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

Partnership to Advance Clean Energy (PACE) is the flagship program on clean energy between the U.S. and India to jointly work on a range of issues related to energy security, clean energy and climate change. PACE seeks to accelerate inclusive, low-carbon growth by supporting research and deployment of clean energy technologies and policies. PACE combines the efforts of several government and non-government stakeholders on both the U.S. and Indian sides and includes three key components: Research (PACE-R), Deployment (PACE-D), and Off-Grid Energy Access (PEACE). PACE-D includes a USD 20 million five-year technical assistance (TA) program which 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).

PACE-D TA Program

The PACE-D TA Program focuses on energy efficiency (EE), renewable energy (RE) and cleaner fossil technologies, with cross-cutting activities on institutional strengthening, capacity building and training, and clean energy finance.

The overall aim of the PACE-D TA Program is to accelerate the deployment and use of clean energy produced, expand U.S.-India trade and investment linkages, and facilitate exchange of information and best practices. The Program works with policy makers, regulators, state agencies, private companies, investors, clean energy associations, and other stakeholders to create an enabling environment to increase the uptake of EE and RE technologies in India.

Program Partners

**State Agencies:** Haryana Renewable Energy Development Agency; Haryana Energy Regulatory Commission (HERC); Uttar Haryana Bijli Vitran Nigam Ltd.; Dakshin Haryana Bijli Vitran Nigam Ltd.; Madhya Pradesh Urja Vikas Nigam Ltd.; Karnataka Renewable Energy Development Ltd.; Bangalore Electricity Supply Company Ltd. (BESCOM); Tripura State Electricity Corporation Ltd.; Rajasthan Renewable Energy Corporation Ltd.; Rajya Vidyut Prasaran Nigam Ltd.; Urban Development and Housing Department, Rajasthan; Jaipur Development Authority; Jaipur Vidyut Vitaran Nigam Ltd.; Ajmer Vidyut Vitrans Nigam Ltd.; and the Energy Departments of Karnataka, Haryana and Rajasthan.

**Public Sector Agencies:** Bureau of Energy Efficiency (BEE); NTPC; National Smart Grid Mission Project Management Unit; National Institute of Solar Energy (NISE); Solar Energy Corporation of India; Indian Oil Corporation Ltd.; Indian Railways; Indian Renewable Energy Development Agency; Nalanda University; and Energy Efficiency Services Ltd. (EESL).

**Private Sector Agencies:** Tata Cleantech Capital Ltd. (TCCL); The Climate Group (TCG); BASIX; India Infrastructure Finance Company Ltd. (IIFCL); ESAF; MSF; Sarala; Swayamshree; Ujjivan; Vayam; SVCL; Saija.

*The PACE-D TA Program serves as the Secretariat to the overall PACE initiative.*
## At a Glance: Key Activities

<table>
<thead>
<tr>
<th>Clean Energy</th>
<th>Energy Efficiency</th>
<th>Renewable Energy</th>
<th>Cleaner Fossil</th>
<th>Institutional Strengthening</th>
<th>Clean Energy Finance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Providing TA to Indian Railways and Indian Oil for solar rooftop deployment</td>
<td>Assisting BEE in the technical update of Energy Conservation Building Code</td>
<td>Supporting the Nalanda University and Uttar Haryana JIli Vitran Nigam headquarters to become net-zero</td>
<td>Promoting market transformation activities for Heating, Ventilation and Air-Conditioning</td>
<td>Deployed a shared service model for decentralized solar irrigation</td>
<td>Developed the solar rooftop evaluation tool for financial institutions</td>
</tr>
<tr>
<td>Improved the heat rate in two utilities</td>
<td>Assisted BESCOM in the design and implementation of solar rooftop program, and solar-based pumping pilot</td>
<td>Supporting development of the National Energy Storage Demonstration Program and a Roadmap for its implementation</td>
<td>Supporting the development of a compliance mechanism for Renewable Energy Purchase Obligation (RPO) in Rajasthan</td>
<td>Developed Best Practices Manual for supercritical power plants</td>
<td>Mainstreaming energy efficiency finance in corporate loans via the Corporate Energy Audit Program with TDCL</td>
</tr>
<tr>
<td>Assessing the training needs of the Indian solar sector</td>
<td>Providing training to 14 Smart Grid pilots and detailed TA to two pilots</td>
<td>Developing Smart Grid training course for utility professionals</td>
<td>Completed software pilots on coal blending and advanced pattern recognition</td>
<td>Supporting NISE in the establishment of Solar Energy Training Network (SETNET) for building skilled manpower</td>
<td>Assisting EESL to make investments in ten substations to make them energy efficient</td>
</tr>
<tr>
<td>Providing policy, regulatory and technical support to state agencies in Rajasthan and Karnataka for solar rooftop and EE initiatives</td>
<td>Supported the development of Demand-side Management (DSM) regulations in Haryana</td>
<td>Supporting the development of the solar-rooftop policy and Interconnection Framework for distribution utilities in Madhya Pradesh</td>
<td>Providing support to the National Smart Grid Mission for institutional and operational framework</td>
<td>Supported the development of Vendor’s Manual for improving the clean energy products procurement process in Madhya Pradesh</td>
<td>Assisting IIFCL in facilitating launch of Infrastructure Debt Fund – Mutual Fund</td>
</tr>
<tr>
<td>Developed the solar rooftop evaluation tool for financial institutions</td>
<td>Supported the development of the solar-rooftop policy and Interconnection Framework for distribution utilities in Madhya Pradesh</td>
<td>Providing support to the National Smart Grid Mission for institutional and operational framework</td>
<td>Providing support to the National Smart Grid Mission for institutional and operational framework</td>
<td>Working with seven microfinance institutions to make them market ready for clean energy lending</td>
<td>Providing policy, regulatory and technical support to state agencies in Rajasthan and Karnataka for solar rooftop and EE initiatives</td>
</tr>
</tbody>
</table>

- Developed the solar rooftop evaluation tool for financial institutions.
- Assisting EESL to make investments in ten substations to make them energy efficient.
- Assisting IIFCL in facilitating launch of Infrastructure Debt Fund – Mutual Fund.
- Providing support to the National Smart Grid Mission for institutional and operational framework.
Nexant, Inc. leads the implementation team for the PACE-D Technical Assistance 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, Development Environergy Services, Emergent Ventures India, Environmental Design Solutions, Idam Infrastructure Advisory, and KPMG Advisory Services.

### Key Components

Developing an Enabling Ecosystem for Clean Energy Deployment

- Policy and Regulatory Support
- Process Design and Standardization
- Financing Mechanisms
- Capacity Building and Training
- Institutional Strengthening
- Knowledge Creation
- Outreach and Awareness

---

Implementation Team

Nexant, Inc. leads the implementation team for the PACE-D Technical Assistance 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, Development Environergy Services, Emergent Ventures India, Environmental Design Solutions, Idam Infrastructure Advisory, and KPMG Advisory Services.
Key Outcomes
(As of January 2016)

Policy and Regulatory Support

- Supported Haryana in developing and implementing DSM Regulations to achieve a lifetime saving of 20 MW during the Program period.
- Assisting Karnataka and Rajasthan to develop state level EE policies, targeting energy savings of 63 MW and 100 MW respectively by FY 2018-19.
- Assisting 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

- Provided 16,302 person-hours of training (Smart Grid, Solar Rooftop, Cleaner Fossil, Microfinance, Clean Energy Finance, etc.).

Microfinance Support Program

- Supported focal microfinance institutions in the sale of 71,621 clean energy products.

Cleaner Fossil

- Facilitated heat rate improvements of 0.2% and 5.6% in NTPC’s Chandrapur and Panipat thermal power stations respectively.

Solar Rooftop Deployment

- Supporting BESCOM in the deployment of its solar rooftop program that has a target of 200 MW.
- Assisting Indian Railways in the procurement of 150 MW of solar rooftop power.
- Assisting Indian Oil to set up solar rooftop on its refineries and installations, targeting 5 MW.

March 2016

This brochure is made possible by the support of the American People through the United States Agency for International Development (USAID). The contents of this brochure are the sole responsibility of Nexant, Inc. and do not necessarily reflect the views of USAID or the United States Government. This brochure was prepared under Contract Number AID-386-C-12-00001.

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

Nithyanandam Yuvaraj Dinesh Babu
Chief of Party
PACE-D TA Program
Email: ydbabu@pace-d.com

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