U.S.-India Collaboration Expands Indian Market for U.S. Technologies, Improves Grid Reliability

Reproduced from
http://energy.gov/eere/articles/us-india-collaboration-expands-indian-market-us-technologies-improves-grid-reliabili-0

April 1, 2015 - 10:08am

India struggles with an electrical grid that is unreliable and inefficient. Losses from power system overload, archaic grid infrastructure and energy theft are estimated to be around 25 percent, a national average that is among the highest in the world. India's shortfall in electricity supply at peak demand was close to nine percent between 2013 and 2014. To address the electricity reliability problem, India has implemented measures to increase the electrical generation and engage customers to reduce electricity consumption during peak demand.

Demand-side management technologies can improve electricity reliability by managing how electricity consumers interact with the grid. Demand Response (DR), which is widely used in the United States (U.S.) modifies electricity usage by end-use consumers, providing flexibility to meet system imbalances or respond to market prices. When combined with a Smart Grid automation infrastructure like advanced metering, DR help mitigate blackouts, improve grid reliability, and avoid the need for expensive generation capacity and transmission. If adopted successfully in India, DR automation technologies can help utilities save money and prevent the grid from collapsing when demand rises exponentially, thus representing a market opportunity for technology providers and customers.

Moreover, the successful adoption of DR management systems in India can accelerate adoption of complementary technologies such as metering and sensors, building energy management systems, and smart appliances, strengthening the market position of companies like General Electric (GE), Honeywell, IBM, Ingersoll Rand, Johnson Controls, Silver Spring Networks, and Emerson Climate Technologies.

Under the **U.S.-India Energy Dialogue**, the Energy Department's Office of Energy Efficiency and Renewable Energy (EERE) is promoting U.S. demand response technologies in India by supporting a partnership between the Lawrence Berkeley National Laboratory (LBNL), the Indian utility Tata Power Delhi Distribution Limited (TPDDL), and Honeywell. The U.S.-India collaboration is demonstrating DR technologies in a pilot program involving 167 buildings with more than 25 MW of enrolled peak load in the northern region of India's capital, New Delhi. First of its kind in India, the field tests serve as a platform for evaluating technologies and suppliers' capabilities, product specifications, determining consumer and utility benefits, and assessing regulatory readiness before rolling out detailed DR and Smart Grid plans in other utility territories and locations in India

These tests have helped U.S. technology providers identify opportunities to reduce technology costs and harmonize smart grid interoperability standards. EERE International sponsored a study to evaluate the performance of DR using data from 144 commercial and industrial consumers participating in the tests. Preliminary results indicate a potential average curtailment of nearly 10 percent of peak electricity demand in the TPDDL territory and a conservative estimation of nearly eight percent of peak electricity demand in the entire Delhi region.

The promising results from this effort reflect the mutual benefit of the collaboration between the United States and India. If successfully adopted, DR technologies will benefit Indian utilities like Tata Power and U.S. technology suppliers like Honeywell, GE, IBM, and Johnson Controls, among others. The adoption of DR and automation technologies to leverage flexible demand will help Indian utilities mitigate investment costs for expensive generation and transmission, improve efficiency in power systems, and help utilities integrate large scale variable renewable energy into the grid.

The potential market for DR and automation in India will open opportunities for technology suppliers, providing benefits to U.S. companies who operate successfully in the United States. India is an emerging target market for U.S. companies like Honeywell: *"Energy efficiency and demand response are important areas of focus for growing markets like India…..We would like to thank the DOE for supporting this engagement in India…"*. Datta Godbole, Vice President Engineering and Chief Technology Officer, Honeywell Building Solutions.