

#### Smart Grid Features

**Communications infrastructure** includes the installation of a two-way power line carrier communications network across the SKRECC service territory. Forty substations are being equipped with advanced metering infrastructure (AMI) communications equipment to relay data from customer meters to the utility. An upgraded meter data management system provides a software platform for organization and analysis of the meter data, and enables communication of electricity usage information to customers via the Web portal.

**Advanced metering infrastructure** includes the installation of 68,000 new smart meters across SKRECC's service territory. These meters have the ability to digitally record consumption data for precise time intervals of an hour or less. Interval meter data is expected to improve distribution planning and to allow for development of time-based rates and other advanced service offerings. SKRECC expects that remote meter reading and automation of customer service requests will lower operational costs and vehicle emissions from reduced truck rolls.

**Advanced electricity service options** include a Web portal for electric customers with Internet access to view their consumption data and in-home energy consumption displays for a limited number of interested customers without Internet access. The Web portal allows customers to view their electricity consumption patterns and costs and to explore ways to lower or shift their usage and lower their bills.

#### At-A-Glance

**Recipient:** South Kentucky Rural Electric Cooperative Corporation

**State:** Kentucky

**NERC Region:** SERC Reliability Corporation

**Total Budget:** \$19,636,215

**Federal Share:** \$9,538,234

**Project Type:** Advanced Metering Infrastructure and Customer Systems

#### Equipment

- 68,000 Smart Meters
- AMI Communication Systems
  - Meter Communications Network
  - Backhaul Communications
- Meter Data Management System
- Customer Web Portal Access
- Up to 500 In-Home Displays/Energy Management Systems
- About 7,500 Direct Load Control Devices

#### Time-Based Rate Programs Targeting up to 68,000 Customers

- Time of Use
- Critical Peak Pricing

#### Key Targeted Benefits

- Reduced Meter Reading Costs
- Reduced Operating and Maintenance Costs
- Reduced Costs from Equipment Failures, Distribution Line Losses, and Theft
- Improved Electric Service Reliability and Power Quality
- Reduced Truck Fleet Fuel Usage
- Reduced Greenhouse Gas and Criteria Pollutant Emissions

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**Direct load control devices** include about 7,500 switches for controlling electric thermal storage water heaters, standard water heaters, and air conditioners. When customers opt in to the new direct load control programs, SKRECC can remotely operate water heating and air conditioning systems during periods of peak demand. SKRECC expects that direct load control provides customers with opportunities to lower their electric bills while enabling SKRECC to better manage distribution system conditions during peak periods.

**Time-based rate programs** include new customer options to enroll in time-of-use or critical-peak rates. SKRECC expects customers participating in time-of-use plans to shift some electricity usage to off-peak times and reduce their electric bills. The critical peak pricing program provides financial incentives for customers to avoid consumption during specific periods of high electricity demand.

**Timeline**

Key Milestones	Target Dates
AMI installation start	Q2 2010
Load control device installation completed	Q3 2010
Customer service systems installation completed	Q1 2013
AMI installation completed	Q2 2013

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