2016 Top Markets Report Smart Grid Sector Snapshot

Smart Grid Information Communications Technologies (ICT)

State of the Market

Turning to the behind-the-meter and emerging ICT space, nations deploying advanced metering infrastructure (AMI), new analytical tools to promote energy efficiency and distributed energy resource aggregation, and developing connected smart grid networks are the focus of the Smart Grid ICT sub-sector rankings.

As demonstrated in Figure 5, there is a diverse array of products and services that comprise the smart grid ICT sub-sector. As highlighted previously, this is expected to grow. For example, smart meter deployment grew by 15 percent in 2015 with over 622 million meters deployed globally. In 2015, Japan surpassed China to become the largest smart metering market. Bloomberg New Energy Finance further predicts that smart meter deployment will continue to grow at 8 percent CAGR over the next three years.[1] The global market of smart grid data analytics – AMI analytics, demand response, grid optimization, asset management, and other analytical tools – was estimated at $1.6 billion in 2014 with an expectation that it would triple to $4.6 billion by 2022, according to Transparency Market Research.[2]

U.S. Competiveness

As described in previous sections, available trade data for the Smart Grid ICT sub-sector is an acute problem. Understanding U.S. competiveness in this sub-sector is largely dependent on qualitative data. U.S. developers of smart grid analytical tools for demand response and other applications are widely recognized as global leaders and are partnering with smart meter manufacturers to deploy solutions. The smart meter market is largely dominated by a handful of multinational firms, some with significant U.S.-based manufacturing capacity.

Figure 1: Smart Grid ICT Sub-Sector Rankings (Top 20)

1. Canada
2. Japan
3. United Kingdom
4. Australia
5. France
6. China
7. Mexico
8. New Zealand
9. Spain
10. Saudi Arabia
11. Netherlands
12. Germany
13. Turkey
14. Korea
15. India
16. Sweden
17. Denmark
18. Chile
19. Austria
20. Italy

Rankings

The Smart Grid ICT Sub-Sector rankings focus on markets with high growth in the products and services necessary for the digitalization of the electricity grid. For example, Australia and Canada have been widely

This case study is part of a larger Top Markets Report. For additional content, please visit www.trade.gov/topmarkets.
U.S. Department of Commerce | International Trade Administration | **Industry & Analysis**

recognized as first-movers in the deployment of smart meters and advanced metering infrastructure; China is the leading global smart grid investor;[3] the United Kingdom, and other markets in Northern and Western Europe and the Asia Pacific region are catching up quickly. Less-mature smart grid markets, such as Saudi Arabia, Turkey and Mexico, also rank well on account of high U.S. competitiveness and positive signs in the development of smart grid ICT pilots involving U.S. partners.

The 2016 *Smart Grid Top Markets Report* Smart Grid ICT Sub-Sector saw a handful of markets make significant jumps in the rankings from 2015. Spain (+17) and China (+11) both rose to crack the top ten rankings as ITA assessed that policy and regulatory announcements by both countries' governments have set the stage for increased near-term deployment of ICT technologies.

On the other hand, Portugal (-10) and the Philippines (-17) saw the biggest rankings drops year-to-year, largely reflective of slowing deployment expectations.

Full comparisons of year-to-year Smart Grid ICT Sub-Sector rankings are included in Appendix B.

Technology, Capability and Application Trends

ITA evaluates that there will be a number of Smart Grid ICT Sub-Sector solutions that will be increasingly important as global governments, regulators and utilities look to increase efficiencies, integrate renewable resources effectively, gain market share amid increasing competition, engage consumers, and reduce revenue losses. A selected sub-set of these solutions are highlighted as follows.

Demand Response[4]

Demand response provides an opportunity for consumers to play a significant role in the operation of the electric grid by reducing or shifting their electricity usage during peak periods in response to time-based rates or other forms of financial incentives. Demand response programs are being used by electric systems planners and operators as resource options for balancing supply and demand. Such programs can lower the cost of electricity in wholesale markets, and in turn, lead to lower retail rates. Methods of engaging customers in demand response efforts include offering time-based rates such as time-of-use pricing, critical peak pricing, variable peak pricing, real time pricing and critical peak rebates. It also includes direct load control programs that allow power companies to cycle air conditioners and water heaters on and off during periods of peak demand in exchange for a financial incentive of lower electric bills.

Demand response pilot projects and programs are most active in the United States, but markets, such as Korea, Japan, China and the United Kingdom, have begun to establish programs and policies to foster growth.

Virtual Power Plants

This is the grouping of multiple distributed energy resources into one aggregated system through advanced ICT solutions. Smart meters, advanced analytics, demand response programs and generation sources, such as rooftop solar, all can be connected and coordinated together to create a system of energy resources that can bid into energy markets. Navigant predicts that the global virtual power plant market will quadruple by 2023 to $5.3 billion.[5]

Prepaid Meters with Advanced Meter Reading

Electricity meters connected via two-way communication platforms for automated meter reading enable customers to monitor their energy usage and manage energy costs while ensuring the electricity provider is paid for the service. The deployment of programs that enable customers to advance pay through cellular applications are increasingly of interest. Additionally, these programs and services help reduce in meter reading costs, better detect electricity theft and reduce outage time. ITA assesses that prepaid electricity meters will grow in interest in emerging nations where theft is high, such as in Africa and South America.

[1] Bloomberg New Energy Finance, *Q1 2016 Digital Energy Market Outlook*, 25 February 2016
[2] Transparency Market Research, *Smart Grid data Analytics Market - Global Industry Analysis, Size, Share, Growth, Trends and Forecast 2015 – 2022*, 30 November 2015
[3] Bloomberg New Energy Finance, *Q1 2016 Digital Energy Market Outlook*, 25 February 2016
[4] U.S. Department of Energy, http://energy.gov/oe/technology-development/smart-grid/demand-response
[5] Navigant Research, *Virtual Power Plants Q2 2014*, https://www.navigantresearch.com/research/virtual-power-plants

This case study is part of a larger Top Markets Report. For additional content, please visit www.trade.gov/topmarkets.