

## Stanton County Public Power District

### *Advanced Metering Infrastructure Initiative*

#### Scope of Work

Stanton County Public Power District's (SCPPD's) Advanced Metering Infrastructure (AMI) Initiative installed 2,293 smart meters to extend AMI technology from a limited pilot deployment to nearly all customers in the service territory.

#### Objectives

The purpose of the project was to further the deployment of an AMI solution to enable automatic, remote meter reading and improved outage detection and response across the SCPPD service territory.

#### Deployed Smart Grid Technologies

- **Advanced metering infrastructure:** SCPPD installed 2,293 (of 2,768 total) smart meters to complete a territory-wide deployment. The project leveraged existing power line carrier and radio communication networks for real-time AMI data transfer.

#### Benefits Realized

- **Reduced operating and maintenance costs:** SCPPD can now make more efficient use of resources that were once dedicated to meter reading. The utility redeployed meter readers who previously collected monthly reads manually for customer bill generation. SCPPD now has more resources available to focus on grid improvement projects. Also, rural customers no longer have to read their own meters and submit readings each month, resulting in time savings for both customers and SCPPD staff.
- **Reduced truck rolls and fleet fuel usage:** AMI has reduced vehicle miles traveled for meter reading, resulting in lower truck fleet fuel usage and greenhouse gas emissions for this portion of the operation. Additionally, the AMI system provides SCPPD with data analytics capabilities that enable remote diagnostics and troubleshooting of malfunctioning meters, reducing the need for investigative field visits.
- **Improved operational efficiency:** During a clustered or widespread outage, SCPPD can ping meters in the field to accurately identify the affected area, enabling greater efficiency in dispatching crews to search for the root causes of outages, such as downed power lines. After field crews complete the necessary repairs, SCPPD can ping meters from the office to verify that power has been restored and to check voltages. During normal operations, SCPPD can monitor voltage at the meter, which aids in identifying low- or high-voltage conditions and helps to improve power quality across the distribution system.
- **Enhanced customer services:** SCPPD can access and analyze hourly usage data for customers with high bill concerns, providing customers with a detailed look at what times and days they used the most energy. This information, coupled with weather history for the area, helps customers identify opportunities to lower their monthly bills.

#### At-A-Glance

**Recipient:** Stanton County Public Power District

**State:** Nebraska

**NERC Region:** Midwest Reliability Organization

**Total Project Cost:** \$794,000

**Total Federal Share:** \$397,000

**Project Type:** Advanced Metering Infrastructure

#### Equipment

- 2,293 Smart Meters

#### Key Benefits

- Reduced Meter Reading Costs
- Reduced Operating and Maintenance Costs
- Reduced Truck Fleet Fuel Usage
- Reduced Greenhouse Gas and Criteria Pollutant Emissions

**Stanton County Public Power District** *(continued)***Lessons Learned**

- **Implement cybersecurity first:** Having a strong cybersecurity program in place *before* implementing smart grid technologies can save time and money on the back end. This preparation also greatly reduces a utility's vulnerability to potential cybersecurity attacks during the implementation phase.
- **Research interoperability and integration costs:** Integrating the AMI system with other key utility systems (customer information system, geographic information system, outage management system, etc.) is costly and time-intensive—but necessary to fully leverage system capability. If utilities do not adequately plan and budget for such integration, they will need to find less automated and less efficient ways to transfer data between systems.
- **Document key businesses processes and inventory management plans:** SCPPD initially prioritized the meter installation effort over documenting key processes and plans associated with communications, meter inventory tracking, and issue management. SCPPD recommends defining and documenting key business processes and inventory management plans *before* starting to deploy meters in order to establish the governance structure necessary to most efficiently complete the system deployment.

**Future Plans**

Upon completing the AMI project, SCPPD investigated alternate billing software that would allow customers to view their daily electricity usage and pay bills online. By leveraging the AMI technology, this functionality was easily achieved for SCPPD customers.

The AMI project has provided SCPPD with the technology foundation necessary to explore other technology and potentially layer on additional advanced systems in the future if it makes economic sense for SCPPD customers.

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