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## Dealing with the data deluge

**With great data... comes great responsibility...**

What will a truly smart-grid enabled world entail and how might we get there? What role do regulators, technology innovators, utilities, and telecoms have to play? Will consumers lead, follow, or get run over by a smart-grid revolution? Those questions were on the minds of speakers and attendees during Day 2 of the GridWise Global Forum in Washington, DC. Over the course of four sessions, panelists contemplated a future in which technology enables consumers to monitor and control electricity usage in unprecedented ways.

Before such halcyon days arrive, however, there are immediate challenges, namely: the global economic slowdown and its impact on current utility investment; lack of utility company spending on research and development; the need for new, non-utility players to innovate business models around customer data; and the need to safeguard consumer privacy.

On the technological horizon lies new semiconductor-based power electronics that will allow utilities to more effectively control the flow of electricity at substations. Gary Rackliffe of ABB noted that smart grid technologies are causing utilities to "converge their operational and information systems" fairly quickly.

The 'data deluge' caused by this transition creates many opportunities and challenges. Privacy laws appear to trump concerns over grid security, and as Andy Bochman of IBM noted, "people have died for this right." Trust from consumers remains the most important part of the data sharing equation. Lee Tien of the Electronic Frontier Foundation noted that, "we have confidence that the information we give our doctors, or lawyers will be used in our own interest," and that laws are needed to inspire such confidence.

During a lively afternoon session, a panel consisting mostly of regulators discussed the various obstacles to deploying and funding the smart grid. Minnesota Public Utilities Commission Chair Ellen Anderson said the privacy concerns raised earlier in the day might be less relevant to young consumers who routinely share and consume voluminous amounts of information, primarily over the Internet. Unlike their parents, who typically have little interest in their electricity bills, young people may well be more tuned in. "I think the next generation is going to have completely different expectations from our current customers," she said. But the many potential electronic gizmos that could be affiliated with a new, smarter grid must be marketed and promoted to consumers. "Those types of things are not something utilities normally do or that we want them to do," she said.

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The inherent conflict between regulators, whose main role is to ensure adequate and reliable access to power, and tech firms looking to innovate was a recurring theme through the session. Kathy Brown of Verizon and the only non-current or former electricity regulator on the panel, said the current model is fundamentally unwelcoming to innovation. Brown added that telecoms such as Verizon offer a "second pipe" into the home and are poised to play a key role in energy monitoring and adjustment. "Guess what, this is very disruptive, I understand," she said, "it's going to happen no matter what."

Perhaps, but at some point the cost of such change needs to be covered. For her part, Anderson said this remains problematic and she strongly disagreed with comments made on Day 1 that further federal funding is now unnecessary post-stimulus. "We want money!" she said, "So the ratepayers don't have to pay for it."

Session moderator Ron Binz of Public Policy Consulting raised the question of whether consumers will ever have interest monitoring their electricity usage under the relatively flat electricity rate structures present in most US states. Would not variable pricing motivate ratepayers to track and control when they wash the dishes? Maureen Harris of the New York State Public Service Commission said that such changes are not so easy in her state or others. She noted that statutes bar the imposition of time-of-use pricing in a number of states and that state legislatures must step in to remove those before major change can come.

The day's final session featured a panel of mostly technologists. The conversation quickly turned to the question of how a smarter grid fits within the larger question of 21<sup>st</sup> century infrastructure in the urban context. "What we should shoot for is sustainable existence in the city," said Shlomo Wald, chief scientist at the Israel Ministry of National Infrastructure. "I call it 'sex in the city.'"

Jeff Meyers, smart grid executive at Telvent, concurred that a well planned electricity grid needs to be viewed in the larger context. "Anytime we can use the word 'sex' legitimately... that's excellent," he said to laughs from the audience.

Meyers added that when thinking about these issues holistically, a top-down, hierarchical model is probably not best. Several others on the panel agreed with Wald arguing that the Worldwide Web should be viewed as the model, due to its diffuse nature. "Who is the manager of the Internet?" he asked. "There is none."