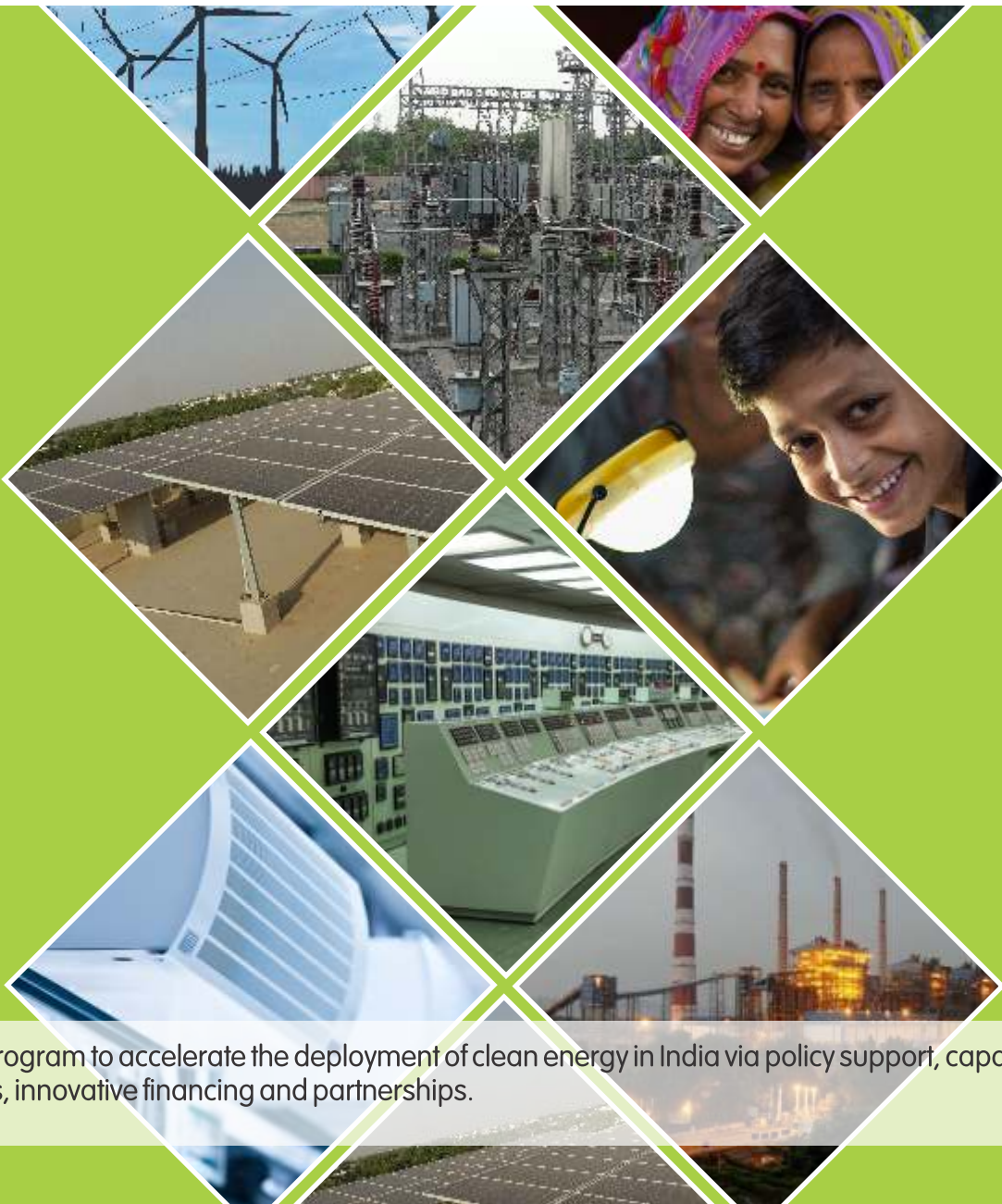


Partnership to Advance Clean Energy-Deployment (PACE-D) Technical Assistance Program



A bilateral program to accelerate the deployment of clean energy in India via policy support, capacity building, pilot projects, innovative financing and partnerships.



Overview

The Partnership to Advance Clean Energy – Deployment Technical Assistance (PACE-D TA) Program is a part of the overall PACE initiative, the flagship program under the U.S.-India Energy Dialogue. The six year initiative is led by the U.S. Agency for International Development (USAID) and the U.S. Department of State and implemented in partnership with the Ministry of Power (MOP) and the Ministry of New and Renewable Energy (MNRE).

In the first five years, the PACE-D TA Program focused on three key components: energy efficiency, renewable energy and cleaner fossil technologies, with the overall aim of accelerating the deployment of clean energy, expanding U.S.-India trade and investment linkages, and facilitating knowledge exchange.

The Program's focus in the sixth year is largely on accelerating solar rooftop deployment across eight states: Andhra Pradesh, Assam, Haryana, Maharashtra, Punjab, Telangana, Uttar Pradesh and West Bengal. The Program is working with a range of stakeholders in the focal states to build and strengthen the institutional capacity of respective state distribution utilities and state nodal agencies to design, deploy and monitor solar rooftop programs. It is also assisting state electricity regulatory commissions in these states to design an enabling regulatory environment for faster uptake of solar rooftop.

Program Partners

Central Agencies/Organizations

- Central Electricity Regulatory Commission
- Forum of Regulators

State Energy Departments

- Assam
- Haryana
- Karnataka
- Madhya Pradesh
- Rajasthan
- Uttar Pradesh
- West Bengal

State Electricity Regulatory Commissions

- Gujarat Electricity Regulatory Commission
- Haryana Electricity Regulatory Commission
- Karnataka Electricity Regulatory Commission
- Rajasthan Electricity Regulatory Commission

State Nodal Agencies

- Assam Energy Development Agency
- Gujarat Energy Development Agency
- Haryana Renewable Energy Development Agency
- Karnataka Renewable Energy Development Ltd.
- Madhya Pradesh Urja Vikas Nigam Ltd.
- Maharashtra Energy Development Agency
- New and Renewable Energy Development Corporation of Andhra Pradesh
- Punjab Energy Development Agency
- Rajasthan Renewable Energy Corporation Ltd.
- Uttar Pradesh New and Renewable Energy Development Agency
- West Bengal Renewable Energy Development Agency

Utilities

- Aijmer Vidyut Vitran Nigam Ltd.
- Assam Power Distribution Company Ltd.
- Bangalore Electricity Supply Company Ltd.
- Dakshin Haryana Bijli Vitran Nigam Ltd.
- Andhra Pradesh Eastern Power Distribution Corporation Ltd.
- Jaipur Vidyut Vitaran Nigam Ltd.
- Madhyanchal Vidyut Vitaran Nigam Ltd.
- Maharashtra State Electricity Distribution Company Ltd.
- Pashchimanchal Vidyut Vitaran Nigam Ltd.
- Punjab State Power Corporation Ltd.
- Andhra Pradesh Southern Power Distribution Corporation Ltd.
- Uttar Haryana Bijli Vitran Nigam Ltd.
- West Bengal State Electricity Distribution Company Ltd.

At a Glance: Key Activities

Energy Efficiency

Technical update of the Energy Conservation Building Code (ECBC) with BEE

Two Net Zero Energy Building (NZEB) pilots - Nalanda University and Uttar Haryana Bijli Vitran Nigam headquarter

NZEB Knowledge Portal – www.nzeb.in

NZEB strategy for railway facilities of Indian Railways

Super-Efficient Air Conditioning Program with EESL

Two Smart Grid pilots – Ajmer & Tripura

Support to NSGM for development of model Smart Grid regulations

Waste Heat Utilization market transformation strategy and technology compendium with BEE

Renewable Energy

Policy, regulation and standardized interconnection framework for solar rooftop deployment at the state level across 11 states

Implementation models for grid-connected and standalone solar irrigation pumps in Bihar, Karnataka and Madhya Pradesh

Institutional support to the Indian Railways, REMC and Indian Oil for procurement of more than 155 MW of grid-connected solar rooftop

Design of RE storage projects for Indian Oil, BHEL & REIL under the National Energy Storage Demonstration Program

RPO Compliance Mechanism and Web-based Tool for Rajasthan and Gujarat

Cleaner Fossil

Heat rate improvement in two state utilities

Indian Heat to Power Alliance

Capacity building of NTPC on supercritical technologies

Two software pilots – coal blending and advanced pattern recognition

Best Practices Manual for supercritical power plants



Capacity Building

SmartNET: Standardized curriculum and training on Smart Grid for utility professionals

Capacity building of Haryana state utilities on Demand Side Management (DSM)

Best Practices Guide for implementation of state-level solar rooftop programs in India

Training programs on solar rooftop for utilities, banks and entrepreneurs

Training needs assessment of the Indian solar sector

Solar rooftop training of trainers of State Bank of India and Punjab National Bank

Certification of solar rooftop training programs by National Skills Development Council

Institutional Strengthening

Policy, regulatory and technical support to state agencies in Rajasthan & Karnataka for solar rooftop & EE initiatives

Support for DSM regulations in Haryana

ECBC implementation support to Rajasthan and Haryana

Design of a city-wide 5 MW solar rooftop program in partnership with RRECL for Jaipur

Institutional & operational framework for the NSGM

Support to MPUVNL for solar rooftop and off-grid RE policy

Clean Energy Finance

Solar rooftop evaluation tool for financial institutions

Capacity building of Indian financing institutions to issue Green Bonds

Financing guidelines for EE projects

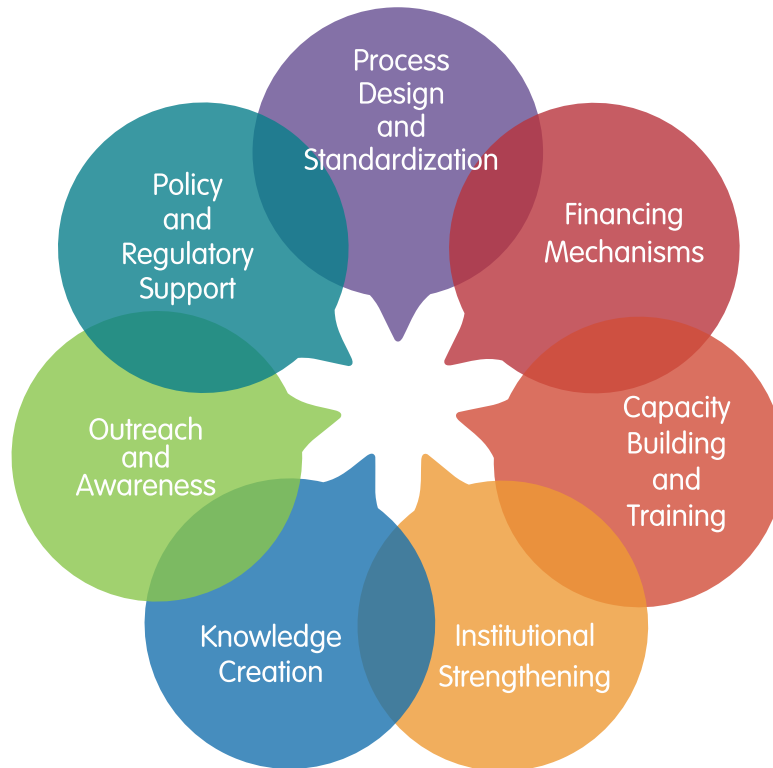
Survey of ESCOs to identify a potential pipeline of energy efficiency projects

USD 18 million in energy loans and leveraged USD 7.4 million for seven partner microfinance institutions



Key Components

Developing an Enabling Ecosystem for Clean Energy Deployment



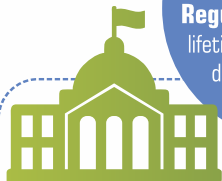
Implementation Team

Nexant Inc. leads the implementation team for the PACE-D TA Program. Nexant is supported by a consortium of Indian and U.S. Companies to implement the various components of the Program. These include: Arc Finance, Chemonics International, Confederation of Indian Industry, Continuing Education & Training Centre, Development Environenergy Services Ltd., Emergent Ventures India Pvt. Ltd., Environmental Design Solutions Pvt. Ltd., GSES India Sustainable Energy Pvt. Ltd., Idam Infrastructure Advisory, KPMG Advisory Services Pvt. Ltd., Leonardo Technologies, Inc., Mercados Energy Markets India Pvt.Ltd., On Purpose Consulting, SEE-Tech Solutions Pvt. Ltd., Small Scale Sustainable Infrastructure Development Fund, SRC Global Inc., Stephen Storm Inc. and several individual experts.

Key Outcomes

(As of September 2017)

Policy and Regulatory Support

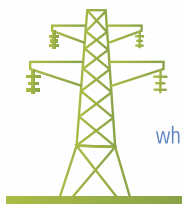


Assisted Karnataka and Rajasthan to develop **state level EE policies**, targeting energy savings of 63 MW and 100 MW respectively by FY 2018-19

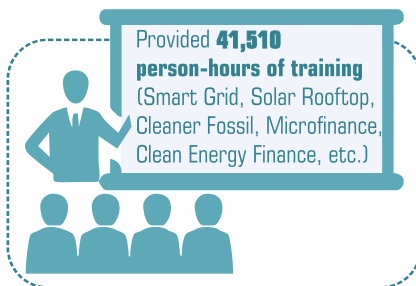
Supported Haryana in developing and implementing **DSM Regulations** to achieve a lifetime saving of 20 MW during the Program period

Assisted Madhya Pradesh to develop **solar rooftop policy** that has a target of 2.2 GW by FY 2021-22

Supported the Forum of Regulators in finalization of **Smart Grid Model Regulations** which will assist in achieving India's goal of reducing losses to below 10% by 2027



Capacity Building of Stakeholders



Microfinance Support Program

Supported partner microfinance institutions in the sale of **327,644 clean energy products**



Cleaner Fossil

Facilitated **heat rate improvements of 0.2% and 5.6%** in Chandrapur and Panipat thermal power stations respectively

Solar Rooftop Deployment

Supported **BESCOM** in the deployment of its solar rooftop program that has a target of **400 MW**



Assisted **Indian Oil** to set up solar rooftop on its refineries and installations, targeting **6 MW**

Assisted **Indian Railways** in the procurement of **155 MW** of solar rooftop power



Anurag Mishra

Senior Clean Energy Specialist
USAID/India
Email: amishra@usaid.gov

Please access www.pace-d.com for additional information.

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