'Global Agenda for Smart Grid is the Need of the Hour'

Smart Grids are critical to the future of energy. **John McDonald, Chairman, Smart Grid Interoperability Panel (SGIP)** reveals various initiatives taken by SGIP to help countries transform their electricity infrastructure. McDonald is also the director of technical strategy and policy development at GE's Digital Energy business.

What kind of work does SGIP do? Which countries are involved with your organisation?

The roots of SGIP begin with the 'Energy Independence and Security Act of 2007,' which made the National Institute of Standards and Technology (NIST — a branch of the USA Commerce Department), the overall coordinator for Smart Grid standards. As a response to the mandate, in 2009, NIST received $12 million from the American Recovery and Reinvestment Act to be able to execute on that mandate, and the 'Smart Grid Interoperability Panel' (SGIP) came into existence. I have been chairing the board since 2010.

In late 2010, the Korea Smart Grid Association approached us and we did joint workshops. After an SGIP meeting in Texas recently, we did a workshop on smart grid standards where there were around 15 subject matter experts from Korea. Later, the Japan Smart Community Alliance, a group of over 700 companies, reached out to us and we signed an agreement. We have a great working relationship with them.

> **"Most countries have realised that maintaining different national standards is a trade barrier**

The EC formed a Smart Grid Coordination Group (SG-CG) and we have an agreement to collaborate on a harmonised conceptual model, cyber security testing and conformance and international standardisation. We also have an agreement with Ecuador, where we focus on the same areas of collaboration as the EU and discuss regulatory issues to help promote smart grid efforts. Same goes for Colombia and Brazil. Latin American countries that are most progressive in the smart grid area are Colombia, Ecuador and Brazil.

Have smart grid standards evolved? Do you think they are going to be national standards?

A handful of SGIP people, including myself, have been invited to speak at European Union (EU) Commission SG-CG meeting in Brussels. Three areas of interest between SGIP and the EU are architecture, cyber security and testing and certification. Our conceptual reference model for smart grid that we published in 2010 has seven domains: customers, markets, service providers, operations, bulk generation, distribution, and transmission. We published graphics that showed the smart grid elements of each of the different domains. At that time, it was revolutionary because no one had defined the different smart grid domains before. EU has added an eighth domain which is distributed energy resources. We did not see the need to list it separately as our list had distributed energy resources including transmission, distribution and customer domains.

There are differences between different countries, but I honestly believe that most countries have realised that maintaining different national standards is a trade barrier. For instance, you are in Malaysia and you have developed a product that you want to sell in another country. If it is based on your own proprietary standards, then chances are that no one is going to be interested in the product. The Trade Development Association in Washington, DC has helped us focus on interoperability as a key initiative. There is a broad international consensus that we all need to work together and harmonise standards.

Within the US Department of Commerce, there is a group that focuses on smart grid standards. They travel to other countries and host smart grid events in those countries to bring them together with the United States for faster cooperation. Ecuador was the first country to have a country-wide strategic plan for smart grid.

Do vendors like GE, the big manufacturers of electric power equipment, see a big business opportunity if there are some standards as supposed to everybody having their own proprietary world?

They do view it as a big business opportunity and the reason is that from a business perspective, smart grid has added another dimension to what we did before. But that does not mean we have discarded what we did in the past, selling intelligent electronic devices (IEDs) or systems like GIS, OMS or DMS. The bottom line from a vendor's point of view is that when we put a holistic solution together, there is a good chance that we will be integrating our technology components with the other vendor's components and we may also have a third party that plays the role of a partner to fill the technology gap. The only way that is going to work is if you have internationally recognised standards. The components in the control centre, substations and feeders have to be interoperable. So the vendors have to embrace standards if they want to be successful.

Some vendors are fearful that if they standardise their devices it may prevent them from being innovative. This is not true. A good example is the IEC 61850 international standard for substation automation. So GE and our competitors would model a regulator using the 61850 standard object model, so the core capabilities across vendors is going to be pretty much the same and we can all work together to model the same capabilities as vendors. But then we individually model the distinguishing characteristics of our products which differentiate them from other vendors. The 61850 has truly been embraced by every country including China. America is lagging behind other countries in adopting 61850, because most utilities in the US have not adopted the turnkey project approach which is widely used in Europe.

What is your take on the importance of location when we are talking about smart grid?

I have been a firm believer for a long time that geospatial information is part of the foundational platform for smart grid. GE's Grid IQ Insight, which is a software platform of the future for smart grid, includes geospatial technology. We have been developing analytics on that platform and we found that geospatial information is a key component of utility analytics.

What I would really like to gain through our MoU with the OGC is their inputs with respect to our domain expert work groups, some of our priority action plans and the committees we have for architecture, cyber-security, implementation methods, certification etc. to see where we should be including geospatial information.