



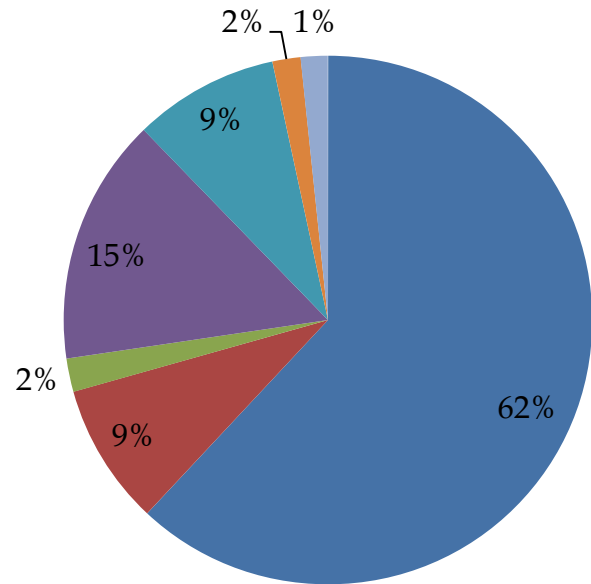
# **“Enhancing Bankability of Solar Rooftops – Measuring and Mitigating Risks”**

**Sandeep Arora**

*Director*

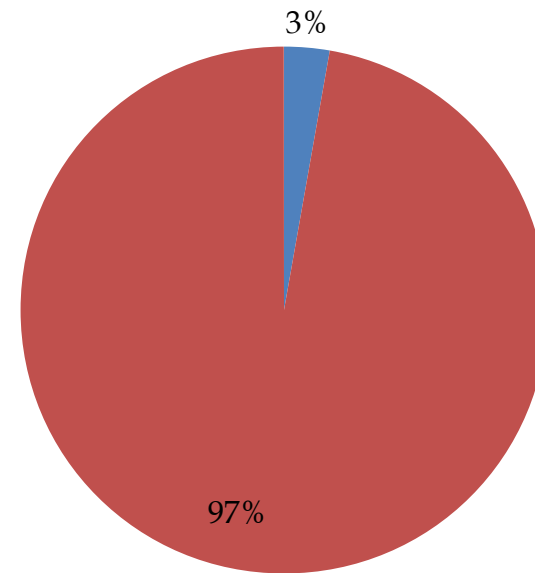
*Infrastructure Banking Group, Corporate Finance*

**% Power Generation Capacity<sup>1</sup>**



■ Coal    ■ Gas    ■ Nuclear    ■ Hydro  
■ Wind    ■ Solar    ■ Bio Mass

**% of Solar Power<sup>2</sup>**



■ Utility    ■ Grid Connected Rooftop

➤ Installed solar rooftop capacity of only 136 MW against targeted capacity addition of 40 GW. As per MNRE target, 4800 MW should be installed by end of FY17. <sup>3</sup>

➤ Only 3 states have solar rooftop capacity exceeding ~15 MW and nearly 14 states have NIL capacity. <sup>4</sup>

## ❖ RBI guidelines on Priority Sector Lending (PSL)

- ✓ To include loans **up to Rs. 15 Cr** to borrowers other than households for purposes **like solar based power generators**, biomass, windmills, micro-hydel plants and for non conventional energy based public utilities.
- ✓ For households borrowers, limit proposed is **INR 10 lakh per borrower**.

## ❖ Solar Rooftop loan as Home Loan component

- ✓ Advisory from Dept of Financial Services to PSBs to include loan for solar rooftop as part of Home Loan / Home Improvement Loan .
- ✓ Eight PSBs subsequently issued necessary notifications for execution of same

## ❖ IREDA Loan scheme for Rooftop Grid Connected/Interactive Solar PV Projects

- ✓ New scheme to promote rooftop solar providing loans at subsidized rate of interest of 9.9% to 10.75% to system aggregators and developers

## ❖ Capital Subsidy for Rooftop Systems

- ✓ 30% subsidy to be provided for general category states and 70% for special category states.<sup>6</sup>
- ✓ Increase in budget under National Solar Mission from Rs. 600 Cr to Rs. 5,000 Cr by FY20.<sup>7</sup>

## ❖ Generation Based Incentives of Delhi providing Rs. 2/unit of solar energy produced by domestic consumers and charitable organizations.

## Proof of Concept

- Demonstration of technical and financial feasibility of rooftop solar PV projects
- Identification of implementation challenges and solutions
- Provide insights to policy makers to frame appropriate policy and incentive to move the market forward.

## Market Transformation

- Bridge between proof of concept and mature self replication stage.
- Building incremental capacity to achieve set targets
- Government interventions required to act as market facilitators
- Evolution of financing market for investors and introduction of innovative financial products.

## Mature Self Replication

- Markets in self-replication and self-sustaining phase (*Japan and Germany*).
- Introduction of new and innovative implementation models driving the market towards greater efficiency
- Financing market for individuals emerges and matures
- Minimum government intervention.



India

Risk	Description	Mitigants
Low Credit profile of borrowers	<ul style="list-style-type: none"> <li>▪ Individual / Commercial &amp; Industrial (C&amp;I) borrowers having no long term bank financing experience</li> <li>▪ Inadequate KYC details</li> <li>▪ Inadequate free business cash flows for rooftop loan servicing</li> </ul>	<ul style="list-style-type: none"> <li>•Part guarantee to the aggregate commitment taken by Banks/FIs.</li> <li>•Additional collateral taken in case of low/limited credit history of borrower.</li> </ul>
Quality concerns	<ul style="list-style-type: none"> <li>•Large number of low scale EPC contractors with low track record.</li> <li>• Lack of adequate maintenance due to asset not being the primary source of power for the household/ establishment</li> <li>•Untested warranties and long term performance</li> </ul>	<ul style="list-style-type: none"> <li>•Separate nodal agency like SECI/other state nodal agencies for utility scale projects.</li> <li>•Independent check to be conducted by lender empanelled engineer as per checklist prescribed by MNRE.</li> </ul>
Security Coverage	<ul style="list-style-type: none"> <li>•Inadequate business assets for collateral</li> <li>•Concerns over continued availability of rooftop space during the tenor of facility.</li> <li>•Low and untested resale value of solar rooftop modules – <i>primary asset under charge</i></li> </ul>	<ul style="list-style-type: none"> <li>•Implementation of guarantee scheme to partly secure the exposure</li> <li>•Registration of access rights and step rights for financiers</li> </ul>

## Policy Interventions

- ✓ Enabling monetization of benefits like Accelerated Depreciation (*through transferable ADs*).
- ✓ Tax Credits / rebates for expenses towards solar rooftop systems – *credit to be spread across 10-15 years for minimum hit on exchequer*
- ✓ Effective implementation of net metering policies.
- ✓ Mandatory installations in certain property types requiring amendments in urban planning rules.

---

### Solar Rooftop Financing

- ✓ Outsourcing of loan repayment / servicing collection through local DISCOMs – *i.e., DISCOMs to work as financing channel partners (for a fee) under their Net Metering Zones for loan servicing collection and supply stoppages in case of payment default*
- ✓ Securitization of Pooled residential solar rooftops – *applicable for assets which have demonstrated successful operations for a period of time.*

## Financing Interventions

Implementation Model	Sub-model	Metering	Attractive FiT	Tax rebates & Incentives	Time-of-day Metering	Suitability for Project Finance
Self Owned	Captive with no grid feed	Not Mandatory		√	√	
	Gross Metering	Gross	√			√
	Net Metering	Net		√	√	
Third-Party Owned	Individual Rooftops with no grid feed	Not Mandatory		√	√	√
	Leased Systems with Net Metering	Net		√	√	
	Leased Rooftops with Gross Metering	Gross	√			√

Measures	Germany	Japan	California
<b>Financial Incentives Structures</b>	FIT, periodically updated	Capital Subsidy, RPO	Incentives, tax credits
<b>Sustainable Business Models</b>	<ul style="list-style-type: none"> <li>• Long-term FIT guarantee</li> <li>• Soft Financing</li> <li>• Streamlined interconnection &amp; administrative approval process</li> </ul>	<ul style="list-style-type: none"> <li>• Soft Financing</li> <li>• Streamlined interconnection &amp; administrative approval process</li> <li>• Savings in electricity bills</li> </ul>	<ul style="list-style-type: none"> <li>• Third-party service providers – <i>development &amp; performance risk</i></li> <li>• Savings in electricity bills</li> <li>• Lease payments and Tax-Benefits</li> </ul>
<b>Metering arrangements</b>	Gross Metering	Net Metering coupled with promotion of captive consumption	Net Metering
<b>Financing Incentives</b>	<ul style="list-style-type: none"> <li>• Emerged with feed-in-tariff regime</li> <li>• Schemes based on well-defined standards</li> </ul>	<ul style="list-style-type: none"> <li>• Low-cost mortgage loans</li> </ul>	<ul style="list-style-type: none"> <li>• Good credit history</li> <li>• Equity Interest</li> <li>• Income to cover the loan repayment</li> </ul>



## Key Awards and Recognitions



Strongest Bank in India by Balance Sheet The Asian Banker Awards Singapore - 2015



First and Only Indian Bank included in Dow Jones Sustainability Index New York - 2015



First Indian Company to be on the Carbon Disclosure Leadership Index for four consecutive years 2015, 2014, 2013, 2012, 2011

First Indian Company to be a Signatory - Since 2007



Ranked 2nd best Globally for Innovative Customer engagement through Social Media. International Best Practice Competition, Abu Dhabi - 2014



Best Private Sector Bank (Asset Class) 2014  
Best Private Sector Bank (Priority Sector Lending) 2012  
Best Private Sector Bank 2011  
Dun & Bradstreet - Polaris Software Banking Awards



Only Indian Bank to be an active Signatory Since 2009

## Significant achievements during last 11 years since inception as a Greenfield bank

**Balance Sheet size of INR 1,448 Bn (US\$ 22.3 Bn)\***  
(grown faster than any other Indian bank during the corresponding period in their lifecycle)

**Market Capitalization of INR 283 Bn (US\$ 4.3Bn)\*\***  
(Delivered stock return of more than 1300% since its public listing in July 2005 thereby creating value for investors)

**Existing relationships with all major corporates in India**  
(Relationship based, rather than transaction based approach to banking)

**Knowledge Sector Focused Bank**  
(Focus on key growth sectors of Indian economy  
Dedicated knowledge teams for each respective knowledge sector)

**Complete suite of Financial Products**  
("One bank" approach providing all banking solutions under one roof)

**Ranked # 1 by numerous reputed publications for fastest growth / best credit quality**  
(Continued focus on sustainable, profitable growth)

**Excellent Human Capital**  
("Professionals Bank of India" led by arguably the best management team in the country)

**Backed by Pedigree Investors**  
(Key institutional investors include LIC, Franklin Templeton, Fidelity, Bajaj Allianz, Coronation, Birla Sunlife, Vanguard, Fullerton, among others)

\*As on Sep 30, 2015  
\*\*As on Jan 15, 2016



THE WORLD BANK



**Long-term partnership with Indian Renewable Industry**

*Underwritten/Participated 3,064 MW (including 1,132 MW Solar)*

**India's First Green Bond Issuance**

*INR 10.00 Bn & INR 3.15 Bn- strong demand from leading investors*

**Green Energy Commitments – RE-INVEST 2015**

*First Indian Bank to commit financing of 5,000 MW*

**Commitment to mobilize USD 5 Bn toward climate finance in India by 2020**

*100 million lives through safe water program, planting 2 million saplings*

**Fully Underwritten INR 3.80 Bn Solar Sector Bonds**

*Credit Enhanced by IIFCL, ADB*

**Leadership in Sector Initiatives**

*Knowledge Partner – RE-INVEST/ International Solar Alliance (ISA)/US-India Task Force*

# Thank you!!

**Source:**

*1,2,3,4, MNRE, CEA*

*6,7 MNRE*

*5,8,9 IFC & Norwegian Trust Fund for Private Sector and Infrastructure*