

## TRANSFORMING POWER SYSTEMS THROUGH GLOBAL COLLABORATION

Ambitious and integrated policy and regulatory frameworks are crucial to achieve power system transformation. The 21<sup>st</sup> Century Power Partnership—a multilateral initiative of the Clean Energy Ministerial—serves as a platform for public-private collaboration to advance integrated solutions for the large-scale deployment of renewable energy in combination with energy efficiency and grid modernization.

### Structure

The 21<sup>st</sup> Century (Power Partnership) aims to accelerate the transition to clean, efficient, reliable, and cost-effective power systems. The initiative engages in a broad range of research and technical assistance activities to support bilateral and multilateral collaboration that accelerates the diffusion of high-impact policy and regulatory strategies. The Power Partnership links governmental, non-profit, and industry stakeholders to share experiences, accelerate learning, and expand the visibility of power system transformation efforts around the world.

### Why a Power Partnership?

In 21<sup>st</sup> century power systems, electricity from variable renewable sources will be delivered through smart, efficient networks and balanced by a variety of flexibility options, such as demand response, storage, and smart electric vehicle (EV) charging. Developing such systems will require new global partnerships focused on technical excellence, targeted innovation, and smart policy and regulations, supported by sustained financial and political investment and ambitious public-private sector collaboration. The Clean Energy Ministerial (CEM) advances such cooperation through various technology-specific efforts; the Power Partnership leverages synergies across these CEM efforts and coordinates targeted engagements to support participating member countries.

### Activities and Projects

The Power Partnership exchanges knowledge, good practices, and innovations with clean power system transformation measures across CEM countries and stakeholders at all levels and combines this with in-depth technical assistance with partners in India, Mexico, and South Africa.

#### India



In partnership with the Indian Ministry of Power, U.S. Department of Energy, Power Grid Corporation of India, Ltd. (PGCIL), and Power System Operation Corporation, Ltd. (POSOCO), the 21<sup>st</sup> Century Power Partnership contributes to the development of India's national Renewable Energy Roadmap, shares experiences managing variable renewable energy on the grid, and collaborates on efforts to model the power system with high penetrations of variable renewable energy.

#### Mexico



In partnership with the Children's Investment Fund Foundation, the Mexico Ministry of Energy (SENER), the Mexico National Energy Control Center (CENACE), the Mexico Energy Regulatory Commission (CRE), and the Mexico Federal Electricity Commission (CFE), the 21<sup>st</sup> Century Power Partnership works to

accelerate “next generation” power system planning for 2030, provides operational support for grid integration, evaluates and expands distributed generation and smart grid deployment, and assists with implementation of Mexico’s energy reform directives.

## South Africa



In partnership with the South African Department of Energy (SADOE), National Energy Regulator of South Africa (NERSA), South African National Energy Development Institute (SANEDI), Council for Scientific and Industrial Research (CSIR), and Eskom, the 21<sup>st</sup> Century Power Partnership supports South Africa’s Integrated Resource Plan by promoting next generation modeling practices, shares global experiences on distributed generation regulation, and assists the government of South Africa in building a workforce of power system experts.

## Status Report on Power System Transformation

Power system transformation is a complex, active process that is taking place in different forms and at different rates around the world. This transformation has multiple drivers, including technological innovation, policy goals, and social dynamics. A 21<sup>st</sup> Century Power Partnership report provides a collection of empirical examples of the types of innovations that are emerging around the world. This survey provides real-world examples—and inspiration—to enable decision makers to take transformative action.

**Read the report:** [nrel.gov/docs/fy15osti/63366.pdf](http://nrel.gov/docs/fy15osti/63366.pdf)

## Knowledge Development and Expert Networks

The Power Partnership coordinates targeted knowledge development, dissemination, and exchange efforts. The Power Partnership researches and reports on timely, policy-relevant electricity sector issues such as evolving utility business models, next generation regulatory frameworks, and integrated resource planning. This information is made available through a variety of web forums, published reports, and information databases and tools. Visit [21stcenturypower.org](http://21stcenturypower.org) to learn more. The Power Partnership also organizes platforms for multilateral expert consultation and knowledge sharing, including ad-hoc consultations, workshops, roundtables, and cross-national fellowships. Most recently, the 21<sup>st</sup> Century Power Partnership hosted fellows from India at the National Renewable Energy Laboratory and Lawrence Berkeley National Laboratory for training on modeling, forecasting, and grid integration management. Learn more about the fellowship program: [21stcenturypower.org/fellowship.cfm](http://21stcenturypower.org/fellowship.cfm)

## Organization, Participants, and Partners

Three coordinated main bodies support the Power Partnership: the Power Partnership Steering Group (PPSG), the Public-Private Leadership Forum (PPLF), and the operating agent. The PPSG develops and guides the Power Partnership program of work. PPSG members include the governments of Denmark, Finland, Germany, India, Mexico, Spain, South Africa, the United States, and representatives of the Children’s Investment Fund Foundation. The PPLF coordinates activities with private sector stakeholders and provides input to the annual program of work. As the operating agent, the National Renewable Energy Laboratory (NREL) and the Joint Institute for Strategic Energy Analysis (JISEA) lead the Power Partnership and serve as the liaison to the CEM Secretariat.