

Smart Grid Influence Extends Well Beyond Energy

By Michael Vizard

On the face of it, the high-level draft of a standard for a new Smart Grid power distribution system is a noble effort to make the entire country more energy-efficient.

Its key goals include cutting oil imports in half, reducing carbon dioxide emission by 25 percent and cutting urban pollutants by 40 to 90 percent. To accomplish this, the Department of Energy has empowered the National Institute of Standards and Technology (NIST) to develop a set of technology standards and specifications of unprecedented scope.

An initial cursory scan of the draft standard presented today by U.S. Department of Commerce Secretary Gary Locke finds comforting phrases such as the Smart Grid network as much as possible should be based on IP networks that work in a way where an event on one part of the network does not affect performance elsewhere.

But then the document goes on to describe 77 existing or new standards that to one degree or another will need to be enhanced or developed to create the Smart Grid. Those standards include everything from basic networking to XML and modeling languages and a range of new cyber-security technologies. For example, the BACnet standard commonly used in building automation systems will need to be extended to interoperate with a number of other networking and security technologies that comprise the Smart Grid.

None of that is necessarily a bad thing; it's just probably not clear to most people the extent to which the U.S. government will now be defining a lot of standards that previously got hashed out in smoke-free backrooms by the vendor community. This is a good thing in that vendors typically leave standards half done when it comes to interoperability in the name of their own self interests. But all the same, the U.S. government might want to be a little clearer about the scope it intends to play in setting the agenda for technology standards under the guise of the Smart Grid program.

Despite the lack of clarity, there is a huge potential for good here, including shoring up existing IP network technologies, adding missing layers of security into our networks, and the development of so-called bi-directional smart meters. All in all, the Department of Energy will spend roughly \$11 billion to transform over 3,000 miles of electric transmission systems and the development of over 40 million smart meters. The DoE is also spending \$3.3 billion on Smart Grid technologies to support manufacturing, purchasing and installation of Smart Grid technologies. Counting private organizations outside the government, total investment in smart meter technologies is valued \$40 to \$50 billion.

Given that level of spending and the associated weight that goes with it, don't be surprised to wake up one day to discover that the Smart Grid project not only made us more energy-efficient, it going forward in one way or another, shapes the development of every technical standard on the "smarter" planet.

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