

DOE Quadrennial Energy Review

Second Installment

Electricity: Generation to End-Use

Stakeholder Meeting #4: Des Moines, IA

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Panel Discussion: Electricity Distribution and End-Use

Written Comments of Ken Grant, Vice President, Sales and Marketing, Oklahoma Gas and Electric Company

Good morning. I am Ken Grant, Vice President, Sales and Marketing, Oklahoma Gas and Electric Company (OG&E). OG&E is the largest electric utility in Oklahoma, serving around 835,000 customers in Oklahoma and western Arkansas. Over the course of the last ten years I have had the opportunity to lead development and deployment of many of OG&E's customer-facing programs, including energy efficiency and demand response programs, as well as much of the technology innovation enabled by our smart grid technology platform. OG&E has deployed Automated Metering Infrastructure (AMI) across its entire 30,000-square miles of service territory, including two-way communicating digital smart meters and proprietary local-area, wide-area, and backhaul networks. This work was partially funded through a Smart Grid Investment Grant provided by the DOE. While OG&E had already developed a business case and project plan for full deployment, the grant further improved the positive business case and allowed the company to accelerate deployment and resulting customer benefits.

The smart grid technology platform has enabled a number of customer-facing programs.

One of the objectives of our smart grid deployment was to provide customers with better price and usage transparency. All OG&E customers can now enroll in the myOGEpower portal to track their usage and costs. The portal allows customers to perform rate comparisons, see how their usage compares to other similar homes and businesses, and learn how to better manage usage and costs. Through a statistically valid study involving participants compared to a control group, we were able to show that portal users reduced demand and energy usage by about 2.5% on average.

Probably the most notable program that leverages the smart grid platform is our award-winning SmartHours program. SmartHours is a technology-enabled demand response program that not only assists customers in reducing on-peak usage (during the weekday hours of 2 – 7

p.m. June through September), but also provides a financial incentive for them to shift their usage to non-peak hours. The program uses a Variable Peak Pricing (VPP) rate and customers can choose to have a free Programmable Communicating Thermostat (PCT) installed, or can use any programmable thermostat they prefer. The advantage of the PCT is that it allows customers to program the thermostat to automatically respond to the price signal that is sent over the AMI network. One of the things that makes the SmartHours program unique is that customers maintain control of their power at all times – it is not a direct load control program or straight time of use program. Customers can choose how much, if any, they want to adjust usage in order to achieve savings. OG&E has been able to show that if customers are provided price and usage transparency and technology to automate their response, they will be able to reduce on-peak demand while still achieving their desired balance between cost and comfort. As a result, we currently have approximately 115,000 customers participating in the program with about 69,000 PCT's installed. The company has seen a peak demand reduction of 147 MW and participating customers have saved around 15% annually on average. The program continues to be an overwhelming success, consistently achieving net promoter score results of between 50% and 60%.

OG&E continues to develop other programs that will further leverage the smart grid platform. These programs include a pre-paid billing program, an electric vehicle program that will include some level of public charging infrastructure, and smart LED street and security lighting. The smart grid-enabled LED lights will not only reduce energy consumption, but will allow us to turn lights on and off remotely, and will notify us when lamps have failed, allowing us to return the light to service more quickly. Eventually we will even be able to remotely control lighting levels in communities that have ordinances regarding exterior lighting levels.

The smart grid technology platform has enabled significant grid operations benefits.

The AMI network has enabled automated meter reading and remote connections and disconnections eliminating hundreds of thousands of truck rolls annually. This has resulted in reduced manpower, fewer vehicles, and significant fuel and vehicle emissions savings. The network has also enabled the use of automated switching on distribution circuits, reducing the number of customers impacted by circuit operations. OG&E has also leveraged the communication network to deploy Volt-Var Optimization across 319 distribution circuits, which has provided an additional 54 MW of demand reduction.

Data from the smart meters is also helping OG&E identify and respond to outages more quickly. We are currently implementing a project that combines meter data with our outage management system and our work management system in order to begin providing customers with estimated times of restoration during outage events.

OG&E will continue to look for additional ways to leverage technology and data to improve operations, and to reduce the frequency and duration of outages.

Conclusion

While it is true that utilities are facing unprecedented change at an unprecedented rate, it is also true that we are much better positioned to respond to this change today. We are engaging customers in ways we never have before. We are providing products, services and programs customers tell us they want. We've made significant technology improvements to the distribution grid over the last five to ten years. And as we continue to leverage technology and the data it provides, we will be better able not only to integrate distributed energy resources and storage, but also to monitor and manage power flows on the grid.

Finally, as an industry, we need to be cautious of increasing regulation which will slow progress and hamper our ability to continue investing in technology and innovation. There are still many challenges to overcome, but we benefit from the support of strong partnerships with public and private utilities, industry groups such as the Electric Power Research Institute and Edison Electric Institute, and agencies such as the Department of Energy.

Thank you.