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PUBLIC-PRIVATE PARTNERSHIPS BRIEFS

India: Vadodara Solar



Overview

The state of Gujarat has been at the forefront of the solar energy revolution in India, successfully bringing on line over 800 Mega Watts (MW) of ground based solar PV plants under a state program. In 2010, the government of Gujarat sought IFC's assistance to develop an innovative 5 MW rooftop solar public-private partnership (PPP) project in the state capital of Gandhinagar outfitting government buildings with solar panels. The success of this project has helped prove the potential for rooftop solar in India. To help attain its green energy vision, the government looked to replicate the project, but this time with the participation of its citizens, and sought IFC's assistance to structure a new project in the city of Vadodara with private citizens adopting the rooftop solar concept.

Madhav Solar (Vadodara Rooftop) Private Limited (the "Concessionaire") won the 25-year concession for a 5 MW rooftop solar project in the city of Vadodara. Under the concession, the Concessionaire will install solar photovoltaic panels on the rooftops of primarily privately-owned properties such as commercial buildings, homes and industrial units, and sell the energy generated to the local utility. The Concessionaire will offer a lease rental to the owners for accessing and using their roofs. Besides attracting \$8 million in private investment, the project is expected to result in 9,000 people receiving increased access to power and a reduction of 6,000 tons of GHG emissions annually. The project agreement was signed in June 2014.

The project was implemented with financial support from the Norwegian Trust Fund for Private Sector Development and Infrastructure, the Canada Climate Change program, and the South Asia Infrastructure Facility.

This series showcases how the World Bank Group supports the development and implementation of public-private partnerships. This support comes in the form of public sector loans, private sector finance, sector and transaction advice, guarantees, and output-based aid.

Background

The state of Gujarat, located in western India, pioneered the solar energy revolution in India. The government of Gujarat successfully brought on line over 800 MW of ground mounted solar power capacity to introduce renewable energy to its predominantly fossil fuel based energy mix. However, the government was keen to push the envelope and launch a rooftop solar initiative in the capital city of Gandhinagar, for which it sought IFC's advisory services. Being a sunrise sector in India, many technical, regulatory and commercial challenges were anticipated. The project was structured with the selected developer undertaking to install 80% of the rooftop capacity on pre-identified government owned buildings, while the balance capacity was to be developed on private rooftops. The project was successfully bid out in 2012 and is an operational success.

With the rooftop solar concept proven, the government of Gujarat looked for opportunities for its citizens to participate in its mission of promoting green energy. This objective could be achieved by expanding the rooftop solar concept to other cities where the large majority of buildings were privately owned. The government sought IFC's expertise to structure and bid out a 5 MW rooftop solar project in the city of Vadodara where the developer is responsible for identifying all the rooftops, including homes, commercial buildings and industrial facilities. Successful implementation of the project would help the government showcase the potential of rooftop solar, ensuring large participation of its citizens in green energy generation, while also providing additional valuable power to the grid and reducing GHG emissions.

Project Description

IFC recommended a 25-year concession on a build, own, operate (BOO) model. Under the agreement, the selected developer would install solar panels on hundreds of rooftops throughout the city of Vadodara with an aggregate capacity of 5 MW. As per the terms of the concession, the large majority of these installations are required to be on private rooftops whose owners would receive rental income for their previously unused rooftop space. The developers would connect these individual systems to the local grid and sell the power generated to the local distribution utility. Total project cost is estimated at US\$8million, all of which would be financed by the winning bidder.

Interest in the project was strong, with over 40 firms purchasing the bid documents. Madhav Solar (Vadodara Rooftop) Private Limited won the 25-year concession and the power purchase agreement with the distribution utility was signed in June 2014. The project is expected to be operational in 2015-16.

World Bank Group Role

IFC was appointed lead transaction advisor by the Government of Gujarat owned Gujarat Power Corporation Limited, to structure and bid out the Vadodara Solar project. Besides providing transaction advice, IFC's role included technical, legal, analytical and marketing support, including:

- Conducting a detailed technical study including an on-ground survey of large available rooftop spaces, creating a database of satellite images of all available rooftop space and estimating the feasible rooftop capacity which could be installed by a solar developer in Vadodara.
- Reviewing social, legal and commercial issues related to renting rooftop space from residential, industrial and commercial buildings and developing terms for the rental agreements.
- Leading discussions with the client and the local state-owned distribution company, Madhya Gujarat Vij Company Limited, on the design of the power purchase agreement.

IFC also recommended a transaction structure and managed the tender process, including preparing bid documents, investor consultations, and evaluating bids. IFC also lent support for:

- Knowledge building and training workshops on the rooftop solar concept for staff of Gujarat state distribution utilities.
- Creation of a website to provide knowledge and information to citizens on the rooftop solar project, and how they could participate.

Outcomes

- Improved access: 9000 people will benefit from improved energy services at affordable prices.
- Mobilization of private sector investment: the transaction will attract \$8 million in private investment to the state.
- Public benefit and participation: provides rooftop owners economic benefits from their previously unused rooftops by way of rent from the developer. Further, this allows private citizens to partake in the state government's green energy vision.
- Climate change: reduces GHG emissions by 6,000 tons of carbon dioxide equivalent annually.
- Replication potential: demonstrates the replication potential of the rooftop solar concept in India. Successful implementation of this project will allow further replication in other parts of Gujarat as well as other state governments to explore similar models in their cities.



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