July 2014

PACE UPDATE

A Newsletter on the U.S.-India Partnership to Advance Clean Energy (PACE)

A warm welcome to *PACE Update*. Working under the auspices of the U.S.-India Energy Dialogue, PACE combines the resources of several U.S. agencies and Government of India Ministries. PACE focuses on spurring inclusive, low-carbon development by supporting research and deployment of clean energy via its two components: PACE-R (research) and PACE-D (deployment). Newsletter archives are available at www.pace-d.com for your viewing!

Clean Energy Finance

- **Microfinance for Clean Energy:** The USAID PACE-D TA Program organized consultation workshops in three cities with critical energy access—Lucknow, Patna, and Bhubaneswar—to assess the specific requirements and priorities involved to promoting off-grid energy via microfinance. The consultations included representatives from government, private sector, academia and civil society, banks, microfinance and development finance institutions. The general consensus of the participants was on the need for capacity-building and institutional strengthening of microfinance institutions, and facilitating the activities of energy service companies (ESCOs).

Stakeholder Consultation Workshop on Microfinance held in Bhubaneswar

- **PACEsetter Fund:** At the March 2014 meeting of the New Technology and Renewable Energy (NTRE) Working Group of the U.S.-India Energy Dialogue, the Governments finalized an initial Plan of Activities for a new initiative, Promoting Energy Access through Clean Energy (PEACE), which includes establishing an off-grid fund, called PACEsetter. India and the U.S. have each committed to contribute approximately USD 4.0 million for a startup capital fund to support the development of early-stage renewable energy businesses, including innovative products, systems, and business models to supply power to unserved and underserved rural populations in India.

- **Funding under Consideration:** OPIC is conducting due diligence on three RE projects in India. The latest project is a USD 50 million direct loan facility to be used for the build-out of a portfolio of rooftop and ground-mounted solar projects in various locations throughout India.

- **Corporate Energy Audit Program:** The USAID PACE-D TA Program held discussions with Tata Cleantech Capital Limited (TCCL) to launch the Corporate Energy Audit Program (CEAP) for their existing and new corporate clients. CEAP is based on a very successful model developed by the European Bank for Reconstruction and Development (EBRD). This initiative will mainstream EE finance into corporate financing, and thus increase investment in EE projects. The program is formalising an MOU with TCCL.

Photos courtesy of U.S. Government websites and agencies (or as otherwise indicated).

Renewable Energy

- **Joint Implementation Committee:** During the U.S.-India Energy Dialogue, India and the U.S. announced their intent to set up a joint implementation committee that will convene on a regular basis to monitor and advance progress of the PEACE initiative of the successful PACE program. The Ministry of New and Renewable Energy has requested the National Institute for Solar Energy to support coordination and follow-up. PEACE programs will be under the NTRE Working Group of the U.S.-India Energy Dialogue.

- **Off-Grid Alliance:** As part of the PEACE initiative, India and the U.S plan to support establishment of an alliance of businesses, not-for-profit organizations, and government to strengthen India's off-grid ecosystem. The proposed alliance will deliver services in five areas: (a) access to finance, including linking entrepreneurs to financial institutions and aggregating projects to reduce investment risks; (b) skill development and training; (c) testing and certification of technology; (d) policy dialogue and advocacy; and (e) networking and exchange of lessons learned. The Alliance platform functions will help reduce the transaction costs of Alliance member participating in the off-grid market, provide a platform for policy dialogue, and also mobilize finance and accelerate innovation.

- **Report on Grid Integration in Gujarat:** A collaborative effort between the U.S. Department of Energy (USDOE) Office of Energy Efficiency and Renewable Energy and the Gujarat Energy Transmission Corporation (GETCO) provides options for the state of Gujarat to optimize the integration of intermittent solar generation into the grid. The USDOE-funded report published by the National Renewable Energy Laboratory (NREL) "Variability of Photovoltaic Power in the State of Gujarat Using High Resolution Solar Data" characterizes the variability of existing and planned photovoltaic solar power generation in the state of Gujarat – 1.9 GW, and evaluates grid impacts of additional 500 to 1000 MW of solar generation in five possible expansion scenarios. The report findings inform how the state of Gujarat can use solar variability profiles in grid operations and planning, helping to accelerate solar deployment in India. The report can be downloaded at http://www.nrel.gov/docs/fy14osti/60991.pdf.

Solar Power Plant in Gujarat

- **Net Metering in Rajasthan:** The USAID PACE-D TA Program is assisting the state government of Rajasthan to develop the policy framework for net metering of solar rooftop projects. The program developed a white paper identifying the key factors in the development of net-metered solar rooftops installations in the state. The core objective of the white paper was to bring clarity on the technical, procedural, regulatory, and incentive issues related to net metering. The paper also highlights the benefits of the net-metering mechanism for various consumer categories and distribution utilities. The program also assisted the Energy Department, Government of Rajasthan in designing an incentive structure that can kick-start the solar rooftop market in the state. The white paper can be downloaded at http://www.pace-d.com/wp-content/uploads/2014/07/White-Paper-on-Net-Metering.pdf

- **Quality Assurance Framework for Minigrids:** The development of a quality assurance framework for mini-grids was identified as one of four elements of the PEACE Action Plan, coordinated by the NTRE Working Group. The framework will support the development of renewable- or diesel-renewable hybrid mini-grids in the country. The quality assurance framework will lead to better energy services for consumers in terms of safety, reliability, performance, and cost.

- **U.S. Commercial Services Supports GE to launch its New Range of Wind Turbines:** On April 4, 2014, GE launched its new range of wind turbines developed and engineered for India's low-wind speed conditions. John McCaslin, Senior Commercial Officer & Minister Counselor for Commercial Affairs, U.S. Commercial Service, attended and delivered remarks at the occasion. For wind farm operators, the turbine's large 103 meter rotor will help deliver high-efficiency output and attractive project economics. The new wind turbine provides a 30 percent increase in annual energy production compared to its predecessor.


GE Wind Turbine

Smart Grids

- **Capacity-Building Workshop for Smart Grids:** The USAID PACE-D TA Program organized a smart grid capacity-building workshop in Puducherry on April 22-23, 2014. Senior representations from the Ministry of Power and the technical teams of the 14 utilities implementing the smart grid pilot projects participated in the workshop. The focus of training was on selection of the implementation agency, measurement and verification, and the benefits of a smart grid pilot. A report "Smart Grids: An Approach to Dynamic Pricing in India" was also launched during the workshop. The report is available at http://www.pace-d.com/wp-content/uploads/2014/04/Dynamic-Pricing-Report.pdf

Launch of Dyanmic Pricing Report in Puducherry. From left to right: B Natarajan, USAID PACE-D TA Program; N Y Dinesh Babu, USAID PACE-D TA Program; N S Sodha, Power Grid Corporation of India; B N Sharma, Ministry of Power; P R Meena, Government of Puducherry; M Hazra, USAID/India

- **U.S.-India Engagement on Power Sector Transformation:** On April 30, Anil Jain (Advisor-Energy, India Planning Commission) visited Lawrence Berkeley National Laboratory (LBNL) in California to meet with researchers from LBNL and NREL to review the 21st Century Power Partnership (21CPP) work plan for 2014-15. A Clean Energy Ministerial initiative, 21CPP is focused on power sector transformation and large-scale integration of renewable energy, energy efficiency, and smart grid technologies. In addition to several upcoming peer-to-peer engagements, 21CPP will support further refinement of an India Renewable Energy Roadmap.

Building Energy Efficiency

- **Report on Building Code Implementation:** USDOE's Office of Energy Efficiency and Renewable Energy, the Indian Bureau of Energy Efficiency, the Rajasthan Renewable Energy Corporation, and the Malavyia National Institute of Technology are working together to accelerate effective implementation of building codes in India. Through experience and lessons learned from the U.S. and other countries, the USDOE's funded report "Building Energy Efficiency in India: Compliance Evaluation of Energy Conservation Building Code" provides options for developing a code compliance evaluation framework in India. The report emphasizes that a systematic approach for measuring and verifying compliance and energy savings can facilitate capacity-building, increase legitimacy among stakeholders, and help accelerate the effective implementation of building energy codes in India. The report can be downloaded at http://www.pnnl.gov/main/publications/external/technical_reports/PNNL-23217.pdf.

- **ECBC Technical Update:** The USAID PACE-D TA Program organized state level meetings in Rajasthan and Haryana for the formation of a task force for implementation of an Energy Conservation Building Code (ECBC) at the state level. The meetings focused on the need, objective, and scope of an ECBC implementation task force, approach and process for implementation, and the roles and responsibility of the task force members. The program also developed details of an examination for certifying professionals for accreditation for carrying out compliance activities for ECBC.

- **Cool Roof Pilot Project:** The Clean Energy Ministerial's Global Superior Energy Performance Partnership (GSEP) Cool Roofs and Pavements Working Group is supporting a cool roof pilot project on low-income housing in Jasdan, India, in collaboration with the local non-profit Sustainable Urban Climate Change & Energy Efficiency Development (SUCCEED). The initial pilot is small in scale—just eight homes to start—but the thermal comfort benefits and energy savings demonstrated by the pilot could inform larger-scale projects and supportive policy measures.

- **Workshop on Space Cooling Efficiency Enhancement and Demand Response:** The Bureau of Energy Efficiency, in collaboration with the USDOE, brought together domestic and international experts for a two-day workshop on June 24-25, 2014, in New Delhi to address India's rapidly growing electricity demand from air conditioners (AC). In a series of panel discussions, air conditioning manufacturers, demand response providers, and regulatory experts focused on the impact of ACs on the Indian electric grid, and the role of efficiency and demand response to meet rising electricity demand.


Construction of a low-income home in Jasdan, India that will receive a cool surface exterior

Cleaner Fossil Technologies

- **Coal Blending Study:** The USAID PACE-D TA Program initiated a study on coal blending at NTPC's Sipat thermal power station piloting the VISTA software. Models that use VISTA have been created, and blend mixes using coal from different sources, are being suggested. The program presented the models to NTPC top management in June 2014, and this will be followed by training of NTPC employees at Sipat on use of the software and the model.

- **Indian Heat Rate Alliance:** The USAID PACE-D TA Program is working with the thermal power value chain to establish the Indian Heat Rate Alliance (IHRA) which will provide a platform and the voice to the industries to further the cause of thermal efficiency. A consultation meeting was organized in Mumbai on May 1, 2014 with utilities, service providers and research institutions. The consultation recommended that a business strategy be prepared and an advisory board be established to provide a nucleus for the IHRA, which is expected to be launched by September 2014.

Consultation Meeting for Indian Heat Rate Alliance in Mumbai

Upcoming Events

Stakeholder Consultation for Energy Storage: The workshop aims to get feedback on proposed demonstration program for energy storage application under the USAID PACE-D TA Program.
July 2014 (TBD), New Delhi
Organizer: USAID's PACE-D TA Program, in collaboration with the Ministry of New and Renewable Energy. For more information please contact rkhanna@pace-d.com

Stakeholder Consultation for Solar Rooftop: The workshop aims to introduce implementation models for solar rooftops to utilities, and industrial and commercial consumers.
July 9, 2014, Bengaluru
Organizer: USAID's PACE-D TA Program, in collaboration with Karnataka Renewable Energy Development Limited. For more information please contact rkhanna@pace-d.com

Stakeholder Consultation on Quality Assurance Framework for Minigrids: As part of the PEACE initiative, the workshop plans to host a consultative workshop with minigrids companies operating in the private sector and other key stakeholders to get expert feedback on the proposed framework. For more information please contact caroline.mcgregor@hq.doe.gov
July/August 2014, TBD
Organizer: USDOE , MNRE and National Institute for Solar Energy

Renewable Energy India Expo 2014: The U.S. Commercial Service will be supporting and participating in the U.S. Department of Commerce Certified 8th Renewable Energy India Expo 2014. For more information please contact Renie.Subin@trade.gov
September 3-5, 2014, Greater Noida
Organizer: UBM India

India-U.S. Technology Summit: The U.S. is the partner country for this year's Technology Summit, which will focus on sectors including clean energy, natural resources and earth sciences, and green manufacturing. For more information please contact pankaj@cii.in
November 18-19, Greater Noida
Organizer: Confederation of Indian Industry (CII)