



Public-Private Partnership Stories

India: Odisha Rooftop Solar PPP



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The Government of Odisha (GoO) was looking for ways to increase clean energy production as part of its efforts to meet the State's increasing energy requirements. With about 280 – 300 days of sunshine a year and a Global Horizontal Solar resource average of about 4.5-5.0 KWh/m²/day, solar power was a priority for GoO. In 2013, the government sought IFC's assistance to develop a pilot rooftop solar project in Bhubaneswar and Cuttack to kick-start the market for rooftop solar projects in Odisha and the neighboring regions by developing a replicable and bankable project structure and business model.

In July 2016, Azure Power Mercury Private Limited (the "Concessionaire") won a competitively tendered 25-year concessions for a 4MW rooftop solar project in the state of Odisha. Under the concession, Azure will develop the country's first grid connected MW scale rooftop solar project on net metering basis under a PPP model. Besides attracting USD5 million in private investment, the project is expected to result in 8,000 people receiving increased access to power and a reduction of 5,000 tons of GHG emissions annually. This project marks an important milestone in the roof-top solar sector that IFC first advised the state government of Gujarat in 2009. After implementing the country's first grid connected gross metering based PPP in Gandhinagar, IFC supported the government in replicating it with Vadodara, also in the state of Gujarat.

This series provides an overview of public-private partnership stories in various infrastructure sectors, where IFC was the lead advisor.

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BACKGROUND

The state of Odisha, located in eastern India, has embraced the idea of renewable energy and addressing potential climate change issues. The Government of Odisha plans to develop 100 MW of solar power capacity from roof-tops by 2022 to meet its increasing energy requirement and to promote solar energy development in the state.

To pave the way for large-scale solar power development, the government looked to partner with the private sector to finance and set up solar panels on almost 200 buildings in the cities of Bhubaneswar and Cuttack with a minimum capacity of 4 MW. Successful implementation of the project would help the government showcase the potential of rooftop solar, resulting in clean power generation, avoidance of GHG emissions, and mobilization of private sector investment in the renewable energy sector. Further, the concept of a rooftop solar project, i.e., a project close to the load center, would help reduce transmission and distribution losses. This is significant in the Indian power distribution context, especially for the State of Odisha, which has been experiencing transmission and distribution losses of about 41% over the last 3 years.

IFC'S ROLE

The concept of grid-connected rooftop solar, being very nascent in India, needs technical support in terms of appropriate project structure, revenue model design, and implementation rigor to facilitate private sector investments. IFC was appointed lead transaction advisor by the state-owned Green Energy Development Corporation of Odisha Limited, to assist in reviewing, structuring and implementing the project. IFC's role included providing technical, regulatory, and financial analysis, supporting GoO in framing the necessary regulations for the business model; reviewing legal and commercial issues, and organizing contract management training to the Government entities.

IFC also provided support by preparing bidding documents and assisting GEDCOL in managing the bidding process.

TRANSACTION STRUCTURE

IFC recommended a 25-year build, own, operate (BOO) concession. Under the agreement, the winning bidder will set up solar panels across 200 Government and public sector buildings, with a minimum 4MW of installed capacity in Bhubaneswar and Cuttack. The lease agreement for Phase I of the project (200 KW) has been signed, and the design approved by the Independent Engineer. Phase I of the project will be installed on several buildings on a university campus and completed in early 2017. The project is expected to be fully commissioned by September 2017.

Total project cost is estimated to be US \$5 million, all of which will be provided by the winning bidder upfront, with 30% to be reimbursed through grants from the central Government. The

Government of Odisha will provide access to the rooftops.

The developer will be responsible for designing, financing, developing, operating and maintaining the solar panels so that they are able to generate solar power subject to a minimum capacity utilization factor. This solar power will be consumed by the building owners and paid for through the electricity utility.

BIDDING

Interest in the project was strong, with several firms purchasing the bid documents, and seven being pre-qualified. Final bids were received from two firms. The winning bid was based on offering the lowest tariff. The winning bidder, Azure Power Mercury Private Limited, won the 25-year concession after offering a lower than expected tariff, highlighting the value of a competitive bidding process. The quoted tariff did not require any additional GoO subsidy. The project agreement was signed in July 2016.

EXPECTED POST-TENDER RESULTS

- Improved access: 8,000 people will benefit from improved energy services at affordable prices with virtually no state subsidies.
- Mobilization of private sector investment: the transaction will attract USD7 million in private investment to the state.
- Scalable design: Based on the success of the project, the GoO has asked IFC to help them roll it out across 10 other cities in Odisha and help develop the systems and processes needed so consumers can install roof-top solar generating units.
- Climate change: reduces GHG emissions by 5,000 tons of carbon dioxide equivalent annually.

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