



## Midwest Utility Smart Grid Deployment

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**A 500,000-meter Midwestern utility builds a compelling rate case for its Smart Grid solution and sets the stage for moving ahead.**

In response to state and federal regulatory goals, this Midwestern utility created a future vision and strategy centered on a Smart Grid approach. The utility hired West Monroe Partners to build the bottoms-up cost, quantify the benefits of its Smart Grid vision, and drive the Requests for Proposal that have solidified its rate case and provided a head start for implementation.

### Turning a Smart Grid vision into reality.

In response to state and federal regulatory goals, a 500,000-meter Midwestern utility undertook a significant initiative to define its future vision and growth strategy—a strategy that included Smart Grid solutions, as well as various customer efficiency and demand-response programs. The company's specific goals were to:

- ◆ Lower peak demand by shifting usage to non-peak hours
- ◆ Lower overall energy usage by increasing energy efficiency in residential and C&I environments
- ◆ Improve reliability and efficiency of the distribution network
- ◆ Lower line losses in the distribution network
- ◆ Incorporate renewable energy sources

To implement this vision, the company will need to upgrade a number of technology components within its communication network and its electrical distribution network. The utility turned to West Monroe Partners for assistance with evaluating and defining the technology required to implement its Smart Grid solution. West Monroe Partners offered a unique combination of information and communication technology experience and, in particular, the ability to help the company implement real-time controls through the use of wireless communication technologies.

West Monroe Partners initially helped the utility quantify the costs and benefits of and build a business case for the following key elements of a Smart Grid solution:

- ◆ Advanced Metering Infrastructure (AMI) technology and Smart meters
- ◆ Substation automation
- ◆ Distribution automation
- ◆ Wireless IP communication systems to connect the field components to the Smart Grid IT applications

This analysis, along with the work done to create energy efficiency and demand response programs, helped the utility start a dialogue with regulators about implementation of its future strategy.

### Detailing the technology design. Refining the cost.

With the permission of the company's board of directors and acknowledgement from the Public Utility Commission that the utility was on the right path, the company began to move forward with building a rate case. To do so, it would need strong, documented support for the capital costs, expenses, and benefit projections. Working closely with the utility's engineering organization and other functions, West Monroe Partners coordinated requests for proposal to more than 20 vendors representing the key technologies outlined in the company's Smart Grid plans.

This effort not only helped the utility refine the projected costs in its filings and build its rate case with the necessary detail and support; it enabled the company to get a head start on implementation.



The RFPs covered the following functional areas:

- ◆ Smart meters and two-way advanced metering infrastructure (AMI)
- ◆ Home area network (HAN)
- ◆ Programmable thermostats that can be controlled via the web and by the utility
- ◆ Home energy displays that communicate energy usage and pricing to customers
- ◆ Load control relays for utility control of customer devices
- ◆ Load control management software
- ◆ Microwave and MPLS switching solutions to create a private utility-grade IP backbone network
- ◆ Mobile voice, mobile data, and fixed data communication solutions to enable ubiquitous communication to the devices and the field service crews throughout the utility's 6,000 square mile service territory

### **Gaining support. Getting a head start on implementation.**

This effort not only helped the utility refine the projected costs in its filings and build its rate case with the necessary detail and back-up; it has enabled the company to get a head start on implementation. The utility has created a more detailed design for hardware, software, installation, and customization. It also is well along in the process of selecting vendors and negotiating contracts. All of this work has been essential in advancing the utility's discussions with regulators and gaining approval for its plans.