



June 24, 2014

Melanie Kenderdine
Director, Office of Energy Policy and Systems Analysis
U.S. Department of Energy
1000 Independence Avenue, SW
Washington, DC 20585

Dear Melanie:

As you – and your Inter-Agency colleagues – are focusing on the first year of the Quadrennial Energy Review (QER) process and are conducting various baseline analyses from which to establish transmission and distribution electricity and transportation infrastructure policy recommendations, the GridWise Alliance requests and recommends that the following baseline data be collected, and the subsequent scenarios be considered and analyzed, to optimize the outcomes of the vision for the “grid of the future” (i.e., transmission and distribution (T&D) infrastructure) for the year 2030 and beyond.

Baseline Data

- 1) What percentage of distribution utilities have Supervisory Control and Data Acquisition (SCADA) monitoring of distribution feeder breakers?
- 2) What percentage of distribution utilities have SCADA control of distribution feeder breakers?
- 3) What percentage of transmission to distribution substations have advanced monitoring and control (i.e., advanced monitoring beyond alarming of breaker lockouts and basic transformer monitoring)?
- 4) What percentage of distribution utilities have SCADA control of line switches on distribution feeders? What is the average number of switches per feeders with SCADA control?
- 5) What percentage of distribution utilities have advanced remote monitoring at the distribution feeder breakers of current, voltage, two-way power flow, Volt-ampere reactive (VAR), frequency, and so forth, on 75 percent or more of the feeders? (The goal here would be to capture what is being monitored at the feeder breaker.)
- 6) What percentage of these utilities have advanced Distribution Management Systems (DMS) with near real-time load flow and state estimation capabilities?
- 7) How many and, which, states allow customers to participate, at the retail level, in selling services beyond just kilowatt-hours (kWh) to an organized market or to their service provider?
- 8) What percentage of utilities have a Distributed Energy Resource Management System (DERMS) installed or have a plan in place to have such a system installed to monitor and control storage and distributed generation assets?

As you likely are aware, it takes five-to-seven years to plan, approve, and implement the distribution grid monitoring and control capabilities needed to support significant penetration of distributed energy resources (DERs). Without these monitoring and control capabilities, the reliability and quality of power on the grid will be affected. Relatedly, two additional key questions that deserve further analysis include the following:

- In order to keep a viable and affordable grid, what percentage of penetration of distributed generation is optimal to enhance grid resiliency?
- What new processes are needed, related to approving and building new transmission and distribution assets, to reduce the risks of creating new stranded assets associated with non-regulated, market-based decisions to invest in greater penetration levels of distributed generation?

Scenarios

A demographic model for likely penetration levels of DERs needs to be developed.

We request that you consider modeling and analyzing the following scenarios, as part of this first phase of the QER process:

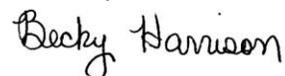
- 10 percent penetration of distributed generation resources;
- 20 percent penetration of distributed generation resources;
- 30 percent penetration of distributed generation resources; and,
- 50 percent penetration of distributed generation resources.

We also request that these related questions be addressed:

- At what penetration levels are ancillary services (e.g., VAR support, frequency support, “spinning reserves”, and demand response) needed to manage power quality and reliability of the distribution grid?
- At what penetration level does the impact to central generation and transmission affect affordability?

Thank you for taking these analyses and modeling exercises into consideration. They would contribute greatly to the public discourse and awareness on these topics as you advance the QER, and as the industry proceeds with grid modernization.

Sincerely,



Becky Harrison
CEO
GridWise Alliance

Cc: Dr. Karen Wayland, Michael Goo, John Richards, Levi Tillemann