

At COP 21 in Paris in 2015, India made a commitment of meeting or 33-35% of its energy from non-fossil fuels by 2030. This bold commitment requires a host of new technologies. The 175 GW of renewable energy target by 2022 needs to be augmented with double that new policies, programs and capacity in the following 8 years running to 2030. The integration of distributed generation resources on the low voltage grid require the support of active demand response and energy storage systems to maintain grid stability. In a fast-changing technological environment, it is important to have a clear vision of priorities and needed actions to realize the full benefits of energy storage to help in accelerating the deployment of renewable energy technologies.

The Union Cabinet has approved the National Mission on Transformative Mobility and Battery Storage. The Mission will have an Inter-Ministerial Steering Committee chaired by Chief Executive Officer (CEO), NITI Aayog to promote clean, connected, shared, sustainable and holistic mobility initiatives. The National Mission on Transformative Mobility and Battery Storage will finalise and implement strategies for transformative mobility and Phased Manufacturing Programmes (PMP) for electric vehicles, their components and batteries. A phased roadmap to implement battery manufacturing at giga-scale will be an initial focus on large-scale module and pack assembly plants by 2019-2020. This will be followed by integrated cell manufacturing by 2021-2022. The Mission will ensure holistic and comprehensive growth of the battery manufacturing industry in India.

ISGF has prepared an Energy Storage Roadmap for India funded by MacArthur Foundation in association with India Energy Storage Alliance (IESA). The objective of the project is to help policy makers and utilities in decision making related to investments in energy storage for integration of renewable energy leading to a reliable and low carbon grid in India. Solar rooftop penetration have already been doubling year on year across India. The increased penetration of distributed energy sources, particularly solar PV and small wind turbines is affecting grid stability on the low voltage distribution network. The project evaluates the impact of distributed energy generation sources and electric vehicles on the distribution grid and the techno-commercial viability of energy storage solutions to overcome the grid integration challenges.

The key outcomes of the study are: 1. Energy Storage Roadmap for India; 2. Energy Storage India Tool (ESIT) that will help in conducting Cost-Benefit Analysis of various Energy Storage Technologies and; 3. Guidelines for determining the Variable Renewable Energy (VRE) hosting capacity on LV and MV grids. This Energy Storage Roadmap will help in decision making related to investments in energy storage for integration of renewable energy leading to a reliable and low carbon grid in India. This roadmap will also help Government to further engage the stakeholders for accelerating the deployment of energy storage systems in the country.

With this background, NITI Aayog and ISGF are jointly organizing a Key Stakeholder Consultation Workshop for presenting the recommendations of the Energy Storage System Roadmap for India and take suggestions for the way forward on **16th July 2019** in New Delhi. The objectives of the workshop are:

1. To present the Roadmap of *Energy Storage System for a Reliable and Low Carbon Grid*
2. To discuss the *Policies and Regulatory Support for Energy Storage Systems*
3. Share the *Early Experience with Energy Storage Systems in India*
4. To discuss the *Giga- Scale Battery Manufacturing Program in India*

About the Organizations

The *National Institution for Transforming India*, also called *NITI Aayog*, was formed via a resolution of the Union Cabinet on 1 January 2015. NITI Aayog is the premier policy ‘Think Tank’ of the Government of India, providing both directional and policy inputs. While designing strategic and long-term policies and programs for the Government of India, NITI Aayog also provides relevant technical advice to the Centre and States. An important evolutionary change from the past, NITI Aayog acts as the quintessential platform of the Government of India to bring States to act together in national interest, and thereby fosters Cooperative Federalism. In February 2018, an Expert Committee under the chairpersonship of Secretary, Ministry of New and Renewable Energy, with representatives from relevant Ministries, industry associations, research institutions and experts was constituted by the Ministry of New & Renewable Energy to propose draft for setting up *National Energy Storage Mission (NESM)* for India. The Expert Committee referred has proposed a draft NESM with objective to strive for leadership in energy storage sector by creating an enabling policy and regulatory framework that encourages manufacturing, deployment, innovation and further cost reduction. The draft report on India’s Energy Storage Mission has proposed three stage solution approach i.e. creating an environment for battery manufacturing growth; scaling supply chain strategies; and scaling of battery cell manufacturing.

India Smart Grid Forum (ISGF) was setup as a public private partnership initiative by Ministry of Power, Govt of India in 2011 with the mandate of accelerating smart grid deployments across the country. ISGF work closely with the Ministry of Power, Ministry of New and Renewable Energy, Department of Telecom, Ministry of Heavy Industries, Department of Science and Technology and Ministry of Urban Development and National Critical Information Infrastructure Protection Centre (NCIIPC). With 180+ members comprising of ministries, utilities, regulators, technology providers, academia and students, ISGF has evolved as a globally reputed think tank in smart grids and smart cities.