QualityLogic®
Putting Technology to the Test

Pacific Northwest Smart Grid Demonstration

Features

- Spans 5 states over a 5-year period
- Involves 60,000+ metered customers
- Partners include Battelle, BPA, 11 utililities, 2 universities, 5 technology participants
- System electricity assets over 112 megawatts

Benefits

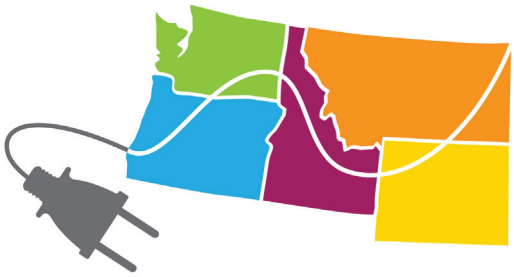
- Validate new technologies, business models
- Quantify smart grid costs and benefits
- Advance interoperability standards

QualityLogic has joined a team of utilities, technology vendors and research groups that has been awarded a five-year, $178 million project by the U.S. Department of Energy to build a smart electric grid demonstration system in the Pacific Northwest region – the Pacific Northwest Smart Grid Demonstration Project (PNW-SGDP).

The Project

The five-year Pacific Northwest Smart Grid Demonstration Project will be a unique demonstration of unprecedented breadth, expanding existing electricity infrastructure and testing new smart grid technologies with approximately 60,000 customers in five states - Idaho, Montana, Oregon, Washington and Wyoming. The project will contain many key functions of the future smart grid and move the region closer to establishing a more efficient and effective electricity infrastructure that will help contain costs, reduce emissions, incorporate renewable energy sources, increase power grid reliability and provide greater flexibility for consumers.

Project participants, representing both public and private entities, will fund half of the approximately $178 million cost, while the other half will be funded by the US Department of Energy (DOE) through American Recovery and Reinvestment Act stimulus dollars. DOE's goal in funding such projects is to demonstrate how smart grid technologies can enhance the safety, reliability and efficiency of energy delivery on a regional and national level. The resulting cost-effective, reliable electricity supply is critical for US economic growth and international competitiveness.



Pacific Northwest
SMART GRID
DEMONSTRATION PROJECT

In addition, the project will yield benefits including the creation or retention of as many as 1,500 jobs in manufacturing, installing, and operating smart grid equipment, telecommunications networks, software and controls, as well as boosting the emerging smart grid industry. Resulting business cases will help utilities select the most cost-effective smart grid technologies for their customers.

The project team will implement a distributed communication, transactive control and incentive system. The innovative transactive control system — supported by hierarchical communication from power generation, through transmission and distribution, and ultimately to the consumer — will coordinate smart grid resources to support regional needs for transmission, reliability and renewable energy sources.

The system, combined with new devices, software and advanced analytical tools, will give consumers real-time feedback on their energy use and price, empowering them to make informed decisions to maximize efficiency and minimize cost. Data will be collected to provide insights into energy

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consumers' behavior and determine strategies to increase system reliability and reduce cost by lowering peak demand and incorporating renewable energy sources.

Interoperability

The smart grid empowers active management, oversight and participation by both producers and consumers of electrical energy. Achieving this empowerment requires overlaying communications infrastructures and related products on the power grid – in effect, connecting all of the pieces in a power grid to the Internet so communication can take place in real time.

Interoperability is a central factor in making the smart grid a working reality. The demonstration will use a rich set of technologies, protocols and application programming interfaces (APIs), all of which must work together. Smart grid technology includes everything from interactive appliances in homes to substation automation and sensors on transmission lines in a system that improves power delivery and use through intelligent, two-way communication. For the smart grid to work correctly, all of its components must interoperate.

QualityLogic is responsible for interoperability testing and certification of the transactive control system used in PNW-SGDP and wrote the interoperability section of the PNW-SGDP proposal.

The smart grid domain faces the same issues of conformance to standards and interoperability between devices and applications from divergent vendors that QualityLogic has been solving for 25 years. We develop in-depth, rigorous testing methodologies through extensive analysis of complex specifications, determine interactions between components and create test plans and solutions to verify that all components interact as intended.

The Team

Led by the Battelle Memorial Institute, the strong collaboration includes the Bonneville Power Administration and 11 utilities based in the Pacific Northwest:

- Avista Utilities - Spokane, WA
- Benton PUD - Kennewick, WA
- City of Ellensburg - Ellensburg, WA
- Flathead Electric Cooperative - Kalispell, MT
- Idaho Falls Power - Idaho Falls, ID
- Lower Valley Energy - Afton, WY
- Milton-Freewater City Light & Power - Milton-Freewater, OR
- NorthWestern Energy - Butte, MT
- Peninsula Light Co. - Gig Harbor, WA
- Portland General Electric - Portland, OR
- University of Washington – Seattle, WA

The demonstration also involves a diverse team of technology participants including:

- Alstom Grid
- IBM
- 3TIER Inc.
- Netezza Corp.
- QualityLogic
- Washington State University

For more information, visit www.qualitylogic.com, send an email to info@qualitylogic.com, or call (800) 436 6292 (US toll free) or + 1 (805) 531 9030.

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