



21st Century Power Partnership (21CPP)

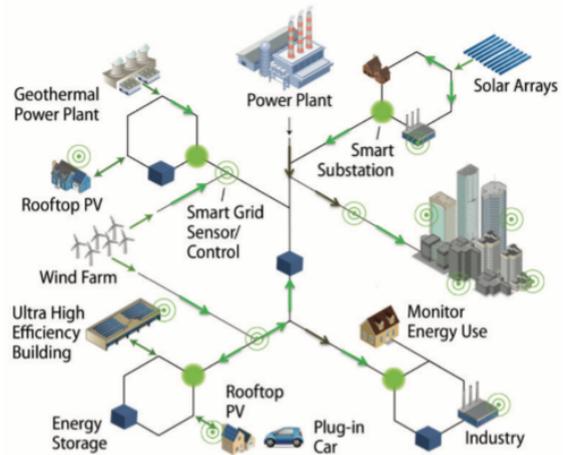
Accelerating the transition to efficient, reliable, clean, and cost-effective power systems

Goals

21CPP advances power system transformation by facilitating collaborative research, information-sharing, and capacity-building among power system practitioners to promote integrated policy, regulatory, financial, and technical solutions for the deployment of clean energy in combination with large-scale energy efficiency and smart grid deployment.

Rationale for being included in the CEM

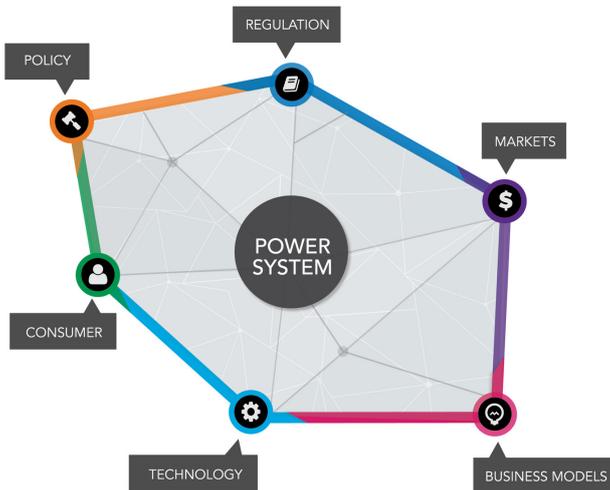
Over the next two decades, **power systems around the world will incorporate larger amounts of various generation technologies and new services.** Power system flexibility and integration of renewables could facilitate a transition to clean energy. It is estimated by 2035, \$16.9 trillion (USD) of power system investment will be required to achieve the goals of energy sustainability, security and access. Ensuring these investments happen at the requisite scale requires integrated policy approaches reflecting state-of-the-art knowledge across many domains.



Power system transformation requires a holistic, integrated approach. Source: NREL

Key accomplishments

- Enabled Mexico's comprehensive electricity sector reform agenda to proceed quickly and efficiently through four years of deep collaboration with the Secretary of Energy (SENER) on policy, market, and technical issues.
- Built confidence and ambition in India's 175 GW renewable energy target by conducting a detailed grid integration study in collaboration with the Greening the Grid program.
- Assisted Chinese partners in planning and producing the China Renewable Energy Outlook in 2016 and 2017, cementing ambitious power system transformation.
- Published over a dozen thought leadership reports to inform stakeholders of best practices and innovative thinking in power system transformation.



Evolutionary landscape of power system transformation. Source: NREL

Lead CEM member(s)



India Mexico United States*

CEM Member participants



Brazil China Denmark Finland South Africa Spain

*U.S. leadership is under review.

“Overall, 21CPP was arguably the best example of a well thought through and well delivered CEM initiative, and could be used as a case study for other initiatives in the future.”

—CEM Review 2017

Work organisation and structure of the initiative

The work is structured around the following categories:

- **Thought leadership** studies that focus on generic power system transformation topics across the world.
- **In-country technical assistance**, often as part of a larger development assistance effort, focused on policy, regulatory, and technological progress, with grid integration studies often highlighting this work.
- **Information exchange**, capacity building, fellowship programs, and other exercises to share lessons learned and knowledge transfer.

Recent activities and deliverables since 2017

Thought leadership publications:

- **Next-Generation Performance-Based Regulation:** Emphasizing Utility Performance to Unleash Power Sector Innovation. (2017). 21st Century Power Partnership.
- **Status of Power Systems Transformation:** System Integration and Local Grids. (2017). 21st Century Power Partnership and International Energy Agency.
- **Policies for Enabling Corporate Sourcing of Renewable Energy Internationally.** (2017). 21st Century Power Partnership.
- **Greening the Grid:** Pathways to Integrate 175 GW of Renewable Energy into India's Power Grid. (2017). POSOCO, USAID, 21st Century Power Partnership, World Bank, and others.
- **21st Century Power Partnership:** September 2016 Fellowship Report. (2017). 21st Century Power Partnership.
- **Evolving Distributed Generation Support Mechanisms:** Case Studies from the United States, Germany, United Kingdom and Australia. (2017). 21st Century Power Partnership.

In-country activities: Multiyear technical assistance programs support power system transformation in Brazil, China, India, Mexico, and South Africa.

Forward-looking priorities and actions

- **Launch the new distributed generation campaign at CEM9, led by Mexico.**
- Continue deep in-country technical assistance in Brazil, China, India, Mexico, and South Africa.
- Support collaboration in newest 21CPP member countries (Brazil and others).
- Expand outreach and membership among CEM members.
- Provide greater leveraging of activities with other CEM initiatives and campaigns: Multilateral Solar and Wind Working Group (MSWWG), International Smart Grid Action Network (ISGAN), and Advanced Power System Flexibility Campaign (APSF), as well as other relevant work streams.
- Establish regional initiatives starting in Latin America that share lessons learned among leading practitioners.
- Publish Power System Transformation 2018: Power Plant Flexibility in 21st Century Power Systems jointly with the Advanced Power Plant Flexibility Campaign (APPF).
- Collaborate with Edison Electric Institute and other utilities around the world to highlight innovative tariff measures to ensure customer satisfaction.

Operating Agent(s) /
Coordinator(s)



National Renewable Energy Laboratory

Funding Government(s)/
Organisation(s)

Children's Investment Fund Foundation (CIFF), the William and Flora Hewlett Foundation, United States Department of Energy (DOE).

Global and
In-Country Technical Partner(s)

Danish Energy Agency (DEA), Edison Electric Institute (EEI), International Energy Agency (IEA), International Renewable Energy Agency (IRENA), Regulatory Assistance Project, (RAP), United States Agency of International Development (USAID), the World Bank Energy Sector Management Assistance (ESMAP).

China National Renewable Energy Center (CNREC) in China, Power System Operation Corporation (POSOCO) in India, National Center for Energy Control (CENACE) and Energy Regulatory Commission (CRE) in Mexico, Council for Scientific and Industrial Research (CSIR) and the ESKOM in South Africa, and Energy Research Office (EPE) in Brazil.