

Black Hills Power

Advanced Metering Infrastructure/Meter Data Management System

Abstract

Black Hills Power (BHP) is one of three Black Hills Corporation subsidiaries deploying advanced metering infrastructure (AMI)—the other two are Black Hills/Colorado Electric (BHCOE) and Cheyenne Light, Fuel and Power (Wyoming). BHP’s project includes the deployment of smart meters, communications infrastructure, and a meter data management system (MDMS). The project provides improved outage restoration from the integration of an outage management system with the AMI. Two-way communication allows for off-cycle reads, remote connect/disconnect of customer meters, tamper detection, and potential future implementation of time-based rate programs.

Smart Grid Features

Communications infrastructure consists of a wireless mesh network connecting smart meters and strategically placed data collectors which use wireless backhaul solution. The data collectors relay the smart meter information to the head end system. The two-way communication allows for greater operational functionality and the future addition of new electricity service options.

Advanced metering infrastructure includes the system-wide deployment of approximately 68,800 smart meters. 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 so that BHP can respond to outages and customer requests more efficiently. The AMI system is being integrated with an MDMS to support collection, analysis, and archiving of data for the potential future implementation of time-based rate programs, distribution system upgrades, reliability planning initiatives, customer Web presentation applications, and power quality enhancements.

At-A-Glance

Recipient: Black Hills Power

State: South Dakota and Wyoming

NERC Region: Midwest Reliability Organization

Total Budget: \$19,153,256

Federal Share: \$9,576,628

Project Type: Advanced Metering Infrastructure

Equipment

- 68,800 Smart Meters
- AMI Communication Systems
 - Meter Communications Network
 - Backhaul Communications
- Meter Data Management System
- Meter Data Analysis System

Targeted Benefits

- Reduced Meter Reading Costs
- Improved Electric Service Reliability
- Reduced Ancillary Service Cost
- Reduced Truck Fleet Fuel Usage
- Reduced Greenhouse Gas and Criteria Pollutant Emissions

Timeline

Key Milestones	Target Dates
AMI asset deployment begins	Q2 2010
AMI asset deployment ends	Q4 2011
MDMS integration begins	Q2 2010
MDMS integration ends	Q2 2012

Black Hills Power *(continued)*

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