

INDIA AND THE 21ST CENTURY POWER PARTNERSHIP

Paving the Way to a Smarter, Cleaner, More Resilient System

Mission & Objectives

The 21st Century Power Partnership (21CPP) aims to accelerate the global transformation of power systems. The Power Partnership is a multilateral effort of the Clean Energy Ministerial (CEM) and serves as a platform for public-private collaboration to advance integrated policy, regulatory, financial, and technical solutions for the large-scale deployment of renewable energy in combination with deep energy efficiency and smart grid solutions.

Indian leadership is crucial in both the establishment of the foundational capabilities of 21CPP and the realization of opportunities for applied policy implementation. Understanding policy regimes that support and accelerate the transition to clean, smart, efficient, affordable, and reliable electricity will help inform decisions that enable innovative solutions, or even disruptive innovations. India has already demonstrated a wide variety of business model innovations across a range of industries. Its potential to do the same in the power sector is an enormous opportunity.

As a member of the Power Partnership Steering Group (PPSG), India provides high-

level guidance to 21CPP, and Indian contributions to international knowledge about the legal, regulatory and business environment are an integral component of the Power Partnership.

Focus Areas

The 21CPP India program has focused its initial efforts on activities spanning three major areas of focus:

- **Contribute to the development of the national Renewable Energy Roadmap**, commissioned by the government of India, to help outline strategies to achieve an ambitious 175 GW of renewable energy by the year 2022.
- **Share experiences and lessons learned** on managing variable renewable energy on the grid, and the role of ancillary services in renewable energy grid integration.
- **Provide power system modeling support and training** in relevant power system modeling tools that address critical needs in India as identified by POSOCO and NLDC stakeholders.

2014-2015 Program Highlights

Unveiled Renewable Energy Roadmap

Participated in the development and review of a renewable energy roadmap, endorsed by the Minister of State at the RE-Invest conference in February 2015. The roadmap was produced in conjunction with the Confederation of Indian Industry, the Shakti foundation, and the Regulatory Assistance Project (RAP).

Hosted Country Delegates at UVIG

21CPP hosted delegations from partner countries, including India, at the Utility Variable-Generation Integration Group's (UVIG) Fall Technical Workshop in San Antonio, Texas. Delegates discussed energy issues faced, identified ways to learn from one another, and toured the Pecan Street Smart Grid Testbed.

Organized Peer-to-Peer Consultations on Ancillary Services in India

Collaborated with the RAP to host two peer-to-peer exchanges among experts from India, South Africa, Europe, and the United States to discuss the provision of ancillary services, particularly in the context of added variability and uncertainty from renewable energy.

USAID-MNRE: National Workshop

Supported a two-day conference in Delhi entitled "Accelerating Renewable Energy Deployment through Innovative Policies and Regulations." 21CPP representatives led two discussions: one on the US experience with distributed solar regulatory and policy issues, and a second to share lessons learned from the US and South Africa on large scale renewable energy generation projects.

2015-2016 Planned Activities

National Grid Integration Study

The focus of 21CPP India in the coming year will be to support the National Grid Integration Operations study (NGIO). NGIO will aim to answer questions about policies impacting the Indian national electricity system as a whole, specifically:

- Operational challenges associated with meeting India's goal of 160 GW wind and solar capacity by 2022.
- Investment needed in flexible generation and transmission infrastructure in order to reliably integrate renewable capacity.
- The role of each state in contributing to cross-regional balancing of renewable generation and integration.

India Fellow - National Grid Integration Roadmap and Modeling

In support of the National Grid Integration Operations study, 21CPP will host a fellow from India in summer 2015. The fellow will be hosted jointly by the National Renewable Energy Laboratory and Lawrence Berkeley National Laboratory, and will be responsible for contributing to the development of modeling techniques and standards as well as mitigation strategies for managing high levels of variable generation. The work produced through this fellowship is expected to be a key part of the NGIO.