

MEXICO AND THE 21ST CENTURY POWER PARTNERSHIP

Paving the Way to a Greener, Smarter, More Flexible Grid

Mission and Objectives

The 21st Century Power Partnership's program in Mexico (21CPP Mexico) is one initiative of the Clean Energy Ministerial, carried out in cooperation with government and local stakeholders, drawing upon an international community of power system expertise. The overall goal of this program is to support Mexico's power system transformation by accelerating the transition to a reliable, financially robust, and low-carbon system. 21CPP Mexico activities focus on achieving positive outcomes for all participants, especially addressing critical questions and challenges facing policymakers, regulators, and system operators. In support of this goal, 21CPP Mexico taps into deep networks of expertise and professional connections.

The primary objectives of 21CPP Mexico seek to:

- **Accelerate "next generation" power system planning for 2030** by developing regional and national power system transformation roadmaps and system modeling, identifying policy approaches to distributed generation and grid codes for large-scale generators, and undertaking a comparison of power planning system tools.
- **Provide operational support for grid integration**, including technical assistance on grid operational practices for renewable energy integration.

- **Evaluate and expand smart grid deployment** via enhancement of regulation and public policies, implementation of regulatory smart grid roadmap recommendations, and technical modeling of solar photovoltaic penetrations under various smart grid configurations.
- **Assist the government of Mexico with the implementation of its energy reform directives**, including the establishment of a wholesale market monitor, restructuring of Comisión Federal de Electricidad (CFE), and development of a data management platform.

Structure

21CPP Mexico is sponsored by the Children's Investment Fund Foundation (CIFF), which acts as an advisor for all 21CPP Mexico activities, and the U.S. Department of Energy. The Government of Mexico coordinates all 21CPP Mexico activities through the Undersecretary of Planning and Energy Transition. The U.S. Department of Energy's National Renewable Energy Laboratory (NREL) and the Joint Institute for Strategic Energy Analysis (JISEA) are the Operating Agent for 21CPP Mexico. NREL and JISEA direct the activities of 21CPP Mexico in consultation with the government of Mexico. A Steering Group composed of Mexican public and private organizations and other international donor programs provides input on the 21CPP annual program and supports the implementation of activities.

Stakeholder Engagement

The Steering Group that sets strategic direction for 21CPP activities consists of high-level leaders from the public, private, and civil sectors. The group includes the Deputy Secretariat for Energy Planning and Transition and the Deputy Secretariat for Electricity from the Ministry of Energy (SENER), Energy Regulatory Commission (CRE), CFE, National Center for Energy Control (CENACE),

Ministry of Finance (SHCP), Ministry of Economy (SE), Mexican Initiative for Renewable Energy (WWF), Electricity Research Institute (IIE), Renewable Energy Institute - National University (IER-UNAM), National Solar Energy Association (ANES), Mexican Solar Photovoltaic Energy Association (ASOLMEX), Mexican Wind Energy Association (AMDEE), Danish Energy Agency, GIZ Mexico Sustainable Energy Program, NREL, JISEA, and CIFF.

2015-2016 Activities

Technical Studies

- Strategic technical briefs and complete power system transformation roadmap for Baja California Sur, followed by analytical modeling of renewable energy integration and system requirements developed with the University of Baja California Sur, SENER, CENACE, the Danish Energy Agency, and the GIZ Mexico Sustainable Energy Program.
- National long-term power system planning, including roadmap development and scoping of modeling efforts developed in conjunction with SENER, CENACE, and others.
- Regional and national high solar and wind scenario studies, conducted with technical support from SENER, CENACE, and CFE.

Energy Reform Support

- CFE restructuring, wholesale market monitor creation, and renewable energy priority zone design support.

Co-authored Thought Leadership Reports

- Reports to examine renewable energy auctions; markets for pumped-storage solutions; and development of distributed generation and smart grid public policies and regulation.

Staff Exchanges

- *For system operators*, hosted by CENACE and international system operators. Topics include forecasting and modeling practices for the operation of the electricity network with high penetration of renewables; use of energy storage solutions; and integration of wide-area monitoring for real-time operation.
- *For regulators*, hosted by CRE for the purpose of improving CRE's understanding of an overall regulation strategy for the operation of smart grids.
- *For grid operators*, hosted by CFE and international utilities to include public-private models for renewable energy transmission investment.

Multilateral Peer-to-Peer Workshops

- Workshops surrounding best practices for creating renewable energy priority zones and advanced renewable energy integration.