

Smart Grid and Clean Energy for Local Governments
EPA Local Climate and Energy Program
April 29, 2010

1. **Question for EPA:** This may be off track for your general audience today. For those of us who work with the U.S. Department of Commerce-Commercial Service to promote exports of U.S. clean energy technologies, can you provide lists of suppliers of smart grid products and services? How might we increase collaboration with EPA on our outreach to more rapidly deploy these on a global basis using export promotion programs?

Answer: To our knowledge, a comprehensive list of smart grid products and services has not been developed. However, a starting point for you could be the GridWise Alliance, which, according to its website, has developed into an organization that represents a broad range of the energy supply chain from utilities to large tech companies to academia to venture capitalists to emerging tech companies. Its member company information can be found at http://www.gridwise.org/gridwisealli_members.asp. Additionally, two upcoming events, GridWise Global Forum in September 2010 (<http://www.gridwiseglobalforum.org/>) and GridWeek 2010 (<http://gridweek.com/2010/>) may be of interest, as many smart grid suppliers are expected to participate in these two events. Both events have international components in their program agenda as well.

2. **Question for EPA:** When a local government reviews a "step down" electric substation (converting transmission voltage to distribution voltage) permit request, what components or design approach should a local jurisdiction recommend to further smart grid deployment? What should be recommended to increase the net metering capabilities of property owners served by the proposed substation?

Answer: At the point of a permit review, a local government may want to look to the policy and utility rate options that were discussed on EPA's State Climate and Energy Technical Forum webcast on smart grid (http://www.epa.gov/statelocalclimate/documents/pdf/schwartz_presentation_3-23-2010.pdf). Depending on the local government's relationship with the utility, the permit process may also be an opportunity to encourage clean distributed generation and combined heat and power (CHP), such as through encouraging fair interconnection standards and net metering/feed-in tariffs, other policy and financial incentives, and opportunities to expedite the permitting process. For more information about the siting and permitting requirements for a CHP facility, please refer to http://www.epa.gov/chp/documents/pguide_permit_reqs.pdf.

3. **Question for DOE:** In regards to the slide with percentage adoption of renewables, I was confused about the main point of that slide. What was the unintended consequence that you mentioned could occur without smart grid technologies?

Answer: The main point of slide 6 of my presentation is that as renewable penetration levels increase, simulation study results in the NREL report indicated some undesired consequences, as shown in the graphs with progressive penetration levels from no new renewables to 11%, to 23%, and finally to 35%. At 35% renewables, the combined cycle units are almost completely off, gas turbine output has increased, and the coal plants are cycling significantly. Even the nuclear units are trying to cycle some, but reality would indicate a need to spill some of the wind generation. Thus, smart grid technologies are needed to provide resource management solutions under high penetration scenarios to achieve optimized performance of all available resources.

For more information, please refer to <http://www1.eere.energy.gov/solar/rsi.html>.

4. **Question for Austin, TX:** In the Pecan St. project, how do you plan to obtain data for energy use within a household?

Answer: Through the use of sensors and embedded computer chips within appliances, Pecan Street's research teams will gather data on energy, water and potentially natural gas use at the appliance and core system (such as HVAC and building performance) level. Gathering data at this fine-grained level also requires wireless (or wired) connections to a home management system and to an advanced meter. i.e., the appliances and systems within the household will need to communicate energy, water and gas use levels to a home computer and advanced meter.

5. **Question for Boulder, CO:** Does Xcel have sole ownership of the data collected from households on energy use? Does the city have access to the data? How will this data be used?

Answer: The Colorado Public Utilities Commission (PUC) has opened an investigatory docket relating to the use and release of data associated with SmartGridCity™. Information relating to that docket can be found at <http://www.dora.state.co.us/puc/DocketsDecisions/HighprofileDockets/09I-593EG.htm>. On a related front, the city is working with Xcel Energy and the PUC to enact a pilot data-sharing program, wherein Xcel would work with a 3rd party aggregator of monthly utility usage information (not Smart Grid-related, 15-minute interval data) in order to measure the effectiveness of and encourage participation in the city's Climate Action Plan programs. With respect to SmartGridCity™ specifically, On an annual basis, Xcel is being asked to provide to the City a report on energy saved and greenhouse gas reductions that result from the various applications associated with SmartGridCity™, including reduced line losses, voltage reductions, time-of-use pricing results, in-home device deployment, and other efficiencies.