The smart grid and standards—where are we and what do we really need?

Across the United States, companies have already or are in the process of implementing smart technologies into their transmission, distribution and customer systems. The pace of this implementation nationwide is determined by legislative and regulatory policy, the desire to increase reliability and operational efficiencies, and the ability to create value for customers and other stakeholders. In Texas, for example, the Texas Legislature developed functional requirements and a cost recovery mechanism, and charged the Public Utility Commission of Texas to provide oversight over the deployment filings of utilities in Texas. The GridWise Alliance membership agrees that development and adoption of open standards to ensure interoperability and security are essential for a smart grid; we do not, however, want to impede ongoing smart grid deployment.

What has been done so far on developing standards?
In some cases, utilities have defined open standards in the requirements for smart grid technology. Since the smart grid is broad in its scope, the potential standards landscape is also very large and complex. Utilities, vendors and policy makers are actively engaged. There are already mature standards that are applicable to some aspects of the "smart grid"; much of the new work on emerging standards and cyber-security can be leveraged from what already exists.

Technology is not the barrier to standards adoption. Vendors and utility engineers need to have a clear understanding of what standards exist and the best practices for their application. The Federal government can oversee a process involving both utilities and vendors, and prioritize and oversee the highest value tasks. Standards development should be performed within the existing Standards Development Organizations, and adoption must consider the current state of deployment, projects in progress and vendor product development lifecycles. The greatest opportunities for standards development are in integration of distributed generation and interfacing consumer goods and the grid, known as the HAN (Home Area Network). These standards could spur faster development of distributed generation products and smart appliances.

What can be done right now with the protocols and standards we have?
Most off the shelf technologies are governed by standards and meet those. A utility that must answer to both shareholders and their utility commission and provide a cost-benefit analysis for any smart grid project. As long as deployment of smart grid includes a long-term plan for interoperability as communications platforms and cyber security requirements evolve, we should not delay funding smart grid projects for the NIST process to be completed.

What are the true impediments to deploying smart grid?
Regulatory approval is an issue since smart grid technologies must be built into the rate base and justified in a cost-benefits analysis.
Lack of availability of capital is an impediment to every investor in the current economy, including those developing smart grid systems.
Finally, regulatory incentives to use standards based interfaces at well-defined points of interoperability will foster competition and put vendor and systems integrator communities on a level playing field.