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Swedish Energy Agency

EMBASSY OF SWEDEN
New Delhi

Thematic Track

Role of Smart Grid Technologies in Power Sector Reforms for promoting 24x7 affordable & environment friendly 'Power for All' in India

Friday, 7th Oct. 2016 | MARIGOLD, IHC | Background Note

Background:

The last two years have seen rapid progress towards Prime Minister Mr. Narendra Modi's vision of 24×7 affordable and environment-friendly 'Power for All' by 2022. India is running the world's largest renewable energy expansion programme with a target to increase overall renewable capacity by over five times from 32 GW in 2014 to 175 GW in 2022. By taking a leadership role in the International Solar Alliance of 121 countries and organising RE-Invest 2015, the world's largest renewable financing meet, the Government of India has laid the foundations for massive growth in this sector. The Ministry of New and Renewable Energy, Government of India has revised the 'National Solar Mission' target of grid-connected solar power projects from 20 GW by 2022, by five times to generate 100 GW solar power by 2022. The target will principally comprise 40 GW Rooftop and 60 GW through large- and medium-scale grid-connected solar power projects.

In addition, 98 cities from all 36 states and union territories (UTs) have been identified for inclusion in the Smart City Mission as launched by the Ministry of Urban Development and Ministry of Housing and Urban Poverty Alleviation, Government of India, further to intra-state competition in the first round of 'Smart City Challenge Competition'. Subsequently, the first batch of 20 cities was selected for extending central assistance in the first year, that is, 2015–16. Furthermore, 23 cities located in 23 States/UTs, which are not covered in the list of first 20, were provided an opportunity to upgrade their proposals on fast track and submit to the nodal ministry April 21, 2016. Finally as on date, a total of 33 smart cities are selected by the Government of India (whereas, most of them are solar cities as well), and these have high potential for rooftop solar projects.

Furthermore, Ministry of Power, Government of India, on the recommendation of India Smart Grid Task Force has shortlisted fourteen smart grid pilot projects, which are planned to be executed in power distribution sector in India under National Smart Grid Mission (NSGM). As per the 'Smart Grid Roadmap for India', these pilot projects are expected to help technology section guides, develop business cases, policy, and regulatory recommendations for larger projects in the next phase while showcasing the relevance of smart grid on different

aspects, such as advanced metering infrastructure (AMI), outage management system (OMS), peak load management system, renewable energy integration, etc. The average estimated cost of each pilot project would be US$ 10 million, of which 50% grant will be provided by Government of India through (budgeted INR 2 lakh crores for smart grid projects across India under the Thirteenth Five-Year Plan Restructured Accelerated Power Development and Reforms Program, now renamed as Integrated Power Development Scheme, and rest to be borne either fully by the utility or shared between the utility and the technology providers and targeted to be completed by the end of 2017. In-addition, Ministry of Heavy Industries and Public Enterprises, Government of India, has also launched National Mission for Electric Mobility with a target of six million electric vehicles by 2020.

Therefore, it is imperative to focus on smart grid, which will enable utilities to manage the load through both supply and demand side interventions. Smart grid is a significant technology enabler, which could allow consumers also to participate in energy usage decisions while optimising grid operations and increase reliability. In Indian context, major drivers for smart grid efforts are continuing peak and energy shortages, high-level system losses, improvement of grid reliability and outage restoration timings, provide energy access, integration of renewable energy technologies (including 40 GW of rooftop solar), and electric vehicles.

Event Objective:

The main focus of this thematic track would be to discuss the various issues pertaining to adaptation of smart grid technologies including functionalities, cost–benefit analysis, skilled manpower, affordability, etc. among renowned industry leaders working in the field of energy and sustainable development. The outcome of this event is intended to develop a strategy paper/roadmap that will enable Government of India and other stakeholders (state-level utilities) to implement smart grid functionalities at different stages of their 'Power for All' initiatives. The broad area of this thematic track would cover the following topics (including 3–4 expert presentations/talk and one panel discussion):

- Smart Grid Experiences—Case Studies (Globally);
- Programme and Policies on Smart Grid—Indian Initiatives on National Smart Grid Vision and Mission;
- Smart Grid Pilot Projects in India;
- Regulatory Aspects and Current Challenges in Smart Grid Deployment in India;
- Various Smart Grid Technologies, Including AMI, OMS, DR/DSM, GIS, SCADA, etc.;
- Renewable Energy Integration and Micro-Grids; and
- Energy Storage and Electric Vehicles.