

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

## Building Energy Efficiency



### Enhancing EE in the Building Sector

The PACE-D TA Program is supporting the Bureau of Energy Efficiency (BEE) to promote energy efficiency in the building sector. These activities are centered on the Energy Conservation Building Code (ECBC) implemented under India's 12th Five Year Plan (2012-2017), with a strategic vision of leapfrogging the vibrant Indian green building sector towards near-zero energy status.

At the central level, the program is facilitating BEE in the technical update of the ECBC 2007 through a consultative process. The technical update is being undertaken to reflect the changes in the market scenario and make the code more appropriate to the construction practices in India. The update task was initiated with the formation of technical and steering committees, and working groups to review and oversee the process.

At the state level, the program is assisting BEE in ECBC implementation in three EE focal states (Haryana, Karnataka and Rajasthan) by supporting the development of rules and regulations for ECBC compliance and building the capacity of the stakeholders. Towards this goal, the program envisages putting in place an accreditation scheme for certified building professionals for undertaking design and verification of ECBC compliant buildings.



The program has a component on the promotion of Near Zero Energy Buildings (NZEBs) and low-energy heating, ventilation and air-conditioning (HVAC) systems by creating awareness and supporting the implementation of pilot projects in different climatic zones of India. The program has identified two NZEBs pilots - Nalanda University and Uttar Haryana Bijli Vitran Nigam Limited. These pilot projects will demonstrate the technical feasibility of the NZEB concept and also provide the opportunity to engage stakeholders across the building value chain and disseminate information about tools, technologies, costs, performance, and measurement and verification data over a period of time.

HVAC systems are one of the major consumers of energy within a building – accounting for approximately 31 percent of energy use in commercial buildings and 7 percent in residential buildings. The program is weaving its work on NZEB, Smart Grid, and HVAC to develop an integrated approach for EE in buildings that will support the expansion of the vibrant green buildings market in India.

## Key Deliverables

- Development of state level ECBC action plans for implementation.
- Examination for accreditation of compliance and verification professionals.
- Market transformation strategy for HVAC technologies.
- Design and delivery of NZEB knowledge portal and NZEB alliance.
- Design and implementation of at least one pilot for NZEB and HVAC.
- International seminar on NZEBs for knowledge transfer.
- Technical Update of ECBC.

## Key Activities and Progress

- Formed technical and steering committees, and working groups to review and oversee the process of ECBC technical update.
- Conducted state-level survey to assess the preparedness for ECBC implementation process.
- Organized international conference on NZEB.
- Signed MOUs for two NZEBs pilots - Nalanda University and Uttar Haryana Bijli Vitran Nigam Limited.
- Prepared draft report on HVAC market assessment study.
- Organized stakeholder workshop on the deployment of low energy comfort systems in India.

## Program Overview

The PACE-D Technical Assistance Program is a part of the overall Partnership to Advance Clean Energy (PACE) initiative, the flagship program under the U.S.-India Energy Dialogue. The five year program, implemented in collaboration with the Ministry of Power and Ministry of New and Renewable Energy, has three key components: Energy Efficiency, Renewable Energy and Cleaner Fossil Technologies. Within each of these components, the program's focus is on institutional strengthening, capacity building, technology pilot projects, innovative financing mechanisms and increasing the awareness of clean energy technologies. Please access [www.pace-d.com](http://www.pace-d.com) for additional information.

**Anurag Mishra**  
Senior Clean Energy Specialist  
USAID/India  
Email: [amishra@usaid.gov](mailto:amishra@usaid.gov)

**Nithyanandam Yuvaraj Dinesh Babu**  
Chief of Party  
PACE-D TA Program  
Email: [ydbabu@nexant.com](mailto:ydbabu@nexant.com)

June 2014

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