

Innovations Across the Grid Dialogue

By Lisa V. Wood, executive director of IEE and vice president of the Edison Foundation.

As the electric utility industry embraces the opportunities and the challenges driven by new technologies and innovation, partnerships with technology companies will shape the grid in profound ways. To discuss the innovations occurring across the power grid, IEE recently held its 2013 Partner Roundtable—a dialogue among IEE’s Management Committee of electric utility CEOs and technology company executives. The meeting focused on advancements in grid optimization, building efficiency, demand response (DR), distributed generation (DG), big data, and customer engagement.

Grid Optimization

Bob Rowe, IEE co-chair and president and CEO of North-Western Energy, led the discussion and pointed out that grid optimization is about making the *invisible* part of the grid—sensors, wires, and critical equipment—work in seamless fashion so that customers on the *visible* side can go about their lives productively and uninterrupted. This perspective is part of the bigger picture of a smart grid that is optimized across all supply and demand-side components.

The conversation highlighted Volt/VAR optimization and enhanced distribution management and automation systems. For example, Duke Energy is using Pike Electric’s voltage and optimizations profiling in the Carolinas to reduce line loss, identify low-voltage areas on the distribution feeder, and provide about 200 megawatts (MW) of energy savings on the system. OGE Energy is in the process of using Volt/VAR technology in collaboration with ABB to achieve 75 MW of load reduction across 400 feeders by monitoring the distribution network and computing the optimal control settings.

Building Efficiency

Dilek Samil, COO of NV Energy, led the building efficiency discussion that highlighted advancements in utilizing existing building management systems and data, often at no- or low-cost, to improve the energy use and performance of buildings. NV Energy works with Building IQ to engage casinos, schools, hotels, and offices in resource optimization through the mPowered for Commercial program. This program moves away from the typical “cash for kilowatt” design, allowing NV Energy to work with its customers to make long-lasting, financially sound, and technology-driven changes in large buildings. By upgrading and overlaying the

existing energy-management system with open, automated DR communications, NV Energy delivers building efficiencies through an innovative application of HVAC optimization under a software-as-a-service platform. NV Energy will deliver 75 MW of savings by 2015 through this program.

Demand Response

For the third discussion, Joe Rigby, chairman, president and CEO of Pepco Holdings, shared how subsidiary Pepco is utilizing two DR programs with residential customers—the *EnergyWise Rewards* direct load-control program that has about 250 MW of capacity and the newer price-responsive *Peak Energy Savings* demand program to manage demand via price signals.



Comverge manages the direct load-control program for Pepco and provides the technology, recruitment, customer interface, and data analysis. Most important, Comverge operates the load-control events. With smart meters deployed and two years of successful pilot results, Pepco is now in the process of deploying the *Peak Energy Savings* program where the customer receives a price signal during peak demand times and a bill credit for responding by reducing demand. Regulatory commissions in Maryland and Delaware have approved a “peak-time rebate” for all residential customers that have smart meters. The two programs combined provide about 300 MW of DR and generate about \$2 million in revenue from PJM.

Big Trends

Ron Litzinger, president of Southern California Edison, led the final discussion on big industry trends, including DG, customer engagement, and big data. Public policy support for DG, including both subsidies and DG mandates, will ensure that DG continues to grow. As the number of DG customers increases, the development of rates that are fair to all customers as well as a grid that can handle this flexible and growing resource are critically important. DG customers need to get a fair price for solar they sell into the grid but also need to pay their fair share of the cost of using the grid.

With millions of smart meters installed in the U.S., technology is driving customer engagement opportunities, and several companies are working with utilities to engage with their customers and to provide actionable information. Lastly, big data is focused on leveraging data analytics and IT to change the way utilities manage the power grid as well as to change the customer experience.

Electricity runs every aspect of our economy and our lives. The collaboration of electric utilities with technology companies, regulators, and other stakeholders is critical to a successful transformation of the nation’s grid. The 21st-century power grid is too important not to get it right. IEE’s Partner Roundtable is a key forum to advance the dialogue about innovations occurring across the grid. ♦

