Pacific Northwest Generating Cooperative

Advanced Meter Infrastructure Implementation Project

Scope of Work

The Pacific Northwest Generating Cooperative (PNGC) project is a collaborative effort between nine distribution cooperatives that implemented advanced metering infrastructure (AMI) solutions. Project teams deployed energy management web portals, meter data management (MDM) systems, two-way communications infrastructure, and 97,013 smart meters.

Objectives

By implementing AMI solutions and enabling remote meter reading, the PNGC cooperatives aimed to reduce meter operations costs, vehicle fleet fuel usage, and greenhouse gas emissions. New web portals provide customers with access to AMI interval data about their accounts and to tools that support more informed energy management. This project also enables potential future direct load control programs, providing the utilities with an effective tool to manage peak loads and the customers with another way to lower their electricity bills.

Deployed Smart Grid Technologies

- **Communications infrastructure:** The nine distribution cooperatives deployed different communications system technologies, as each service territory has different characteristics and challenges associated with network connectivity. In general, the meter communications networks were built using power line carrier (PLC); and the backhaul networks used fiber optic, microwave, or digital subscriber line technologies.
- **Advanced metering infrastructure:** Collectively, the nine participating distribution cooperatives deployed 97,013 smart meters. The AMI systems provide the cooperatives with monitoring features that help reduce operations and maintenance costs, improve outage management capabilities, and allow for future offerings of time-based rate and load control programs that can further enable customers to lower their monthly bills. PNGC members have enabled various features of the AMI systems to provide functions such as remote connect/disconnect, outage detection, power quality monitoring, and tamper detection.

At-A-Glance

Recipient: Pacific Northwest Generating Cooperative

State: Idaho, Montana, Nevada, Oregon, Utah, and Washington

NERC Region: Western Electricity Coordinating Council

Total Project Cost: $39,153,486

Total Federal Share: $19,576,743

Key Partners:
Central Electric Cooperative
Clearwater Power Company
Consumers Power Inc.
Douglas Electric Cooperative
Fall River Rural Electric Cooperative
Lincoln Electric Cooperative, Inc.
Northern Lights, Inc.
Raft River Rural Electric Cooperative
Salmon River Electric Cooperative

Project Type: Advanced Metering Infrastructure
Customer Systems

Equipment

- 97,013 Smart Meters
- AMI Communications Systems
  - Meter Communications Network (PLC)
    - Backhaul Communications (fiber optic, microwave, and digital subscriber line)
- Meter Data Management System
- Customer Web Portal

Key Benefits

- Reduced Meter Reading Costs
- Improved Electric Service Reliability and Power Quality
- Reduced Costs from Theft
- Reduced Truck Fleet Fuel Usage

Pacific Northwest Generating Cooperative *(continued)*

Benefits Realized

- **Outage management:** Utilities now have the ability to understand the extent of an outage and to verify corrective action via meter pinging. As a result, crews are well prepared prior to visiting an outage area, and the number of return trips required to complete outage restoration is significantly reduced. The deployed technologies thus both decrease truck rolls and allow the utilities to restore service as quickly as possible, improving the customer experience.
- **Streamlined service management:** Utilities can more efficiently schedule service-related truck rolls. For example, PNGC territory includes rural communities where farming is prevalent. When an outage occurs at a farming site not currently in active use, the utility can coordinate with that farmer to plan a service visit that both fits the customer's schedule and can conceivably be grouped with another truck roll.
- **Improved customer service:** When service needs to be temporarily disconnected, the utility can turn it back on much more quickly where the remote connect meters are in use. In addition, member cooperatives are now able to see more discrete data for each customer. As a result, they can more accurately determine what caused an unusually high bill. Utility staff can then work with that customer to understand what might be driving the usage pattern, help the customer correct the issue, and identify avenues to avoid high bills in the future.

Lessons Learned

- With a project of this size that contracted with relatively few providers, having good relationships with the vendors was essential. Detailed tracking of orders and shipments was also important.
- Many vendors promised much more than they were able to deliver, so flexibility was key. After realizing that the initial plans were beyond PNGC's capability to achieve, the ability to be flexible with the project and scale it back to reasonable goals helped the cooperatives ultimately succeed in achieving project aims.
- Customer communication and connections were important. Keeping in touch with customers throughout the project was critical to success.
- Customer demand is paramount. PNGC realized that customer demand needs to drive deployment of in-home devices; otherwise, the devices would not have been accepted.

Future Plans

PNGC is exploring ways to aggregate the cooperatives' experiences and share lessons learned and cost/benefit information with PNGC members that did not participate in the Smart Grid Investment Grant project, thus supporting accelerated AMI deployment. PNGC also plans to leverage the AMI technologies to introduce new cost-saving functionality for both customers and utilities.

Contact Information

Alissa Jackson
Financial Analyst
Pacific Northwest Generating Cooperative
ajackson@pngcpower.com