

**SESSION TITLE:**

Seeing Beyond the Now: What are the interrelationships among utility investment in energy efficiency programs, demand response programs, utility rates, emerging technologies, and renewable energy?

**SPEAKER SUMMARIES:**

Robert Wilkins, VP Public Affairs, Danfoss

- Mr. Wilkins emphasized that several trends are coming together that could reshape the energy future, and utilities “are in the vortex.” These trends include: (1) increasing use of natural gas, combined heat and power (CHP), demand response, energy efficiency, on-site renewable energy, and variable speed pumps; (2) declining coal use; (3) innovative electric rate structures; and (4) increased utility-scale renewable energy that involves more variability. He stated that the panel will examine approaches to help optimize these trends.

Paul Tonko (D - NY), Congressman, U.S. House of Representatives

- Congressman Tonko emphasized that “energy efficiency is our fuel of choice.” He stressed the importance of President Obama’s goal of increasing CHP by 50% by 2020 and his recent letter to the Department of Housing and Urban Development (HUD) that urges the HUD Secretary to encourage CHP in rebuilding following Hurricane Sandy. He underscored how CHP systems had helped to maintain power during the Hurricane.

Francis J. Murray, Jr., President and CEO, New York State Energy Research and Development Authority

- Mr. Murray explained how NY was marrying energy efficiency and renewable energy. He emphasized that distributed generation (DG) is already creating a paradigm shift in the electric utility industry with the convergence of DG and the Internet. He further stated that this paradigm shift is already changing the way we think about energy efficiency. Mr. Murray stressed that information technology is turning energy efficiency from a cost to an asset and that EE is changing from a static process to a dynamic activity. Advances in web-based information management tools (e.g., substantial reductions in sensor costs) are resulting in major changes in energy management approaches in the built environment.
- As more consumers adopt distributed generation and purchase less electricity from the grid, there is increasing concern that the poor and elderly will be the major consumers remaining on the grid. This concern is driving discussion about approaches to mitigate this problem.

Omar Siddiqui, Director, Energy Utilization, Electric Power Research Institute

- Mr. Siddiqui is working with member electric utilities seeking to develop tools that allow demand-side measures to serve as an energy resource in the same way that supply-side resources do. The challenge in this effort is calculating how much energy efficiency you can count on.
- EPRI is observing a trend in “breaking down the silos” on energy efficiency and demand response with utilities transitioning to a more wholeistic approach. Thus, the focus has expanded from the traditional silos (e.g., air conditioning, building envelope) to a broader perspective.
- EPRI has determined that power quality has become increasingly important to electric consumers as they utilize more advanced electronics. Mr. Siddiqui also emphasized that one of EPRI’s important research areas involves energy use at data centers (which is doubling demand every 5 years). EPRI is looking at the potential benefits of DC power distribution in the data system context.



**Mike Rowand, Director, Technology Development, Duke Energy**

- Mr. Rowand emphasized that distributed generation is “changing the game” for the entire electric utility industry, even in markets with vertically integrated utilities. These changes involve a shift from central generation and one-way power flows to distributed generation and 2-way power and 2-way information flows. These changes allow retail competition without electric market deregulation in Duke’s territory, and the changes are stressing the state utility regulatory system. The state laws on energy efficiency no longer work in some states because energy efficiency has new meanings – not simply just using less electricity.
- Unfortunately, fundamental changes that are occurring in the electric sector are not currently built into the regulatory construct and definition of an electric utility under state law. Utilities are no longer a simple provider of electricity but also are expected to play grid manager roles and provide essential services (e.g., keeping your computer and lights on).
- The model for electric utilities has changed from the “supply follows load” to the model of “load follows supply.” As a result, Duke is also observing and developing new business and technology models. Thus, utilities are facing more and more opportunities but also lots of challenges.

**Ed White, Vice President, Customer & Business Strategy, National Grid**

- There is a convergence of energy efficiency, distributed generation, and the smart grid, and the discussion about the interrelationship of these resources has changed in the past year. Utilities are well positioned to “connect the dots” by partnering with other players in the market.
- National Grid is implementing a Smart Energy Solutions pilot project in Worcester, MA, with a partnership between the city and various stakeholders (e.g., universities, low-income households, large businesses). The pilot involves not only alternative electric pricing approaches but also approaches to help maintain electric reliability in the face of extreme weather events.

**SESSION WRAP-UP**

- This session focused on several trends that are coming together to reshape the future of the electric utility industry, including increased distributed generation (DG) and demand response, the growth of renewable energy and emerging technologies. Panel members emphasized that the convergence of energy efficiency, information technology and DG is changing the game for the entire electric utility industry. Also, this convergence is changing the way many energy consumers think about energy efficiency (EE) because EE is now becoming an asset. The panelists agreed that there is a need for reforms in the electric utility regulatory structure and utility business models to adapt to this new reality.

**ACTION ITEMS & TAKEAWAYS**

- Significant efforts are needed to develop new utility business models and new regulatory approaches to develop win-win models for electric utilities and consumers.