

21st Century Power Partnership (21CPP)

Thematic Area ENERGY SYSTEMS AND INTEGRATION

Goals

The 21st Century Power Partnership (21CPP) develops and supports holistic solutions to accelerate the transition to clean, efficient, reliable, and cost-effective power systems.

Potential Impact

Over the next two decades, dynamic power systems must meet steeply rising electricity demand. Efficient, low-cost supply- and demand-side solutions could reduce the carbon intensity of electricity generation by 30%–50%, delivering 1.2 gigatonnes (Gt) annual CO₂ emissions savings by 2030.

Why

The International Energy Agency (IEA) estimates that, by 2035, \$16.9 trillion (USD) of power system investment will be required to achieve the goals of energy access, energy sustainability, and energy security. Ensuring that these investments happen at the requisite scale—and in a coordinated fashion—requires integrated policy approaches reflecting state-of-the-art knowledge across several domains.

Activities

- Knowledge Development and Sharing. Accelerate the dissemination of knowledge through multiple channels across CEM initiatives with case studies of timely, policy-relevant electricity sector issues.
- Tool Development and Dissemination. Identify needs for new or enhanced tools for power system analysis, planning, and management and promote the development and enhancement of tools and methodologies in conjunction with private sector partners.
- Organizing Global Networks of Expertise. Organize platforms for multilateral expert consultation such as grid operator workshops, multi-stakeholder regulatory exchanges, staff exchanges, and public–private roundtable discussions.
- Applied Policy and Regulatory Engagement. Assist policy makers in establishing and achieving aggressive power sector transformation roadmaps, and in coordination with country and development assistance programs, facilitate technical assistance and peer learning.

Progress

Multi-year technical assistance programs support domestic power system transformation in India, Mexico, and South Africa.

- **India Program.** Launched Greening the Grid National Renewable Energy Integration Study, co-funded by the World Bank, to evaluate least-cost planning and operational techniques for meeting India’s national renewable energy deployment goals.
- **Mexico Program.** Launched and began coordination of a three-year technical and research partnership with Mexico’s Secretaría de Energía, funded by the Children’s Investment Fund Foundation, to support energy reforms in Mexico’s electricity sector. Projects include developing a roadmap and modeling exercises supporting power system transformation of Baja California Sur, providing design and implementation support for market monitoring, creating evaluation methodologies for renewables integration into power system expansion plans, and applying international best practices to evaluating priority renewable energy zones.
- **South Africa Program.** The program continued work on three prominent projects: (1) a detailed multilateral technical audit of the South Africa Department of Energy’s Integrated Resource Plan (IRP) and development of new IRP techniques and modeling capacity; (2) collaboration with the National Energy Regulator of South Africa (NERSA) to support the promulgation of regulations requiring a public biannual capacity adequacy assessment; and (3) supporting the South Africa Department of Energy’s assessment of policy options for promoting near-term distributed generation deployment. The program also began work on the Southern African Power Pool (SAPP) Renewable Energy Futures Study, a multi-year, multi-partner detailed operational analysis of high-penetration renewable energy futures for SAPP.

21CPP efforts also fostered collaboration among global industry leaders to facilitate large-scale deployment of renewable energy in combination with energy efficiency and smart grid technologies.

- Hosted a March 2015 workshop in South Africa in partnership with the International Smart Grid Action Network (ISGAN) to bring together experts from 10 countries to discuss best practices in distributed generation regulation.
- Launched the 21CPP Fellowship Program to support mid-career mentorship and cooperative research opportunities between 21CPP member countries. In 2015, the program sponsored two fellows from India; the 2016 program will include one fellow from South Africa.

Next Steps

- Continue to provide expert assistance to support in-country work.
- Continue collaborative work on grid code requirements; support assessment of policy options for promoting distributed generation deployment; and share analytical tools and models, as appropriate, to expand the range and increase the quality of tools available to all 21CPP members.

Lead CEM Government(s) India, United States of America

Participating CEM Government(s) Denmark, Finland, Mexico, South Africa, Spain

Other Partners

CIFF, EEI, IEA, IRENA, USAID, World Bank
