India: Grid-connected Rooftop Solar Program

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Presentation by the Energy and Extractives Global Practice, World Bank
SETTING THE CONTEXT

- World Bank/SBI Rooftop Solar Program – *Role of Development Finance*
  - Concessional loans/ reduce cost of financing
  - Catalyze/leverage private capital
  - Know-how/ technical support
- *Policy measures* for supporting Rooftop Solar growth
  - Policy recommendations from the White Paper
SBI/WB IS THE FIRST RISK TAKER

Cascading effect of WB funding – Small volume leading to entire market creation

Nascent market

Higher debt rates (double digit~16%)

Encouraged Commercial Banks

WB-SBI lowers debt rate (single digit~9%)

Mobilized Private equity Pension funds

Program has catalyzed $ 3.5 billion of private capital

2010-16
Rooftop Solar Market
$500 M
500 MW

2016
$ 648 M
WB program is launched

2020
$3.5 B catalyzed
5000 MW installed

2021
SBI to extend the program with its own $400 M fund

2022

State Bank of India
$400 M

$28 B/40 GW

GoI targets 40 GW rooftop solar by 2022

Program has catalyzed $3.5 billion of private capital
Debt volume: $648 million
  - World Bank - $500 million (Loan)
  - Clean Technology Fund - $125 million (concessional terms)
  - Global Environment Facility - $23 million (technical assistance & first loss)

Target segment: Commercial & Industrial consumers including MSMEs

Implementing Agency/Borrower: State Bank of India

Status: Ongoing (2016-2021)

Rate of Interest: MCLR + Spread (120-150 bps)

Eligibility: ECR of Investment grade (BBB- & above)

Program overview

Loan terms

Program offers concessional loans and technical assistance for the rooftop solar projects
Credit Guarantee Mechanism will help in creating a market to unlock credit flows and strengthen the capacities of lenders, MSMEs and RESCOs for expansion of rooftop solar in MSME segment in India.

### LEVERAGING INVESTMENTS FOR ROOFTOP SOLAR IN MSME

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Unit</th>
<th>Loan</th>
<th>Credit Guarantee</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Loan/Guarantee</td>
<td>$ M</td>
<td>250</td>
<td>250</td>
</tr>
<tr>
<td>Debt facilitated</td>
<td>$ M</td>
<td>250</td>
<td>886</td>
</tr>
<tr>
<td>Capital facilitated</td>
<td>$ M</td>
<td>357</td>
<td>1265</td>
</tr>
<tr>
<td>RTS installation</td>
<td>MW</td>
<td>533</td>
<td>1889</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Leverage of corpus to debt mobilized</th>
<th></th>
<th></th>
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<tbody>
<tr>
<td></td>
<td>1</td>
<td>3.54</td>
</tr>
</tbody>
</table>

* For debt/equity of 70:30
**At INR 50 million per MW (USD 0.67 million per MW) (USD/INR is 74.62)
Goal: Create an enabling ecosystem for supporting the growth of rooftop solar sector
### PREDICTABLE POLICY ON METERING & ENERGY ACCOUNTING

1. **Allow net-metering until state RTS targets are met**, with in-kind banking charges for exported units.
2. Transition to a mechanism that **balances the commercial interest of both consumer & utility**

<table>
<thead>
<tr>
<th>Calculation</th>
<th>Net metering</th>
<th>&quot;Net feed-in&quot;</th>
<th>Gross metering, Net billing</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Imported energy – exported energy) * consumption tariff</td>
<td>Imported energy * consumption tariff (minus) exported energy * FIT</td>
<td>Imported energy * consumption tariff (minus) (exported energy + self-consumption)* FIT</td>
<td></td>
</tr>
<tr>
<td>Electricity Bill</td>
<td>INR 1,600</td>
<td>INR 2500</td>
<td>INR 2000</td>
</tr>
</tbody>
</table>

**Balancing the interest of both consumers and distribution utilities should be cornerstone**

#### Assumptions:
Consumption tariff: INR 8.00 per kWh Net feed-in tariff: INR 5.00 per kWh
Imported energy: 500 kWh; Exported energy: 300 kWh; Self consumed: 100 kWh
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