

BATTERY ENERGY STORAGE SYSTEMS (BESS): AN ENABLER FOR RE INTEGRATION

Background

Meeting projected demand growth while also achieving the NDCs will require a reliable, stable, and flexible power system. Integrating the necessary volumes of variable wind and solar generation will require the ability to ensure resource adequacy, network adequacy, frequency stability, and voltage stability across the system. Energy storage will be critical to supporting the transition.

This report explores the market opportunity for behind-the-meter BESS and front-of-meter BESS within South Asia countries, with an emphasis on power distribution and transmission sectors. Distribution companies (Discoms) are responsible for the procurement of renewable energy (RE) and maintaining an efficient, economic, and reliable distribution network. To ensure rapid deployment of battery storage to meet system needs as costs decline, it is essential that Discoms have strategies to effectively invest in and utilize storage technologies. Battery Energy Storage Systems (BESS) help reduce the strain on transmission networks by storing energy during off-peak periods and discharging it during high demand, minimizing the need for additional transmission infrastructure. By balancing supply and demand locally, BESS enhances grid efficiency and reduces the need for long-distance power transmission. This also leads to cost savings in network expansion and maintenance, contributing to a more resilient and flexible power grid.

The workshop will provide an overview of battery storage applications, the factors that will impact battery storage demand, and interventions to kickstart BESS deployment that have impacted storage markets. The workshop will also establish a framework for Discoms to determine when a battery storage asset is a valued investment, and steps to take to successfully deploy a BESS project. An overview of BESS value streams will be discussed, indicating factors that may impact a BESS project's economics.

In addition, the workshop will discuss steps to establish BESS supply chains, such as jump starting a domestic battery manufacturing sector through incentives, circularity and battery second life.

The future of BESS appears promising as the technology matures, deployment costs decline, and energy storage becomes more mainstream. Advances in battery chemistry, materials, and manufacturing are expected to drive down the capital costs of BESS installations significantly. As a result, levelized costs of energy (LCOE) from BESS are already increasingly competitive with traditional fossil-fuel-based power generation and even conventional grid infrastructure investments.

DATE: OCTOBER 23, 2024
TIME: 09:45 - 11:15

Session Objectives

- Gain insights in the latest trends in BESS deployment, international case studies and falling cost of BESS.
- Explore the role of BESS in renewable energy integration and electricity decarbonization targets.
- Highlight the support needed for BESS technology, its manufacturing and circularity needs.

Agenda

9:45 – 9:50	Welcome Remarks by Shanker Khagi , Energy Specialist, USAID/Nepal
9:50 – 9:55	Video and Report Launch
9:55 – 10:00	Presentation: Latest trend for BESS – Cost, International Case Studies, and Policy by Alexander Hogeveen Rutter , Electricity Sector Lead, Third Derivative (RMI)
10:00 – 11:10	Panel Discussion: South Asia Perspective of Why and How of BESS Planning and Deployment Moderator: Vivek Bhardwaj , USAID's SAREP Panelists: <ul style="list-style-type: none">• Ajay Talegaonkar, Member-E&C, Central Electricity Authority• Vivek Pandey, Senior General Manager, Grid India• Pratyush Sinha, Vice President, CEO, Lohum• Dr. Adarsh Nagarajan, Principal Researcher and Group Manager, NREL• Brajesh Kumar, Chief Project Development & Commercial Officer – IPP Business, Gensol Electric Vehicles Pvt Ltd• Suhas Sutar, Vice President ESS Business, REplus
11:10 - 11:15	Closing and Next Steps by Monali Zeya Hazra , Senior Regional Energy Specialist and Mission Environment Officer, Indo Pacific Office, USAID/India

