

## Talquin Electric Cooperative, Inc.

### SmartGrid Program

#### Abstract

The Talquin Electric Cooperative, Inc.'s (TEC) SmartGrid Program involves the installation of advanced metering, communications infrastructure, distribution automation equipment, and other customer systems. The project implements two-way communications to: (1) enable customers to view their energy consumption at their convenience through customer systems and Web portals, (2) provide information and tools to improve outage management, and (3) reduce operations and maintenance costs. The project also installs automated distribution grid equipment expected to: (1) enhance the reliability and quality of electric delivery and (2) reduce operations and maintenance costs.

#### Smart Grid Features

**Communications infrastructure** includes a microwave backhaul system that enables wireless two-way communication between the meters and the central control office. Meter communications include a wireless radio frequency network that utilizes spectrum licensed by the Federal Communication Commission. This scalable infrastructure provides opportunities to add future service offerings and functionality to optimize energy delivery, system reliability, and customer participation.

**Advanced metering infrastructure (AMI)** includes 56,000 smart meters and provides AMI coverage for all TEC customers. The AMI deployment allows options such as prepay and home area networking. TEC expects lower operations costs from remote meter reading and less costly identification of electricity theft. New AMI features such as outage and restoration notification and a remote service switch enable TEC to respond to outages and customer requests more efficiently. In addition, a new meter data management system provides expanded capabilities to analyze, interpret, and query meter readings and power usage information, which improves TEC's billing and electricity management efforts and load forecasting abilities.

**Advanced electricity service options** offered through the project include a Web portal for all 56,000 customers and a demonstration pilot of in-home displays and programmable communicating thermostats. Two-way information exchange is available to all customers through a Web portal, which provides customers with account balance and electricity usage information. Programmable communicating thermostats allow customers to better manage their

#### At-A-Glance

Recipient: Talquin Electric Cooperative, Inc.

State: Florida

NERC Region: SERC Reliability Corporation

Total Budget: \$16,200,000

Federal Share: \$8,100,000

Project Type: Advanced Metering Infrastructure and  
Customer Systems  
Electric Distribution Systems

#### Equipment

- 56,000 Smart Meters
- AMI Communication Systems
  - Meter Communications Network
  - Backhaul Communications
- Customer Web Portal for 56,000 Customers
- 1,000 Programmable Communicating Thermostats
- Distribution Automation Equipment for 46 out of 86 Circuits\*
  - SCADA Communications Network
  - Automated Distribution Circuit Switches
  - Automated Capacitors

\* This distribution automation equipment will affect 23 substations and 46 circuits within TEC's service territory.

#### Key Targeted Benefits

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

**Talquin Electric Cooperative, Inc. (continued)**

central air conditioning and heating equipment. TEC expects these information feedback systems to provide customers with greater control over their electricity costs and bills.

**Distribution automation systems** include automated feeder switches, sensor equipment, and centrally controlled capacitor banks in the TEC service territory. The distribution automation systems allow TEC to check circuit recloser and regulator status and implement an alarm function for fault detection and outage prevention. The distribution automation equipment helps to improve reliability, reduce line losses, and operations and maintenance costs.

**Distribution system energy efficiency improvements** involve the integration of automated capacitors with a power quality monitoring system. The capacitors improve voltage and volt ampere reactive control, power quality, and distribution capacity by reducing energy losses on the distribution system.

**Timeline**

Key Milestones	Target Dates
AMI/customer system asset deployment begins	Q4 2010
Distribution automation deployment begins	Q4 2011
Distribution automation deployment ends	Q4 2012
AMI/customer system asset deployment ends	Q1 2013
Data collection ends	Q2 2013

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