



INDIA: MADHYA PRADESH SOLAR PARKS REPLICATION

Rapidly scaling up renewable energy generation is a priority for the Government of India, which introduced the “Development of Solar Parks and Ultra Mega Solar Power Projects” scheme to accelerate large scale project developments. Under this scheme, the Government of Madhya Pradesh mandated IFC to help structure and tender eight solar projects across three solar parks totaling 1500 MW capacity with the energy generated being purchased by Madhya Pradesh Power Management Corporation (MPPMCL) for state utilities and Indian Railways (IR) to power its trains.

The tenders for the three solar parks were awarded in September 2021. Avaada Energy won the auction for Unit 1 (200 MW) and Beempow Energy won for Unit 2 (350 MW) of the Agar solar park. NTPC Renewable Energy won the auction for Unit 1 (105 MW) and Unit 2 (220 MW) and Talettutayi Solar won for Unit 3 (125 MW) of Shajapur solar park. TP Saurya won the auction for Unit 1 (160 MW) and Unit 2 (170 MW) and Aljomaih Energy and Water won for Unit 3 (170 MW) of Neemuch solar park. Project agreements for all eight projects were signed in November 2021.

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

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The project was implemented with financial support from DevCo, a multi-donor facility affiliated with the Private Infrastructure Development Group that provides critical financial support for important infrastructure transactions in the poorest countries, helping boost economic growth and combat poverty, as well as the Sustainable Development Investment Partnership (SDIP), a global independent platform of 42 public, private and philanthropic institutions with the shared ambition to scale finance for the SDGs.

BACKGROUND

In India, 75% of power comes from coal. The Government of India is promoting the development of ultra-mega solar parks as a way to accelerate the generation of renewable energy by providing readily available land parcels, internal evacuation infrastructure, and external transmission links for solar power projects to be developed by private developers. To scale up solar parks in the State of Madhya Pradesh, the New and Renewable Energy Department of the Government of Madhya Pradesh and the Madhya Pradesh Urja Vikas Nigam Limited (MPUVNL) engaged IFC as the lead transaction advisor to help in structuring 1500MW solar project that would mobilize private investment for eight solar projects within three solar parks.

The solar parks were approved by the Government of India under the “Development of Solar Parks and Ultra Mega Solar Power Projects” scheme. A subsidy was made available by the Government of India under the scheme to part-finance the solar park infrastructure. Further, a loan from the Indian Renewable Energy Development Agency under a World Bank facility was made available to finance evacuation infrastructure.

IFC'S ROLE

IFC conducted commercial, legal, technical, and environmental and social due diligence and assisted in designing the transaction structure, preparing bankable project agreements, and coordinating pre-tender consultations with bidders. The IFC team also assisted Rewa Ultra Mega Solar Limited (RUMSL), the State's solar project implementing agency, in conducting an online auction for selecting the private developers for the eight projects. The auction led to the lowest ever solar power tariff in the country under the Government of India's regulations requiring government projects to source solar panels from an approved list of, currently, only Indian panel manufacturers.

The project agreements and innovative structuring advised by IFC, with guaranteed energy offtake from two power procurers—the Madhya Pradesh Power Management Corporation (MPPMCL) and Indian Railways—and a three-tier payment security mechanism, including guarantee from the Government of Madhya Pradesh for timely payments played an important role in attracting reputable bidders and achieving record low tariffs.

TRANSACTION STRUCTURE

RUMSL provided ~3,000 hectares of land to develop the Agar, Shajapur and Neemuch solar parks and committed to building the last mile evacuation infrastructure to connect the parks to the national grid substation. The selected developers would be responsible for developing the solar power projects within the solar parks in accordance with the Implementation Support Agreement to be signed with RUMSL. IFC designed a unique power scheduling arrangement that enabled Indian Railways to procure solar energy for the first time directly from a private solar project to power its trains. The projects are expected to supply about 77.5% of energy to MPPMCL for state utilities and

about 22.5% to Indian Railways, which will run its trains across seven states using open access regulations to procure power from the solar parks. To enable this, IFC helped develop a Coordination Agreement that specifies an innovative protocol for scheduling power supply to the two procurers.

A three-tier payment security mechanism comprising a letter of credit, a payment security fund (a liquidity facility for delayed payments MPPMCL and a State Guarantee for MPPMCL's offtake) was used. For Indian Railways, a letter of mandate instead of a Letter of Credit and payment security fund was used. The letter of mandate authorizes the Reserve Bank of India to unconditionally debit Indian Railway's account for any unpaid energy charges upon receipt of a debit claim from the private developer. This significantly mitigated the payment risk, resulting in high competition among developers and low tariffs.

BIDDING

The online auction for the eight solar projects was concluded in July and August 2021. Aavaada Energy won the auction for Unit 1 (200 MW) and Beempow Energy won for Unit 2 (350 MW) of Agar solar park. NTPC Renewable Energy won the auction for Unit 1 (105 MW) and Unit 2 (220 MW) and Talettutayi Solar won for Unit 3 (125 MW) of Shajapur solar park. TP Saurya won the auction for Unit 1 (160 MW) and Unit 2 (170 MW) and Aljomaih Energy and Water won for Unit 3 (170 MW) of Neemuch solar park.

The bid for each solar park comprised of a single-stage two-part process, followed by an online reverse auction. A total of 44 bids were received and the auctions resulted in tariff in the range of INR 2.14 (\$2.9 cents) to INR 2.46 (\$3.3 cents) per kWh. The project's lowest tariff was about 25% less than the lowest solar power tariff previously achieved by the State and about 50% less than the State's average solar power procurement tariff.

The signing of project agreements, including Power Purchase Agreements, for all the eight projects took place in November 2021 between RUMSL, MPPMCL and Indian Railways (the procurers), and the winning bidders.

EXPECTED POST-TENDER RESULTS

- Development of 1500MW of renewable energy capacity
- Reduction of GHG emissions by 2.8 million tons per year
- Mobilization of \$800 million in private sector investment