



ENERGY STORAGE PARTNERSHIP (ESP)

September 2019 Fact Sheet



A GLOBAL PARTNERSHIP CONVENED BY THE WORLD BANK GROUP TO FOSTER INTERNATIONAL COOPERATION TO ADAPT AND DEVELOP ENERGY STORAGE SOLUTIONS FOR DEVELOPING COUNTRIES

Energy transitions are underway in many countries, with a significant global increase in the use of wind and solar power playing a key role. To integrate renewable resources into grids, energy storage will be key. Storage will allow for the increased use of wind and solar power, which can not only increase access to power in developing countries, but also increase the resilience of energy systems. Energy storage solutions can also improve grid reliability, stability, and power quality – which are essential to promoting the productive uses of energy.

To enable the rapid uptake of variable renewable energy in developing countries, the World Bank Group is convening an Energy Storage Partnership (ESP) that will foster international cooperation on:

- Power Systems
- Test bed for knowledge dissemination and capacity building
- Development of testing protocols and validation of performance
- Flexible sector coupling
- Decentralized energy storage solutions
- Procurement frameworks and enabling policies for energy storage
- Recycling systems and standards

The ESP will complement the World Bank's [\\$1 billion battery storage investment program](#) announced in September 2018 to significantly scale up support to battery storage projects and raise an additional \$1 billion in concessional finance.

Catalyzing a new market for storage

There is a need to catalyze a new market for batteries and other energy storage solutions that are suitable for electricity grids for a variety of applications and deployable on a large scale. Deploying diverse

approaches to energy storage in tandem with strengthening electricity grid infrastructure will create more resilient power systems and bring cost savings to utilities and consumers.

In developing countries, renewable energy with storage can also offer local alternatives to fossil-based generation to bridge the electricity access gap. Among the energy storage options available, battery storage is becoming a feasible solution to increase system flexibility, due to its fast response, easy deployment and cost reduction trends, helping to integrate higher shares of variable renewable energy in a reliable manner. This is particularly relevant in weak grids, isolated locations, and vulnerable environments where supplying electricity has its own challenges. **An all-technology approach to storage should be pursued.**

Today, the unique requirements of developing countries' grids are not yet fully considered in the current battery storage market – even though these countries may have the largest potential for battery deployment. The current battery market is driven by the electric vehicle industry, and most mainstream technologies cannot provide long duration storage or withstand harsh climatic conditions and low operation and maintenance capacity. Many developing countries also have limited access to other flexibility options such as natural gas generation or increased transmission capacity.

**IT IS EXPECTED THAT BY 2025
THE YEARLY CO₂ SAVED COULD
REACH 2Gt IN THE POWER SECTORS
OF DEVELOPING COUNTRIES.**



To sustainably scale up the deployment of energy storage in developing countries, technologies will need to be able to operate in harsh climatic conditions, supply electricity over long duration periods, and sustainably manage issues such as the reuse and recycling of batteries. With the recent launch of its Climate-Smart Mining Facility, the World Bank has committed to help developing countries to conduct the mining of strategic minerals in a sustainable manner.

Objectives of the Energy Storage Partnership

To open new markets for energy storage in developing countries, several barriers will need to be addressed: the lack of knowledge about and exposure to new technologies and their applications; regulatory and policy environments that are unable to guarantee cost recovery; and procurement practices that are not yet adapted to energy storage investments.

An international approach to research and development, knowledge-sharing, training, and capacity building has been identified as an important way to encourage the uptake of energy storage technologies in developing

countries and ultimately enable more integration of variable renewable energy. By connecting stakeholders and sharing experiences in deploying energy storage, the ESP will help bring new technological and regulatory solutions to developing countries, as well as help develop new business models that leverage the full range of services that storage can provide. The ESP will take a holistic, technology-neutral approach by looking at all forms of energy storage, including but not limited to batteries. By developing and adapting new storage solutions to the needs of developing countries, the ESP will help expand the global market for energy storage, leading to technology improvements and accelerating cost reductions over time.

Activities coordinated by the ESP will identify technical and research gaps; pilot innovative storage concepts, including storage used to integrate VRE and increase the flexibility of power systems; and build a platform for knowledge sharing and capacity building, among other activities. The ESP will be hosted at the World Bank's Energy Sector Management Assistance Program (ESMAP) and will be developed and implemented in partnership with other organizations.

ESP Partners

Australian Energy Storage Alliance (AESAs) • Alliance for Rural Electrification (ARE) • Belgian Energy Research Alliance (BERA) • Center for Applied Energy Research (ZAE), Germany • China Energy Storage Alliance (CNESA) • International Council for Large Electric Systems (CIGRE) • Council for Scientific and Industrial Research (CSIR), South Africa • European Association for Storage of Energy (EASE) • European Bank for Reconstruction and Development (EBRD) • Energy Storage Applications Branch (ESA) of China Industrial Association of Power Sources • Faraday Institution, U.K. • Fraunhofer ISI • German Aerospace Center (DLR) • German Energy Storage Association (BVES) • Global Battery Alliance (GBA) / World Economic Forum (WEF) • Government of United Kingdom • India Energy Storage Alliance (IESA) • International Energy Agency (IEA) • International Renewable Energy Agency (IRENA) • Korea Battery Industry Association (KBIA) • Korea Institute for Advancement of Technology (KIAT) • Moroccan Agency for Sustainable Energy (MASEN) • National Physical Laboratory (NPL), U.K. • National Research Council Canada (NRC-CNRC) • Power Grid Corporation of India (POWERGRID) • Protermo Solar, Spain • Research Institute in Solar Energy and New Energies (IRESEN), Morocco • Solar Energy Corporation of India (SECI) • South Africa Energy Storage Association (SAESA) • Technical University of Denmark (DTU) • U.K. Low Carbon Energy Development Network, Loughborough University • U.S. Energy Storage Association (ESA) • U.S. National Renewable Energy Lab (NREL) • World Bank Group, ESMAP

For more information:

www.worldbank.org/energy
<https://www.worldbank.org/en/topic/energy/brief/battery-storage-program-brief>

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