

Select Committee on Energy Independence and Global Warming

“Get Smart on the Smart Grid: How Technology Can Revolutionize Efficiency and
Renewable Solutions”

February 25, 2009

9:30 am

2247 Rayburn House Office Building.

Witness Questions for the Record

Questions for all Witnesses

1. What steps can Congress take to reduce the time to deploy smart grid technologies?
2. How much will the whole development of a smart grid cost? How should these costs be allocated?
3. Do you support the inclusion of nuclear energy as a source of low-carbon electricity?
4. How does the problem of intermittency in renewable energy add to the challenge of a smart grid?

Questions for Mr. Hoecker:

1. Has WIRES studied how much additional transmission would be necessary to support a national 20% renewable portfolio standard? How much would adding the extra transmission capacity cost?
2. Can you explain the costs and benefits of underground transmission capacity? What currently limits constructing underground transmission lines? Do you foresee a point where it is not cost-prohibitive?
3. How are ISO's, RTO's and federal public power administrations, such as WAPA, collaborating to resolve transmission difficulties? What can be done to enhance further cooperation?
4. How do you anticipate FERC's NIETC authority will effectively be exercised? In reality, will utilities ask FERC to over-rule state public utility commissions, when those commissions are the rate-setters for the utility? Are there ways to resolve the tension between FERC's authority and state regulatory bodies?
5. What incentives do States have to agree to the construction of transmissions and power lines through their lands en route to energy delivery to another State? In your discussions with investors and government representatives, what suggestions have been made to address that, particularly in light of the recent court decision hampering FERC's ability to manage the process?
6. In considering the thousands of miles of wires that will have to be erected and supported, what suggestions do you have about cost allocations, especially when passing through states to reach a different final destination? Should the costs be borne by the developers and utility companies, or the recipient of the Smart Grid energy?
7. With the specter of terrorist threats looming in our nation's subconscious, what precautions do we need to take/consider when building and protecting these new infrastructures to support Smart Grids?
8. You believe that siting electric transmission lines is a serious challenge to the build-out of the grid to serve renewable energy resources, or any other resources. Congress established federal backstop authority two years ago to help streamline the process. Has it helped? Where do we go from here?

9. Recently some strong advocates have emerged in favor of federal siting and interconnection-wide planning of the grid, especially if these measures can facilitate the development of "location constrained" clean energy resources. On the other hand, this is an industry that has always been largely state-regulated. What should the federal role be in the future of this key infrastructure network?
10. Are there transmission related technologies that improve system operations but which we might not be associating with "smart grid"?
11. WIRES has recommended reform of the planning, siting and cost allocation processes that govern the grid. What is the single most valuable objective we should be keeping in mind if we legislate in this area?

Questions for Mr. Zimmerman

1. Your testimony focuses primarily on energy efficiency initiatives that Wal-Mart is pursuing. Can you explain how a smart grid would influence these projects?
2. What is your break-even time for a variety of your energy efficiency projects, such as the rooftop heating and air-conditioning units and the LED freezer lights?
3. How have your economies of scale enabled the complex energy monitoring system? Do you think such a complicated system is feasible for firms that aren't as large as Wal-Mart? Does your energy monitoring capability easily translate to smaller firms?
4. Have the current economic conditions affected your ability to secure financing for these capital projects? How do you prioritize energy efficiency projects compared to other capital projects, such as continuing to invest in your supply networks?
5. In your testimony, you note Wal-Mart's goal of being supplied by 100% renewable energy. How much of your existing energy is generated by renewable sources? What steps must be achieved in order to meet this goal? How does Wal-Mart plan to overcome the intermittency issues?
6. Did you seek Federal assistance to implement the efficiency upgrades in your store? Does Wal-Mart believe these changes and upgrades have been cost effective?
7. Is it necessary to spend taxpayer's money to encourage technologies that are already market viable?
8. What impediments exist that prevent other companies from following Wal-Mart's lead in efficiency upgrades?

Questions for Mr. Casey

1. Are you seeking federal stimulus money from the Department of Energy to deploy your technology?
2. What sort of interoperability standards need to be developed to facilitate a transition to a smart grid? How will the development of those standards affect the deployment of your products?
3. What sort of cyber-security concerns need to be addressed? Are you confident that a smart grid can resist a cyber attack?
4. You note your contributions to the development of a smart grid in the European Union. What has been the most challenging aspect of the E.U. project? Are there lessons learned that can be applied here in the United States?
5. How do you anticipate renewable electricity will be delivered without a significant upgrade to the existing grid regardless of “smart” technology? Does CURRENT support FERC’s authority to designate National Transmission Corridors?
6. What gains in energy storage capacity must be attained prior to wide scale deployment of a smart grid? Without adequate storage capacity, how can a smart grid resolve the underlying problem of intermittency in renewable electricity? Even with the existence of a smart grid, isn’t there a basic need for base load generation?
7. What is the best manner to overcome the “chicken and the egg” problem of selling smart meters vs. real-time pricing?
8. Who should pay for Smart Meters? Consumers? Utilities? What incentive do consumers have to spend a large sum on the device?
9. In your testimony you mention the possibility of PHEVs and their integration into the existing grid. Even with enhancements that may accompany a smart grid, how much additional generation and infrastructure will be necessary to support the additional demand? Who should pay for the additional investment and how would this affect the timeline for the development and deployment of smart grid technologies?

Questions for Mr. Gilligan

1. Are you seeking federal stimulus money from the Department of Energy to deploy your technology?
2. On average, how much extra do “smart consumer appliances” cost compared to traditional new appliances?
3. What is your current production capacity for your Ecomagination certified products? How quickly and at what cost could the installation take place? Isn't your scope overly expansive considering existing barriers to replace every transformer?
4. What sort of interoperability standards need to be developed to facilitate a transition to a smart grid? How will the development of those standards affect the deployment of your products?
5. What sort of cyber-security concerns need to be addressed? Are you confident that a smart grid can resist a cyber attack?
6. If the benefits of smart meters and smart grid are apparent, what is hindering the private development of the technology? Is there a reason taxpayer dollars should be paying to purchase GE Smart Meters?
7. What is the scale of your demonstration project with American Electric Power? How are you translating that project into a larger pilot demonstration?
8. Does GE believe that a patchwork of state public utility commission regulations is best suited to deploy smart grid technology? Is GE working with states to improve transmission and distribution of electricity? What can Congress do to overcome the existing burden of a regulatory maze?
9. What is the best manner to overcome the “chicken and the egg” problem of selling smart meters vs. real-time pricing?
10. Are there recommendations from the Dept. of Energy's Energy Advisory Committee's report that you disagree with?
11. How do you propose rural broadband service is funded? Is GE looking into investor-funded projects to take advantage of the synergy that is discussed?
12. How much time, money, and research is GE spending on development of products designed to work with and take advantage of a Smart Grid system? What products are the primary focus of your R&D?

13. What parts of the nation do you anticipate being the first beneficiaries of Smart Grid technology? In other words, where geographically is GE looking in terms of making initial dollars available for infrastructure developments?

Questions for Mr. Schurr:

1. Do you have any strategic partnerships in your development of smart grid technologies?
What other sectors is IBM collaborating with?
2. What gains in energy storage capacity must be attained prior to wide scale deployment of a smart grid? Without adequate storage capacity, how can a smart grid resolve the underlying problem of intermittency in renewable electricity? Even with the existence of a smart grid, isn't there a basic need for base load generation?
3. Are there recommendations from the Dept. of Energy's Energy Advisory Committee's report that you disagree with?
4. What sort of cyber-security concerns need to be addressed? Are you confident that a smart grid can resist a cyber attack?
5. You note extensive energy efficiency gains due to the cost of energy. Is there a reason to believe this trend will not continue? Considering the benefits associated with deploying smart grid technology, do you anticipate private capital to fund further projects?
6. How does IBM leverage its size to make use of energy monitoring? Is IBM examining how to partner with other businesses to pass along the economies of scale?
7. Has IBM directed any R&D spending towards combined heat and power systems? How long until IBM believes distributed generation systems will contribute to the grid?
8. In your testimony, regarding renewable energy you say, "to the degree that variable supply can be matched in time, quantity, and location to variable loads, this concern is significantly mitigated." Is IBM working with labs, such as NREL, to produce highly detailed wind resource maps? What other steps can be taken to improve the ability to forecast renewable energy supplies?
9. You note how venture capital has contributed towards funding research on new technologies. Do you expect this to continue?
10. Are there steps that Congress can take to speed up NIST to establish interoperability standards?