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**From:** Gabriel, Mark  
**Sent:** Monday, September 20, 2010 12:48 PM  
**To:** SmartGridPolicy  
**Subject:** Smart Grid RFI: Addressing Policy and Logistical Challenges

There are three fundamental issues in the advancement of the smart grid in the U.S. These impact both logistical challenges as well as policy imperatives.

- The current regulatory schemes disincent utilities from making smart grid investments.
- Utility mindset and culture runs counter to the adoption of new technologies
- Energy policy does not take into account the issue of physical (versus political) operations of the system

### **Regulatory Hurdles**

Under most regulatory rules and policies in the U.S., utilities are incentivized to making the lowest cost investment which yields the highest return in the case of shareowner companies, the least immediate rate impacts for municipal utilities and the longest potential payback for rural electric coops. For investor owned utilities, regulators do not want the consumer to have any risk—even if the long term benefit is greater. This is further complicated by the fact that rate cases are multi-level decisions: what may be “given” to smart grid in terms of expense or capital recovery can be “taken” in terms of tree trimming, transformer improvements or other expense items. This means that a utility has to calculate its risk in terms of losing other recovery. A clear example is that of transformers. Under the current scenario, transformers are purchased with a known amount of loss. They are not purchased at the most efficient level possible (even though the new transformers are significantly more efficient than the old based on the new rules in effect 1/1/2010) but rather balancing a utility’s capital and expenses with recoverable line losses.

The regulatory challenge is exacerbated by the reality that utility investments last decades and regulators last years. It is a particular problem in that benefits will not meet short term hurdle rates and therefore fall out of the regulatory logic that is applied. Yet, as has been the history of the business, the benefits of investments in infrastructure have, almost always, paid off in ways that cannot even be calculated or imagined.

### **Utility Mindset**

The history of the utility business has been to deploy technology that is proven, reliable and with as little risk as possible. This has been a good thing in that it has given the U.S. the best electric system in the world with the highest level of reliability. It is, however, a challenge in the introduction of new technologies with advanced capabilities. The engineering mindset, tied to the regulatory system, makes the addition of new equipment and products very difficult, take exceedingly long times and requires vendors to deal with each utility as a “snowflake” with individualized testing, pilots, product deployment schedules and guarantees.

The “fear” of new technology is evident in the recent smart grid business cases which have overloaded the cost/benefit analysis with consumer benefits as well as requiring the customer participation at levels that are unrealistic both in terms of practicality and the reality that most consumers do not want an active role. The majority of the benefits of smart grid will inure to the utility—and only the customers indirectly. The calculation is made more difficult but the utility’s general unwillingness (again with good reason) to agree to system savings and operational benefits for relatively unknown technology. Agreeing in the business case that the smart grid will improve outage response, reduce truck roles etc. and then making the staffing and budget cuts on the other side of the equation runs counter to utility and human nature.

### **Energy Policy**

Energy policy needs to take into account the physical operation of the system. While it can incent additional investments in smart grid, renewables or loading order, it cannot lose sight of the fact that there are system constraints and operational demands. Mandates for customer participation, for example, may not link with the way in which utilities perform their day-to-day business. Therefore, any technology or smart grid mandates should take into account the way the system operates in the physical world—not just in the political world.

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