



The Maze on the Way to Interoperability

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The beginning (“today is the first day...”)

- Differing regulatory environments
- Differing transmission operation structures
- Disparate goals in operation of utilities (don't own or control gen)
- Mandatory reliability standards
- New guidance through EPACT 2005 High % of electric load served by ISO/RTOs which are increasingly coordinating.

The End (or continual beginning)

- Transformation of how all things electrical interface and act as a whole
- The impact dramatically more powerful than the sum of the parts
- **Interoperability** from the smallest and largest resource to the smallest and largest load and all in between.
- Unparalleled opportunities to improve reliability, optimize investment, enable entrepreneurial services and products.
- As in examples of supply chains and banking, the electric system (all things electrical that are connected) can be **transformed** by electronic communications and actions.

The path between

- *We* don't have the map for the path *we* are on. (But *we* do have paths before us).
- A road map – Where are *we*? Where do *we* want to go? How do *we* get there?
- *We* will likely need both “Intelligent Design” and “Evolution”
- The technology exists for extensive **interoperability**. The issue is putting the pieces together.
- The payoff is a way out there. (A pretty complex task!)

So... what is the GridWise Architecture Council doing?

- Mission: help establish broad industry consensus in support of the technical principles framework that enable the vast scale **interoperability** necessary to *transform* electric power operations into a system that integrates markets and technology....
- Results: Reliability, Commercial value added, Enhancement, Security
- Scope: all operations of the electric system, including end use (load, generation, and storage), distribution, transmission, and generation.

Step 1: A Constitution

- Last December the GWAC in conjunction with over 100 others spread through many segments of the industry endorsed a Constitution that embraces principles of Information Technology and Business connectivity, Usability, Regulation, and Governance.
- The Constitution consists of a set of fundamental, strategic statements that, commonly held, will facilitate the interoperation of electric system components and those parties involved in the production, transport, and use of electricity.

- Based on the common values and guidelines of a commonly held (and evolving) constitution → Grow an **interoperability** framework.

- Among other things this framework is expected to be implemented in the distributed gen and demand side that enables customer interaction and appropriate signals.
- While very BIG and complex, the technical and business development is *not* the greatest challenge.
- It will be gaining support and common action among regulators.

Regulator action is needed to.....

- Remove barriers: Present regulation is diverse and would prevent many of the expectations for future interoperability.
- Enable the future: Clear impetus is needed to incent action.
- This demands thoughtful concentrated and consistent efforts with national, state, and local regulators.

The GWAC Constitution says....

- R01- (v1.0) Interoperability strategies and issues must be communicated in a form to be understood by regulators and policy makers.
- R02- (v1.0) Interoperability approaches among organizations must allow regulators the ability to verify that business is conducted within established rules and that all transactions are auditable.

Constitutional Convention said.....

- Actions need to be taken in the areas of
 - ❖ regulatory decision-making and practice;
 - ❖ market design;
 - ❖ incentives;
 - ❖ technology development; and
 - ❖ information, education, and awareness.
- Policymakers and stakeholders need to be able to understand the concept and the steps for success in simple, easy to grasp, terms.



You and the GWAC

- The GridWise Architecture Council will work with you to build consensus on an effective path for implementing interoperability.
- This includes developing a plan for working effectively with regulators.