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Transactive energy framework released at SGIP conference
GWAC document defines future energy management system

RICHLAND, Wash. – Developing and implementing transactive energy solutions – which coordinate energy use and generation based on power price signals and grid conditions – can be done from a common point of reference with the help of a new document that will be unveiled at today’s [Smart Grid Interoperability Panel Conference](#) (SGIP). The document, the Transactive Energy Framework, was developed by the [GridWise® Architecture Council](#) following workshops held during the council’s [transactive energy conference in May](#). The SGIP conference featured a panel discussion today about the framework document, followed by breakout sessions.

Over the past decade, the use of demand response and other flexible mechanisms for power market efficiency and electric grid reliability has grown dramatically. Combined with the need to substantially scale up the use of intermittent, renewable energy, these changes to the power system require new systems and frameworks that ensure grid reliability in an economic and efficient way. With support from the U.S. Department of Energy, the GridWise® Architecture Council developed a conceptual framework that can be used in developing architectures and designing solutions related to transactive energy. The goal of this effort is to encourage and facilitate collaboration among the many stakeholders involved in transforming the power system and advancing the practical implementation of transactive energy.

“Transformations in our industry, including growth of both renewable and distributed energy resources and the use of intermittent resources, are making it increasingly difficult to continue to use the load-following operational model,” said Mark Knight, GWAC Chair and one of the co-authors of the document. “Recognizing this, the GridWise Architecture Council’s Transactive Energy Framework document provides the industry with both tools and a common language for describing transactive energy systems and comparing the features, functions and elements of different transactive energy approaches.”

Transactive energy provides a way to maintain reliability and security of the power system along with the desire to increase efficiency. These multiple goals pose a multi-objective control and optimization problem. This is one reason why transactive energy embraces both the economics and engineering of the power system. The same considerations outlined for the electric grid apply to building energy systems and other local energy systems such as micro-grids.

The document covers several aspects of transactive energy, such as:

- Clear definitions
- Explanations of technical and economic drivers motivating transactive energy
- Addressing of transactive energy from multiple perspectives including:
 - Business and policy considerations
 - Business models
 - Value creation
- Conceptual or reference architectures for transactive energy systems
- Identification of the challenges to implementing such systems

The council intends the Transactive Energy Framework to be a starting point for further development of transactive energy through engaging the broad community of smart grid researchers and practitioners. “I think this document is a great start, but it’s not the end of the story,” said Knight. “We still have much more work to do.”

The framework document was presented during a panel discussion and breakout session at SGIP. More information on this is available in the conference agenda: <http://www.sgip.org/conference-agenda-page/#sthash.wdptbmeO.dpbs>.

More information about transactive energy is at http://www.gridwiseac.org/about/transactive_energy.aspx

The Framework document is available for download at <http://www.gridwiseac.org/about/publications.aspx> in the “Work Products” list.

About the GridWise Architecture Council

The GridWise Architecture Council was convened in 2004 by the Department of Energy with support from the Pacific Northwest National Laboratory. As a volunteer council, the GWAC includes practitioners and leaders with broad-based knowledge and expertise in power, information technology, telecommunications, financial systems and other fields who are working together toward a coordinated GridWise vision—the transformation of the nation's energy system into a rich, collaborative network filled with decision-making information exchange and market-based opportunities.

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Contact:

Ron Melton
Administrator, GridWise Architecture Council
+1(509) 372-6777
gridwiseac.coordinator@pnl.gov

Media contact: Franny White, 509-375-6904 or frances.white@pnnl.gov