



WEBINAR ON ENERGY STORAGE

28th October 2020 (9:30 AM - 11:30 AM CET / 2:00 PM - 4:00 PM IST)

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Webinar proceedings

Webinar on Energy Storage

On 28th October 2020, the Delegation of the European Union to India in cooperation with Niti Ayog, Government of India organized a webinar on 'Energy Storage.' The webinar was supported by the EU-India Clean Energy and Climate Partnership (CECP) project (www.cecp-eu.in and @EU_India_CECP) and was attended by more than **200 participants**, representing policymakers, regulators, project developers, manufacturers, energy performance contractors, think tanks, consultants and academia.

1. Introductions

Mr. Edwin Koekkoek, Counsellor, Energy and Climate Action, Delegation of the EU to India, introduced the EU-India CECP partnership, which was agreed at the highest level at the EU-India Summit in 2016 and reconfirmed in 2017 and 2020. He highlighted different CECP project activities in the area of energy efficiency, renewable energy, including rooftop solar PV, off-shore wind, solar parks, smart grid, storage, sustainable finance and climate action. He set out that storage is one of the key elements in realizing the transition towards a climate neutral Europe by 2050¹.

Mr. Amit Kumar, Team Leader, EU-India CECP Project extended a warm welcome to all the participants and highlighted the relevance of having such a webinar in an emerging sector like energy storage. He highlighted the increasing penetration of renewables and electric mobility and the Government of India's drive to increase adoption of these interventions, which is leading to increased demand for energy storage. He highlighted how the Niti Ayog scheme for incentivizing battery manufacturing in India would play a critical role in placing India as a global player in the energy storage industry. It is therefore very positive that European and Indian policy makers and stakeholders come together to discuss possibilities of further cooperation in energy storage. Mr. Amit Kumar raised the following major points in his speech:

- The ambitious target of 175 GW of renewables by 2022 would increase the need for energy storage solutions;
- Large demand for storage technologies forecasted globally due to reduction in battery prices;
- Renewable tenders coupled with storage are increasingly being floated in India;
- Advanced cell chemistries are becoming a focus for various end use applications- in stationary storage segment as well as in electric mobility;
- Cell manufacturing is yet to pick up in India and the NITI Program would play a major role in enabling India setting up giga scale manufacturing (to achieve economies of scale);
- Electric Vehicles (EVs) would be the major driver for battery storage technologies, which is evident from the number of EV launches by automobile companies.

2. Panel discussion

Following the introductions, a panel discussion on the energy storage industry took place, with the following key messages:

Sh. S. K. Saha, Joint Secretary, Niti Aayog, Government of India focused on a number of initiatives undertaken by the Government of India (GoI) to develop the battery energy storage market in India. He also emphasized the development of battery storage across all sectors, including mobility storage and consumer appliances. Studies by Niti Aayog have estimated a market size of 630 GW by 2030 under a conservative scenario. Key points from his address were:

¹ https://ec.europa.eu/clima/policies/strategies/2050_en

- India is a dynamic and diverse market for battery storage with a significant potential;
- A plan for domestic deployment of cell manufacturing has been drafted to enable manufacturing of advanced chemistry cells;
- The program would incentivize giga-factories in the 5-20 GWh annual production capacity with an overall cumulative capacity of 50 GWh, through Performance linked incentives for a period of 10 years;
- The novel scheme has been developed to be technology and product agnostic, with incentives based on two key performance parameters - battery energy density and cycle life;
- State governments are being encouraged to offer additional incentives and expedite approvals;
- Ministry of Environment, Forest and Climate Change (MoEFCC) along with the Department of science and technology is developing a policy framework for battery recycling.

Mr. Reji Pillai, President, India Smart Grid Forum (ISGF), spoke about the:

- India Energy Storage Roadmap (2019-2032) , which has been drafted to set the context for energy storage in India ([link](#));
- Impact of the increasing share of renewables in India, in view of the RE target of 175 GW by 2022 and 450 GW by 2030;
- The 40 GW target for rooftop solar and how it would drive the implementation of energy storage systems;
- Applicability of battery energy storage systems for DISCOMs and transmission operators needs to be explored in detail;
- Integrating distributed RE into the grid will also require integration of battery energy storage into the grid system;
- Electrical systems need to also provide monetization for services provide by energy storage systems;
- Study conducted by ISGF indicates a requirement of 2,416 GWh of storage by 2032, with EVs contribution to majority consumption of batteries.

Mr. Reji stressed the need to conduct detailed feasibility analysis of storage systems for utilities and transmission system operators, which are currently unable to fully capture the potential of low cost renewable generation because of intermittency issues.

Dr. Rahul Walawalkar, President, India Energy Storage Alliance and Chair, Global Energy Storage Alliance enumerated the large potential of the Indian market for energy storage, which could address the intermittency challenges for renewables as well as decarbonize the mobility sector. He set out that:

- Energy storage is a very diverse market and all forms of storage need to have equal opportunities in the industry and the market forces can determine the most appropriate technology;
- Longer duration storage technologies would play a crucial role for grid energy storage;
- Key drivers for storage adoption would be EVs as there is a large potential for EVs, particularly the 2 wheelers and 3 wheelers market ([link](#));
- The proposed Niti Ayog program for 50 GWh of cell manufacturing could be a potential game changer for India as it would foster battery availability, self-sufficiency in production, larger manufacturing base, etc;

- India is a price sensitive market which can often lead to adverse impact on product quality, therefore it is important to have robust quality measures in place;
- System level services that energy storage can provide for the grid need to be well defined for the increased uptake in storage;
- Levelized cost of Energy of RE + Storage for 4 hour duration is expected to get cost competitive by 2023-24;
- India has made fast strides in executing pilot energy storage projects and has successfully tendered 1.2 GW energy storage capacity, one of the largest globally;
- Energy storage is starting to get economically viable for industrial and commercial applications for power backup and other behind the meter applications;
- The cost economics for EVs are slowly getting better than ICE vehicles and the policy framework is in place for the adoption of EVs. The focus should now be on accelerated deployment to kick-start economies of scale and bring about a cultural shift in mobility.

Ms. Ilka von Dalwigk, Policy Manager, Smart grid and Electric Storage, EIT InnoEnergy Scandinavia introduced the European Battery Alliance:

- Europe needed to setup the policy and regulatory framework to establish a value chain required for cell manufacturing as it was totally dependent on Asia, in particular China, Korea and Japan;
- A value chain approach requires coordination and involvement off all stakeholders from long term research to industrial deployment/commercialization;
- Therefor a bottom up approach, consulting all stake holders across the energy storage value chain for developing domestic capabilities in battery storage is crucial (standardization, de-risking initiatives, policy and regulatory framework, etc.)
- Initiatives like the EBA250 can serve as a platform for forging strategic alliances, partnerships, initiate projects in the battery energy storage industry.

Mr. Patrick Clerens, Secretary General, The European Association for Storage of Energy (EASE) stated that the energy storage sector requires co-operation amongst all stakeholders, including component manufacturers, battery cell manufacturers, integrators, developers and others. Development of the energy storage market should have a technology and application agnostic strategy.

He pointed out several elements relevant for energy storage in the EU:

- Greenhouse gas emission reduction targets of 40%, which is proposed to be increased to 55%, renewable energy target of 32% and an energy efficiency target of 32.5% by 2030;
- The future of the grid will be drastically different, isolated renewable energy grids will be powered with renewable energy;
- RE is facing curtailment issues owing to higher penetration, which can be minimized through integration with energy storage in the grid;
- The role of storage is expanding as more grid services are being provided by energy storage technologies;
- Some significant changes have been witnessed in the EU storage market across applications like:
 - Front of meter – Market products/ancillary service for new value streams e.g. Fast response in Italy

- Commercial and Industrial – Dairy industry providing peak shaving in Ireland (as service to Transmission System Operator (TSO), storage for industrial processes in Germany
- Behind the meter – new models on IOT/smart services (where consumers deploy batteries on their own and sell stored energy as service), virtual energy communities
- EU has three key initiatives underway to foster growth of batteries and energy storage: European Battery Alliance (for creating a competitive manufacturing value chain), Batteries Europe (to reunite Research & Innovation stakeholders for setting priorities and mobilise resources) and Batteries 2030+ (a long term research program also focusing on material research).
- Residential heating & cooling and electric mobility will also be a large target market for storage;
- R&D activities in storage are crucial for the development of the whole ecosystem of energy storage.

3. Closing remarks

Mr. Matthieu Craye, International Relations Officer, DG Energy, European Commission, thanked the organizers, speakers and participants and welcomed the ideas and innovations shared in the webinar. The diverse set of subjects discussed would add great value to the CECP project. He also mentioned the two key themes on storage: ways to promote storage within energy systems as a flexibility provider; both of which have been discussed in dialogues with Ministry of Power, the Central Electricity Regulatory Commission (CERC) and other relevant agencies. He highlighted the need for more demonstration projects on storage to enhance flexibility in energy systems, which can be complemented with other flexibility provisions like demand response, interconnections, RE hybrids, etc. The second theme is the domestic manufacturing of batteries in both India and the EU; presenting another opportunity for further exchange of knowledge, resources and experience between the two EU and India.