

Good Morning and thank you for the opportunity to be here today. I am Jack Mc Gowan and am here as Chairman of the GridWise Architecture Council, as well as CEO of Energy Control Inc., to discuss the idea of Interoperability, which primarily addresses the last question that was posed for this panel. Interoperability is an information technology characteristic of equipment and systems and the word itself can be daunting. That is why the Policy Team of the GridWise Architecture Council has put a great deal of effort into developing the draft document circulated here today, with a goal of defining the term and its importance. To simplify this discussion, I would ask you to reflect on the first time that someone explained to you how the Internet works. It was very likely confusing and full of technical jargon that seemed quite foreign. Yet we have all come to understand, at least conceptually, how the Internet works and more importantly how it has changed our lives and transformed the way we carry out many activities. Well the Internet is nothing more than an interoperable collection of computer networks that facilitate communication, can deliver massive amounts of information and can offer access to a wide array of products and services. That is interoperability. The GridWise Architecture Council believes that Interoperability can be applied to electricity and have the same type of transformational impact on the US electric Grid that the Internet has had on business, education and entertainment.

The growth and success that has been seen with Demand Response is an early indication that Interoperability can have the impact that we foresee. Demand Response leverages Interoperability in a limited way with a very specific goal, curtailment. That point may require some further explanation because I am not saying Demand Response is flawed in any way. Rather I am saying that expanding the breadth of functionality that is currently being implemented with Demand Response would lead to more expansive benefits for the electric system and the electric user, while at the same time creating far reaching business opportunities in the energy arena. So you might ask what would this look like? Well

consider that we now can see our telephone as a camera, a computer for email and software applications, a music player, etc. This is possible because an interoperable system has been created that leverages smart devices. The phone is simply an interface device, and the telecommunications infrastructure is the system. In much the same way, an Interoperable Electric System would make it possible to enable Demand Response, but it would also make it possible to do much more than curtailment.

Leveraging an Interoperable Smart Electric Grid would also open dramatic opportunity for predictive and proactive strategies that make it possible to reshape demand curves based upon operational and economic data. From an operational perspective, predicting load curves based upon past performance, weather and other factors would make it possible for such a grid to leverage Interoperability, from end to end within the electric system, to enact changes in the way that users consume power. This would relieve stress points on the grid and result in energy efficiency. From an economic perspective, consumers in all sectors would, for the first time, be able to use the power of smart systems to choose to shape the amount of energy they consume based upon the value that consuming that energy produces. The net effect of Interoperability will be to create an eBay style marketplace for electricity, which enables utilities to utilize the demand that customers represent along with price signals and other economic data to change the fundamental characteristics of the electricity transaction. The system is designed for power to flow one way and money to flow the other when the bill is paid. Demand Response is an exciting example of how customers and utilities are willing to change the dynamics of that transaction process. As we all know, it is critical to enable these types of strategies in the face of recent predictions that suggest the U.S. electric industry will invest \$300 billion in new T&D facilities (including advanced meters) over the next decade, and \$400 billion in new power plants over the next 25 years. These investments are driven by estimates that electric demand will increase 40% over the next 20 years.

Demand Response is a valuable tool that can be dramatically expanded by using Interoperability in a Smart Electric Grid to create smart strategies that utilize technology to enhance system reliability. My expertise is in both energy and Intelligent Buildings, and in many cases buildings are already deployed with the technology necessary to implement Interoperability. Many demand response providers are leveraging this technology to execute strategies on demand upon a signal from the utility. The technology however has far more capability and is one example of how interoperability can be deployed.

The challenge for the Federal Energy Regulatory is to recognize that Interoperability has a cost but adds great value, and to further policy that enables investment in Information Technology and smart system components. Underlying interoperable systems in other industries has been hard work by many people over many years to converge around a common vision of the value of an interoperable system, develop common principles and architecture for the bones of the system and some early applications goals, agree to common information protocols and device identification -- and eventually, converge around the detailed standards that express and implement all of these things.

Interoperability can help to hedge against how quickly the investment in infrastructure must be made. However if we start now, we can build interoperability principles and capabilities into those investment when they are made, and hasten the improvements in reliability, costs, innovation and value that interoperability can deliver and this is a key focus of GridWeek in Washington as we speak. If we do not, more resources will be wasted, more assets stranded, and reliability threatened by our failure to move ahead with grid modernization and interoperability.

Thank you