

# Green Growth Partnerships: Scaling Up Solar in India through Public-Private Action

World Economic Forum, Department of Energy and Climate Change of the United Kingdom, Asian Development Bank, Clinton Climate Initiative



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## Project Background

**Location:** Asia, India, Multi-state

**Date project established:** May 2011

**India's vision for solar power:** The Indian government has identified solar power as central to its long term energy security, a key component of its response to climate change and as a further spur to its economic growth agenda. The size of the investment opportunity in Indian solar ranges between \$35-110bn over the next decade.

To reflect the importance of solar power as a national priority, the government launched the National Solar Mission (NSM) in 2009 with the objective of deploying 20,000 mw of solar power by 2022<sup>1</sup>. Recent estimates put the total grid connected solar power capacity that is likely to be delivered by 2013 at 1,802MW with the majority (1,098MW) coming from state schemes (704MW under the NSM).

Delivery of these ambitious objectives are expected to have significant co-benefits as a result of:

- **Energy security:** India faces significant, and growing, hydrocarbon import dependence. According to analysis delivered by KPMG the expansion of solar power has the capacity to replace up to 30% of imported coal by 2021-22
- **Job creation:** The expansion of solar power has the potential to create a significant number of new jobs in India, up to 1 million in the period 2017-22<sup>2</sup>
- **Rural electrification:** In a country where as much as 45% of the rural community lack access to electricity through the grid, expansion in distributed solar power could also play a vital role in energising communities and replacing diesel and kerosene power generation

To achieve this ambitious goal, the federal government has defined a robust strategy for solar investment in the first phase of the NSM (2010-2013) with the objective of achieving price parity with

<sup>1</sup> MNRE, 2010 JNNSM Mission Document

<sup>2</sup> Based on Nrel, 2008 figures of jobs per Kwh and analysis of market size delivered by KPMG, 2011, Rising Sun

conventional grid power

To achieve the goals set by the central and some state governments, some challenges that prevent financial closure for some projects need to be addressed, including:

- Power Purchase Agreement (PPA) structure: PPAs are not assignable to lenders, and there are questions over the long term viability of the feed in tariff and the solvency of state utilities
- Project size: The first wave of solar projects allocated India under the NSM (5-10MW) have laid the groundwork for larger projects, with these larger projects the need for larger pools of capital (private and multi-lateral) is generally considered to be needed
- Availability and cost of financing: there are currently high domestic borrowing costs (~11%) and limited experience with non-recourse debt financing models. There are some good developments here, with fit-for-purpose financial instruments targeted at India solar (such as partial credit or risk guarantees) under development

**Project objective:** To help identify the 'ways and means' to scale up private sector financing of solar projects, the World Economic Forum, in 2010 launched the Critical Mass Initiative to convene public and private sector stakeholders and design financing vehicles that could help to 'crowd in' private sector developers. The UK government's CMCI is now building on this. Through this process discussions were held on the significant role that multilaterals have to play in developing and applying risk mitigation tools for private sector projects. These discussions concluded that one solution that would draw in private investment would be for the Asian Development Banks (ADB) to launch a Partial Credit Guarantee (PCG), to provide cover against legal, political, commercial, and technical risks

### Mitigation and/or Adaptation

The ADB has now successfully launched a US\$150 m Partial Credit Guarantee Facility, which covers 50% of the payment default risk on bank loans made to solar project developers, replacing half of a project's risk (estimated at B-BB equivalent) with ADB credit risk (AAA). This enables extension of loan tenors to over 15 years and allows ADB to leverage financial support for projects that are too small for typical commercial project financing. The facility is available to local and foreign commercial banks that are looking to finance private sector solar power plants in India. The ADB is conducting due diligence on three local banks, which are expected to become partner banks under the program and to extend credit to solar developers/operators. A number of projects are now in the due diligence stage and seeking to benefit from the PCG representing in excess of 600MW under both the NSM and state schemes.

The extension of the PCG represents an important first step and demonstrates how public and private partnerships could be effectively formed. Other important tools can also be used to catalyse private sector investment at the scale required to achieve the government's goals in NSM Phase II. These include the potential expansion of large scale solar parks concepts to ease issues and costs associated with land acquisition, access to evacuation infrastructure and financing transactions costs. A related concept; solar bonds has also been identified as a potential means by which large scale debt finance could be accessed to support the expansion of the solar industry.

### Social Benefits

India needs to sustain economic growth of 9% over the next 20 years to eradicate poverty and meet its human development goals. Meeting the energy requirements to match this growth rate in a sustainable manner, as outlined above, presents a major challenge. In a country where as much as 45% of the rural community lack access to electricity through the grid, expansion in distributed solar power could also play a vital role in literally – energising communities.

The development of a vibrant domestic solar industry could also act as a powerful spur to endogenous industrial and rural economic growth and help underpin energy security<sup>3</sup>. According to KPMG the solar value chain in India presents a potential USD\$110bn market in the next decade<sup>4</sup>. In addition the expansion of solar power has the potential to create a significant number of new jobs in India, up to 1 million in the period 2017-22<sup>5</sup>. This is in addition to the substantial economic benefits of increasing rural electrification and reducing negative health outcomes associated with burning fossil fuels.

### **Potential for scaling-up of project**

This project seeks to support the emergence of financing frameworks and instruments for solar energy in India. While this has been designed to overcome specific barriers relevant to the domestic political, technical and financial context it is expected that models have direct relevance across geographies.

The potential to scale up financial frameworks once proven is significant and limited only by private capital's appetite to invest in what could, as a result of this work, become commercially attractive investment propositions.

### **Potential for replication of project**

Learnings from this project will/are being taken to other countries that aim to scale up solar, including Kenya and potentially South Africa

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<sup>3</sup> By avoiding dependence on overseas solar components

<sup>4</sup> Cumulative investment opportunity across the solar value chain but excluding manufacturing, on and off-grid, KPMG, 2011 The Rising Sun

<sup>5</sup> Based on Nrel, 2008 figures of jobs per Kwh and analysis of market size delivered by KPMG, 2011, Rising Sun