

# **U.S.-India Partnership to Advance Clean Energy Deployment Program**

## **Enabling **Solar Rooftop** Deployment in India**

### **National Workshop on Rooftop Solar June 7, 2016, New Delhi**

**Presented by**

**Mark Newton, Office Director**

# U.S.-India collaborations in the field of Renewable Energy are designed to advance three core objectives:

1. Strengthen the “ecosystem” for expanded renewable energy deployment through cross cutting efforts.
2. India’s National Solar Mission’s objectives, through laying the groundwork for further solar deployment.
3. Promoting Energy Access through Clean Energy



***IRE-USAID, PACE-D TA program is focused on creating an enabling ecosystem for the uptake of solar rooftop at the national and the state level.***



**Policies and Regulations**



**Utility Support**



**Assistance to PSU's**



**Human Resource Development**

# Program Partner Agencies

## State Level Policies and Regulations

Karnataka Renewable Energy Development Ltd.

Uttar Pradesh Urja Vikas Nigam Ltd.

Rajasthan Renewable Energy Corporation.

Energy Department, Govt of Rajasthan and Karnataka



## Utility Support

- Bangalore Electric Supply Company
- Jaipur Vidyut Vitran Nigam Ltd.



## Assistance to PSUs

- Indian Railways
- Indian Oil Corporation Ltd.



## Financing

- Indian Renewable Energy Development Agency
- Tata Clean Tech Capital Ltd.



TATA CLEANTECH CAPITAL LIMITED

## Human Resource Development

- National Institute of Solar Energy



# State level Policies and Regulations

## MADHYA PRADESH

Support to the MPUVNL on the design and development – **Madhya Pradesh Solar Rooftop Policy 2016** (under approval).

## RAJASTHAN

Support to the State Energy Department on the design and development **Solar Rooftop program**.

Developed a **White paper on Implementation of Net Metering in Rajasthan**.

## KARNATAKA

Technical inputs to the **Karnataka Solar Policy 2014**, including specific inputs on the technical and programmatic procedures for solar PV rooftop.

Developed a **White Paper on Gross Metering for Solar Rooftops in Karnataka**.



# Support to Utilities in Rajasthan and Karnataka

## 1. Basic Understanding of Rooftop Programs

Workshops  
involving Policy  
makers and  
senior  
management of  
utilities



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## 2. Establish Technical Requirements and Processes

- Establish Process and Technical Committees, and engage other departments
- Finalize .  
Decision making flow and technical requirements.  
Application requirements.  
Application/approval forms.

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## 3. Capacity Building of Utility Engineers at all the levels

- Standardized training programs covering basics to all critical technical aspects.

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## 4. Public Communication and Awareness

- Devise public communication strategy and its

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## 5. Regular Moni and Improver

- Collection of  
from field  
engineers,  
developers a  
public feedb
- Comprehens  
study after 1  
months to id  
barriers to s
- Studies for r  
business mo  
and second  
generation p

# Design and Implementation of PSU Programs

## Indian Railways

### Key initiatives

50 MW solar rooftop program on railway platforms.

100 MW rooftop program on four key Rail Corridors.

Clean Energy Strategy to meet RPO by 2020.

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## Indian Oil

### Key initiatives

- Solar rooftop program on three refineries (6.5 MW)
- Solar Rooftop program for retail outlets (25,000 petrol pumps)
- 1 GW Solar Park investment by Indian Oil and Oil India

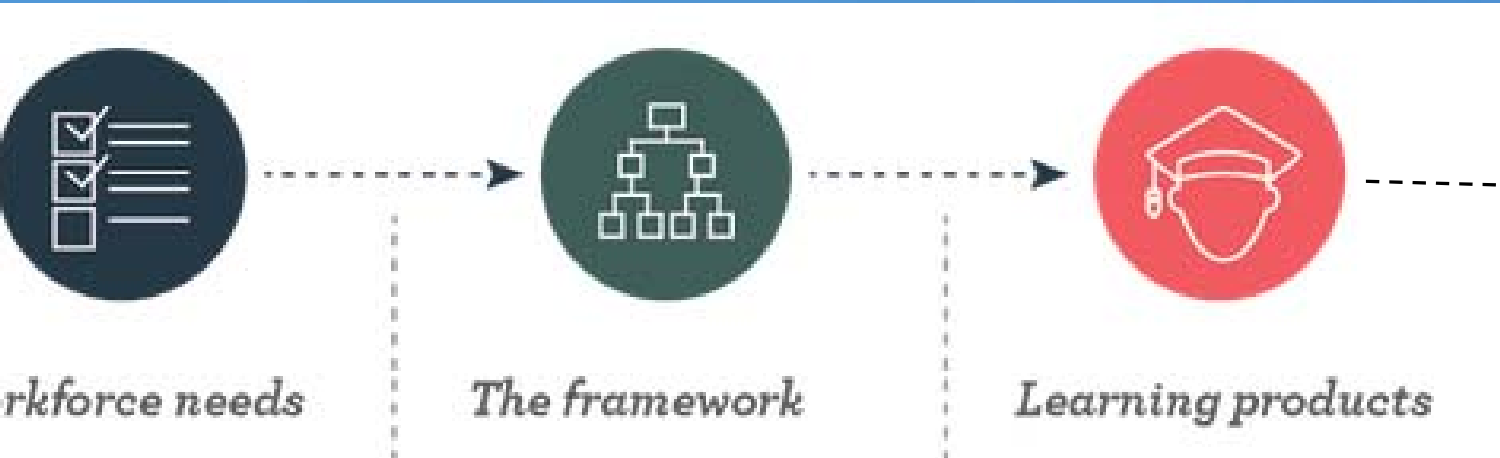
### Program Support

- Site Surveys potential assessments
- Analysis of implementation models and
- Addressing technical considerations
- Design of RFQ, PPA and Tender Documents



# Solar Energy Training Network - SETNET

*Build skills and capacities to ensure the availability of qualified energy professionals to meet the national solar deployment targets*





# NET

## Value Proposition

35 Training Institutions part of the Network

Spread across States

Standardized training curricula and content

Trained trainers

Certification from National Skill Council on Green Jobs.(under way)

Led by the premier solar energy institute in India- NISE.

## **Free Training Programs Underway**

Training Program for Utility Engineers (1.5 Day).

Entrepreneurship Development Program on Solar Rooftop (5 Day)

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## Training programs



## **Progress**

- 500 Engineers trained from 13 utilities
- 38 Solar Rooftop Entrepreneurs Trained
- Expansion planned to train 5000 Utility Professionals, 500 Entrepreneurs

# Solar Rooftop Evaluation Tool - SRET

*Facilitating Investment  
Decision Making*



Evaluate the key viability and sustainability parameters

Enhance understanding of business models, system technical architecture and commercial terms of engagement

Assist in identifying key risks and suggest mitigation options.

Provides ready reference on the standard set of documents required for a bankable project

Modular and customizable for integration with the project financing systems of banks.

Used by IREDA to develop the rating framework for the rooftop project proposals.

## Solar Rooftop Evaluation Tool

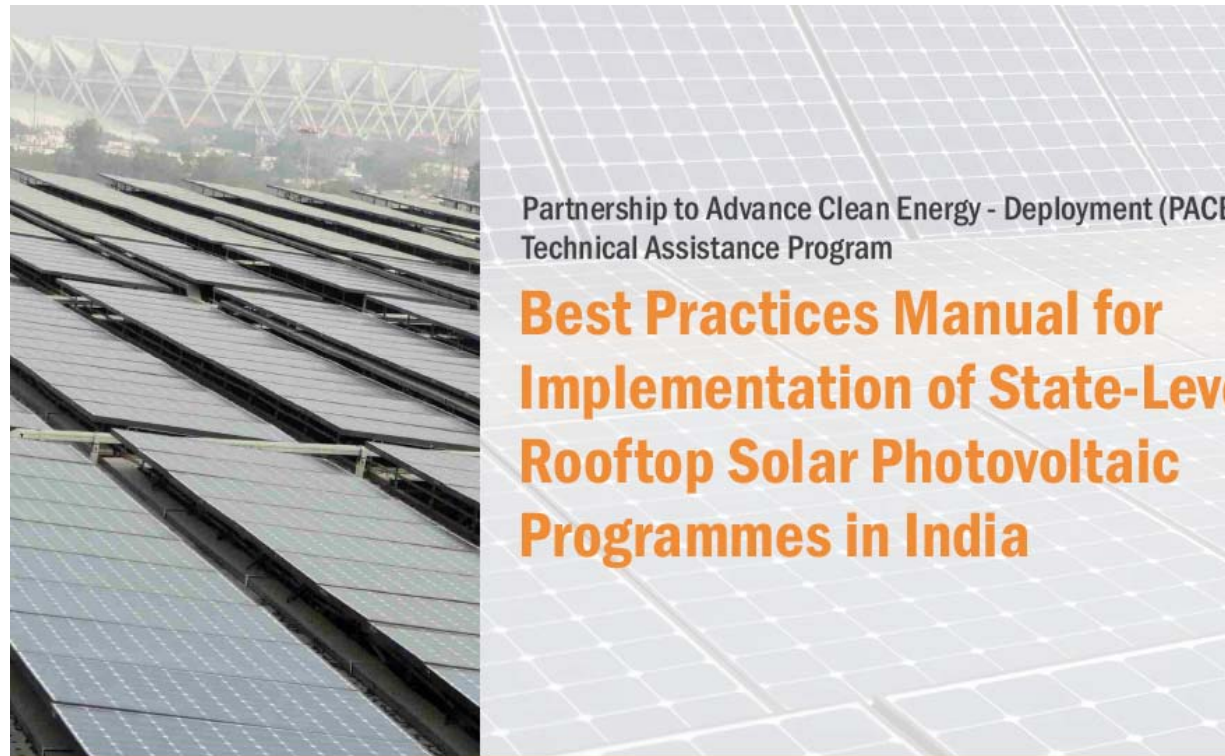


# Best Practices Manual for Implementation of State-Level Rooftop Solar PV Programs in India

designed to serve as a reference to different set of stakeholders.

lays out a comprehensive and efficient implementation process for solar PV rooftop.

captures global best practices and learning, as well as those from within India





# India and U.S. Partnership is Enabling.....

