

Rooftop Solar Private Sector Financing Facility

Meeting the Indian government's target of 40 GW of rooftop solar power by 2022 will require significant financial resources, estimated at USD \$34 billion. Even with a more realistic deployment target of 14GW by 2022, the solar rooftop sector would still need approximately \$12 billion, of which \$8.3 billion would be debt capital.

The Rooftop Solar Private Sector Financing Facility could provide long-term, low-cost debt to developers and demonstrate the commercial viability of asset-backed securities for the Indian rooftop solar PV sector.

Low availability and low quality of debt capital are key barriers to the growth of the sector. These barriers arise because investors lack confidence in the credit quality of rooftop solar system project deals and lack interest in the small deal sizes on offer. In addition, delays in both lending decisions and disbursement of loans are also slowing growth.

The Rooftop Solar Private Sector Financing Facility addresses these barriers by bundling a large number of small projects together into one structured investment so that the aggregate deal size is large enough and of sufficient credit quality to attract more attention from investors, especially institutional investors. In addition, the Facility could demonstrate the commercial viability of the sector, which will reduce the perception risk of the sector. This securitization will help reduce the cost of capital compared to conventional financing and increase capital flows by expanding the investor base.

The Facility would add around 168 MW of capacity in the pilot phase over 2017-2019 and around 500 MW by 2022.

It can also create an additional 20,000 jobs over 2017-2022. The impact of the Facility is based on its securing 5% of its target market share of the commercial and industrial rooftop solar sector by 2022.

Beyond 2022, the Facility has the potential to raise more capital by demonstrating the commercial viability of the sector and the attractiveness of rooftop solar asset-backed securities, and by supporting solar developers to reach a scale that enables them to attract commercial investment at attractive terms.

The Facility could bring an additional USD \$500 million of capital to the rooftop solar sector, reduce the cost of debt by 0.5-3%, and create an additional 20,000 jobs over 2017-2022.

The proponents of the Facility – the International Finance Corporation (IFC) and Azure Power – are also the proposed implementers, and are in discussions with potential investors and donors to take it forward. Some foundations have expressed interest to provide capital to this facility. Once investors commit capital to the Facility, further work will be done on standardizing the power purchase agreement and loan documents, developing term sheets and prospectus, and selecting developers, customers, and projects.

This Facility needs around \$100 million of capital during the pilot stage from different classes of investors, including banks, development finance institutions (DFIs), and multilateral development banks (MDBs). This includes ~\$30 million in concessional loans to reduce the cost of funding for rooftop solar projects. In addition, the Facility may need an external credit guarantee from donors.

DESIGN

The Facility has two phases: the aggregation phase and the securitization phase.

Aggregation Phase

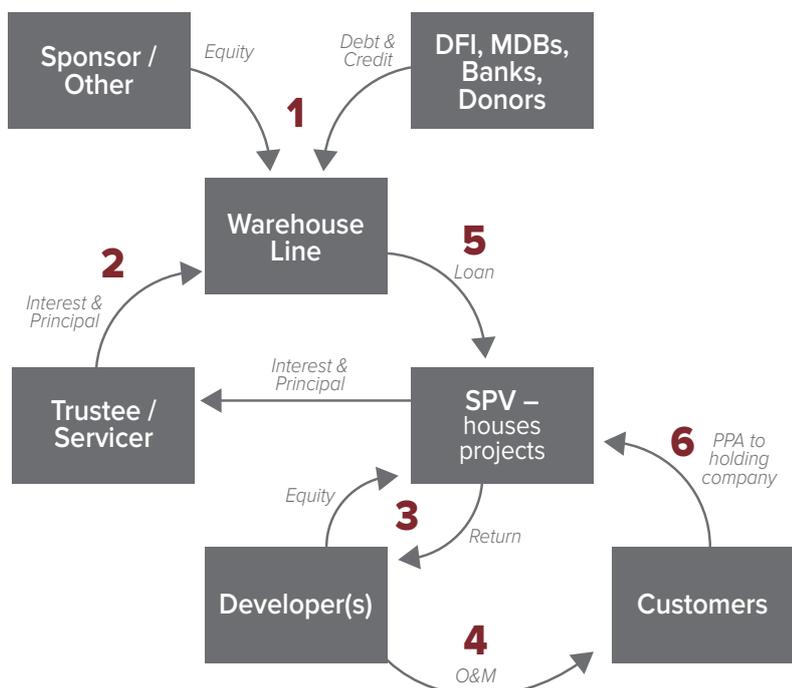
The aggregation phase involves building a warehouse line of credit that provides loans to creditworthy rooftop solar projects. The credit line will be available for 24 months and during this

time, approved developers and aggregators submit projects. The developer then builds the projects, and signs power purchase agreements (PPAs) with the customers and operations and maintenance agreements with service providers. PPA payments would be used to pay back the investors in the warehouse line of credit. Project developers can draw dividends or redeploy returns as long as they meet certain debt covenants.

Securitization Phase

This phase includes refinancing the warehouse line of credit by issuing asset-backed security bonds to domestic institutional investors, domestic lenders, or international investors (if currency risk can be managed by the implementing agency). The asset-backed security bond will be securitized against the loan pool. The proceeds from the securitization can be used to pay back the outstanding loans.

Aggregation Phase Mechanism



- 1.** The sponsor creates a warehouse line entity with nominal equity capital. The warehouse would be largely funded by financial institutions: Banks, MDBs, donors, etc.
- 2.** Funds from projects are used to service Warehouse investors.
- 3.** The developer creates the SPV to house project and capitalizes the SPV.
- 4.** The developer builds projects and signs O&M service agreement with the customer.
- 5.** The warehouse entity lends the project (SPV).
- 6.** Customers make PPA payments to the SPV. The SPV then makes payments to warehouse to service debt.

The India Innovation Lab for Green Finance is a public-private initiative in India that brings together experts from government, financial institutions, renewable energy, and infrastructure development to identify, develop, and accelerate innovative investment vehicles for green growth in India.

Analytical and secretariat work of the India Lab has been funded by **Shakti Sustainable Energy Foundation**, the **David and Lucile Packard Foundation**, and the **UK Government**. **Climate Policy Initiative's** team in Delhi serves as Lab Secretariat and analytical provider.