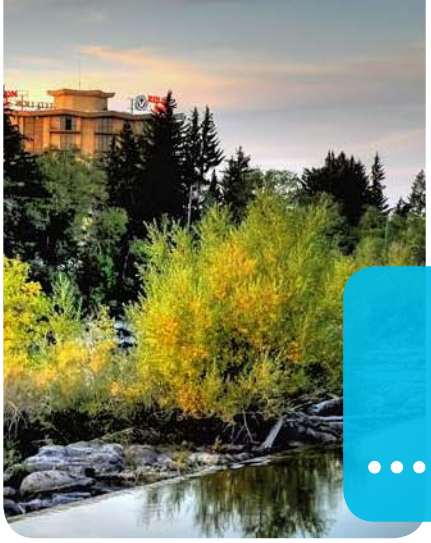

Case Study

Idaho Falls Power tackles ambitious goals with Smart Grid project

Opportunity

Idaho Falls Power (IFP), working within the American Recovery and Reinvestment Act (ARRA) funded Pacific Northwest Smart Grid Demonstration Project, is updating antiquated deployments, validating smart grid investments, and advancing interoperability.

Solution

Idaho Falls Power selected Elster's EnergyAxis® to address peak demand concerns, facilitate distributed generation from renewable sources, address constraints, improve system reliability and efficiency, optimize systems, and engage consumers in improved energy management.

Results

The Idaho Falls Power project is ongoing with a projected completion of 2015. IFP is currently conducting tests, deploying meters, and recruiting customers to participate in demand response trials.

Idaho Falls Power, a municipal electric utility serving the city of Idaho Falls, Idaho holds the distinction of being the largest municipal in the state. Idaho Falls Power has operated continuously since its establishment in 1900 and serves a population of approximately 55,000 with 22,350 residential and 3,680 commercial meters. The utility's service area ranges across approximately 17 square miles and is served by nearly 450 miles of transmission and distribution lines.

In the last few years, Idaho Falls Power has been planning and developing its portion of the Pacific Northwest Smart Grid Demonstration Project, one of the largest ongoing Smart Grid demonstration projects in the country. The overall project, part of the ARRA's Smart Grid programs, is a regional U.S. Smart Grid project aimed at integrating renewable energy, developing a two way communication between generation, storage and assets, advancing standards for interoperability, and validating Smart Grid costs and benefits for the region in general and smaller local portions specifically. The project is linked to other activity in the region related to the Smart Grid and regional developments in renewables.

A valuable Smart Grid project

Overall, the $178-million Pacific Northwest Smart Grid Demonstration Project includes the Bonneville Power Administration, project level partners, and eleven regional utilities which will directly impact nearly 60,000 customers.

The planned project covers numerous aspects of the Smart Grid, including demand response, distributed generation, energy storage, distribution automation, electric vehicles, system diagnostics, end-user portals and advanced metering infrastructure (AMI). The common thread through all elements is a focus on the communication and control parts of the project, examining both "hierarchical communication and transactive control," according to Mark Reed, Idaho Falls Power's Generation and Operations Superintendent and Smart Grid Project Manager.

Reed defined "hierarchical communication" as the ability to interact and share information from generation, transmission, and distribution systems to the electric consumer, and back, through the use of two-way communication. "Transactive control" Reed defined as signals and incentives to make the regional Smart Grid more flexible and responsive to immediate and local needs.

To assure success in achieving that perfect mix of communication-and-control, Idaho Falls Power turned to Elster's EnergyAxis,

a proven two-way communications system that delivers the industry's leading bandwidth, scalability, and flexibility. Further, EnergyAxis is customizable for single or multi-utility applications for electricity, gas, and water. Recently, with Elster's help, the utility has gone from a system with "80s vintage" metering technology—as Reed phrased it—to becoming a modern leader in Smart Grid thinking and implementation.

A plan for successful grid modernization

A decade ago, Idaho Falls Power had a SCADA system without geographic information or outage management systems (GIS or OMS). After a careful review, the utility developed a comprehensive plan which included:

- Adding a detailed GIS system, including an electrical geometric network
- Updating their supervisory control and data acquisition (SCADA) program
- Implementing a citywide fiber optic network
- Adopting an outage management system (with voice response) and
- Upgrading the city's "vintage" electric metering system.

Reed noted that Idaho Falls Power and the other utilities involved in the project possess a few overarching regional desires along with local technological wants. Within the project, the partners want to inspire and spur on the adoption of new technology, with an eye on increasing automation in general. More specifically, by the end of this project in 2015, the project partners hope to reduce greenhouse gases and provide detailed examples of costs versus benefits for other utilities considering technology investments.

The project is ongoing but significant progress has been made toward a more advanced Smart Grid for the region, and Reed sees an evolution toward the future grid his utility envisioned.

"This upgrade will position us where we want to be for the next ten years: to integrate all the operation systems and to implement a robust, capable metering system with two-way options with AMI," he said.

Idaho Falls Power needed a partner who could:

- Help the utility demonstrate how Smart Grid technology can enhance the safety, reliability, and efficiency of energy delivery
- Coordinate Smart Grid assets locally and across the region using innovative communications and control systems
- Deliver two-way communication among distributed generation, energy storage, demand response assets and existing grid infrastructure
- Assure interoperability and standards

The partner that fit those requirements was Elster, specifically the company's EnergyAxis suite of Smart Grid solutions. This adaptable and modular architecture delivered the technology, metering options, bandwidth, scalability, security, and flexibility that Idaho Falls Power required to meet their portion of the Pacific Northwest Smart Grid Demonstration Project.

EnergyAxis has helped Idaho Falls Power install and implement a unique distributed communication, control, and incentive system, pulling those desired GIS and OMS systems into a mix that blends the utility, the community, and the customer. The architecture's flexibility and data use options also enable the utility's consumers to analyze data and manage use in a pilot program. EnergyAxis continues to provide Idaho Falls Power with options for information analysis, communication, and interaction during the utility's ongoing two-year data collection period.

Putting a digital plan on paper

Two years ago, Reed and his team sent out requests for bids on a new citywide AMI system, the lynchpin of Idaho Falls Power's Smart Grid project. The contract was awarded to Elster, and the two Smart Grid partners began building a communication network for the city, the utility and the new meters to be installed. Today, wireless routers around the city now communicate with EnergyAxis gatekeepers to pick up data from the new smart meters in Idaho Falls.

The modular architecture of EnergyAxis, the data communications backbone for those meters, and the updated infrastructure is giving the project future flexibility. So far, the adaptability of that modular network has kept Idaho Falls perfectly in tune with the variations and adjustments required for this project.

Idaho Falls Power's list of operational desires for the initiative includes managing peak demand, facilitating renewable sources, addressing constraints, improving system reliability and efficiency, optimizing the systems, and engaging consumers in improved energy management.

Both Idaho Falls Power and Elster believe that this project will leave the utility a Smart Grid infrastructure poised for the future with flexible growth and interoperability options for the city and the region at large.

Although presented with a long list of goals, with the help of EnergyAxis, Idaho Falls Power is poised to check off each of those objectives from the utility's Smart Grid "to do" list.

About the deployment

- Ownership - Public

Installation

- Infrastructure complete 2012
- Electric update 2012-2014

Infrastructure summary

- Electric: 27,000 smart meters

Key applications

- Manage peak demand
- Integrate renewable energy sources
- Load management
- Conservation voltage reduction
- Distributed generation
- Consumer energy management

Status

- In production; installations continue

Integrations

- SCADA
- Outage management
- GIS
- AMI system
- CIS system
- MDM system

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