

SOLAR SUPPORT PROGRAM



THE OPPORTUNITY

Solar is the most abundant renewable energy resource, with over 100 developing countries having high potential. Given this resource abundance, the deployment of solar technologies can become a game changer in developing countries. This is especially true for solar PV, which has been identified as one of the technologies with the greatest potential to move markets and reduce greenhouse gas emissions. Solar PV prices have fallen 200-fold since the 1970s, and are expected to halve in the next 20 years. It is expected that solar PV technologies will reach grid parity in 80% of global markets by 2017. In addition, solar power contributes to energy security by limiting exposure to fossil fuel price volatility and by reducing dependency on high cost fuel oil-based generation. Its modular character means that it can be constructed and become operational in short timeframes (6 to 12 months), built close to the demand centers, and deployed under different models (from utility scale to distributed-generation rooftop solar). Ongoing technology advancements in energy storage will only make solar PV more competitive in the future.

THE CHALLENGE

Despite high cost reductions, especially in PV panels, solar deployment in many developing countries with good solar resources is expected to remain slow, mostly

as a result of high financing costs. An inadequate enabling environment, limited government capacity for contractual negotiations and efficient procurement of private power generation, and high payment risks associated with weak credit off-takers, slow down development and drive up costs. Increased cost of capital especially affects capital-intensive renewable energy technologies as it can lead to significant increases in levelized costs of electricity.

ESMAP'S RESPONSE

The Energy Sector Management Assistance Program (ESMAP) is responding to high levels of interest in solar power, as a result of rapid cost reductions, by assisting countries looking to structure their first projects, and helping to strengthening their enabling environment, including developing roadmaps for large-scale deployment through the Solar Support initiative. Despite significant cost reductions, in PV panels especially, solar deployment in many developing countries with good solar resources remains slow, mostly as a result of high financing costs. An inadequate enabling environment, limited government capacity for contractual negotiations and efficient procurement of private power generation, and high payment risks associated with weak credit off-takers slow down development and drive up transaction costs and the cost of capital.



The Energy Sector Management Assistance Program (ESMAP) is a global knowledge and technical assistance program administered by The World Bank. It provides analytical and advisory services to low- and middle-income countries to increase their know-how and institutional capacity to achieve environmentally sustainable energy solutions for poverty reduction and economic growth. ESMAP is funded by Australia, Austria, Denmark, the European Commission, Finland, France, Germany, Iceland, Japan, Lithuania, the Netherlands, Norway, Sweden, Switzerland, and the United Kingdom, as well as The World Bank.

Activities under the Solar Support Program are organized around three components:

- **Support to enabling environment**, including market assessments (e.g., solar technical and economic potential, electricity demand growth) and deployment roadmaps; assessment of the legal, regulatory, and institutional frameworks; assessment of needs

for enabling infrastructure or assessment of supply chains for PV components

- **Preparation of feasibility studies and support to project structuring**, including transaction advisory
- **Global engagement**, including mobilization of climate financing targeted to solar; analysis and dissemination of lessons learned

and development of knowledge products; and building partnerships with relevant partners

The Program's objectives will also be achieved by leveraging the resources and data generated under the parallel ESMAP work on Renewable Energy Resource Mapping, and on Variable Renewable Energy Grid Integration, to provide a complete package of support to client countries.

ACCOMPLISHMENTS TO DATE

Since the launching of the program in April 2016, the uptake has been strong, which reflects significant demand and complexity associated with solar deployment. Activities range from the preparation of a solar roadmap for Vietnam that will outline the pathway for the Government its target of 12 GW of PV capacity installed by 2030; to a market assessment and prefeasibility studies to inform a potential investment operation

for the deployment of solar rooftop in Turkey; to detailed technical feasibility for the hybridization of isolated mini-grids in Niger, as part of a Solar Electricity Access project under preparation. Other countries that are receiving support or have requested it are Kenya, Haiti, Ethiopia, and Tanzania.

Currently, ESMAP is prepared to support project structuring and feasibility studies for 10 grid-connected invest-

ment projects in solar PV, by 2020. As of March 2017, four new WB lending operations are receiving support:

- **Vietnam:** EVN Solar Power Project (US\$200 million)
- **Niger:** Solar Electricity Access Project (US\$50 million)
- **Kenya:** Off-grid Solar Access Project for Underserved Counties (US\$150 million)
- **Haiti:** Renewable Energy for All Project (US\$23 million; SREP)