CLEAN ENERGY SOLUTIONS CENTER
ASSISTING COUNTRIES WITH CLEAN ENERGY POLICY

DISTRIBUTED GENERATION IN STRATEGIC REGIONS
A CAMPAIGN OF THE CLEAN ENERGY MINISTERIAL

Interconnection of Distributed Generation (DG): Technical and Regulatory Aspects

May 2019

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- *The Clean Energy Solutions Center does not endorse or recommend specific products or services. Information provided in this webinar is featured in the Solutions Center's resource library as one of many best practice resources reviewed and selected by technical experts*

Agenda

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Overview of the Clean Energy Solutions Center

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Presentations

- **Julieta Giraldez,** Senior Research Engineer, NREL
- **Ignacio Romero,** Director of Distributed Generation, Undersecretariat of Renewable Energy and Energy Efficiency of Argentina
- **David Parsons,** Chief of Policy and Research, Hawaii Public Utilities Commission
- **David Brown,** Principal Distribution System Engineer, Sacramento Municipal Utility District

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Question and Answer Session

Clean Energy Ministerial

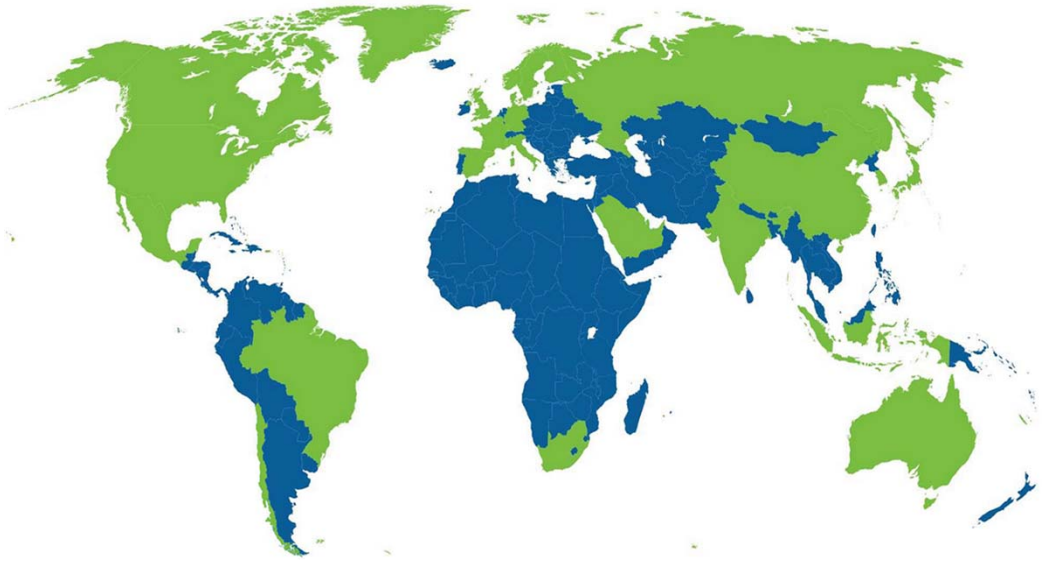
CLEAN ENERGY MINISTERIAL
Advancing Clean Energy Together

The Solutions Center:

- Launched under the Clean Energy Ministerial (CEM) in 2011

Clean Energy Ministerial:

- A high-level global forum to promote policies and programs that advance clean energy technology, to share lessons learned and best practices, and to encourage the transition to a global clean energy economy.



90% of Clean energy investment

&

75% of Global CO_2 emissions

Solutions Center: Background & Vision

- Multilateral initiative, of the Clean Energy Ministerial, is co-led by the Australian Department of the Environment and Energy, the Swedish Ministry of the Environment and Energy, and the U.S. Department of Energy.
- Additional funding support from Power Africa & the Hewlett Foundation
- The Solutions Center is a unique CEM initiative assisting countries in all regions of the world in strengthening clean energy policies and finance measures
- Supporting transition of clean energy markets and technologies

CLEAN ENERGY MINISTERIAL
Advancing Clean Energy Together

Solutions Center: Goals and Audience

Programs and Services

- **Team of 60+ experts from around the globe responded to 450+ requests for policy support from more than 90 countries**
  - Extensive support across Africa, Asia, and LAC
  - Launched support for finance measures in 2015
- **Trained over 15,000 officials through more than 225 webinars and training events with others**
- **Strong & growing partnerships with development agencies and regional and global organizations in delivery of support**
- **Over 2500 resources in curated library for policy makers**

Target Audiences

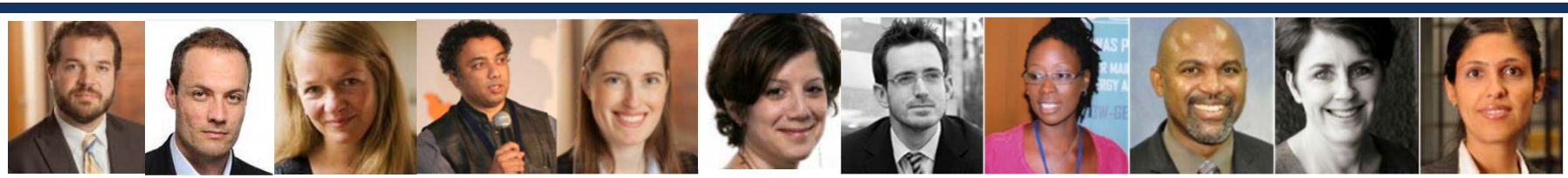
- **Primary**
  - Government Policy Makers and Advisors
- **Secondary**
  - Private-Sector Companies
  - Energy Entrepreneurs and Investors
  - Non-Governmental Organizations
  - Civil Society
  - Others Engaged in Clean Energy

Solutions Center: Partnerships

More than 35 international partners:

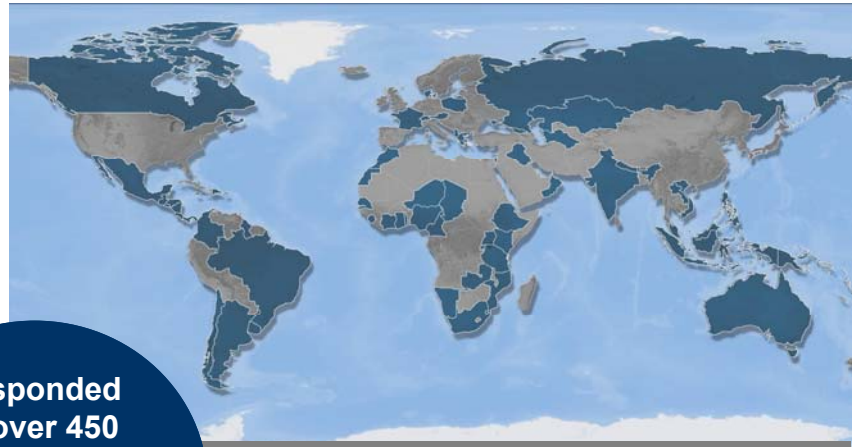
- Climate Technology Center and Network (CTCN)
- ECOWAS Center for Renewable Energy and Energy Efficiency (ECREEE)
- Inter-American Development Bank (IDB)
- International Energy Agency (IEA)
- International Partnership for Energy Efficiency Cooperation (IPEEC)
- International Renewable Energy Agency (IRENA)
- Low Emission Development Strategies Global Partnership (LEDS-GP)
- Renewable Energy Policy Network for the 21st Century (REN21)
- Sustainable Energy for All (SEforALL)
- United Nations Environment Programme (UN Environment)
- USAID Power Africa (USAID PA)

Ask an Expert: Our Experts in Action



We connect you to a global network of energy experts for personalized attention and quick response technical assistance on **strategies, regulations, standards, financial incentives, and energy transition programs** for a broad range of clean energy sectors and technologies including:

- Energy Access
- Energy Efficiency
- Renewable Energy
- Smart Grid
- Transportation
- Utilities
- Carbon Capture Utilization & Storage



Responded to over 450 requests for assistance from over 90 countries.

To request assistance, register on http://cleanenergysolutions.org/expert

Julieta Giraldez, Senior Research Engineer, NREL

Julieta Giraldez works at the National Renewable Energy Laboratory (NREL) in Golden CO as a Senior Research Engineer in the Power System Engineer Center where she currently leads Microgrid and Smart Grid and Grid Integration related projects. She holds a Bachelor degree from the Polytechnic University of Madrid (Spain) in Technical Mining Engineering, a Masters in Electrical Engineering from Colorado School of Mines, Golden, Colorado; and is currently enrolled in a PhD in Systems Engineering at Colorado State University.

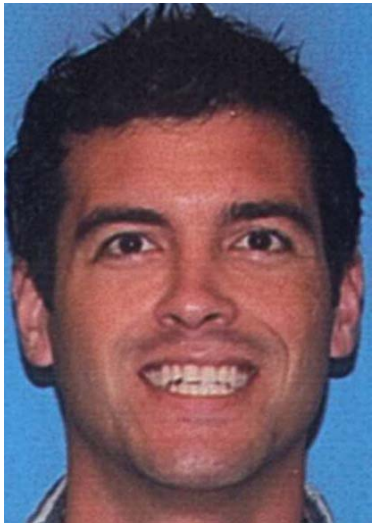
In recent years, Julieta's focus has been on integrating emerging technologies such as PV, energy storage and microgrids in distribution systems. She was a key technical contributor to the DOE Arizona Public Service High-pen PV project and the Duke Energy Case Study project using advance inverters and a Distribution Management System for feeder voltage regulation. She is currently leading a DOE study on microgrid costs in the US and a project with HECO to simulate distribution feeder operations with advanced inverters.

Ignacio Romero, Director of Distributed Generation, Undersecretariat of Renewable Energy and Energy Efficiency, Argentina

Ignacio Romero is the Director of Distributed Generation at the Undersecretariat of Renewable Energy and Energy Efficiency of Argentina. He oversees the development and implementation of the Distributed Generation Program at the national level, participating from the formulation of law 27.424, up to its associated regulation and implementation.

Ignacio has international engineering and management experience across different project and operational phases in the Renewable Energy industry: Business Development, Engineering Design, Manufacturing, EPC Project Management and Operational Efficiency for different technologies. Ignacio Romero is a Fulbright scholar, Electronics and Telecommunications Engineer (Universidad de Mendoza, Argentina) with a Master of Science degree in Engineering Management (Northeastern University, Boston) as well as graduate degrees in Project Management (U.N.Cuyo), Engineering Leadership (NEU), Regulation of the Power Sector (FSR-EUI) and Macroeconomics (MIT).

David Parsons, Chief of Policy and Research, Hawaii Public Utilities Commission



David Parsons is the Chief of Policy and Research at the Hawaii Public Utilities Commission, where he is responsible for policy analysis and strategic planning for achievement of the state's aggressive clean energy goals. He oversees the Commission's proceedings on renewable energy procurement, distributed energy resources integration, demand response, long-term system planning, grid modernization, and utility business model transformation. David also directs the Commission's economic analysis and financial evaluation of regulated utility investments and operations in the electric, gas, water, telecommunications, and transportation sectors. He holds an A.B. in economics and environmental studies from Bowdoin College and an M.E.M. in energy systems economics and natural resource management from Yale University.

David Brown, Principal Distribution System Engineer, Sacramento Municipal Utility District

David L. Brown P.E. is a Principal Distribution System Engineer at Sacramento Municipal Utility District (1999-present) and previously was a Senior Engineer at Pacific Gas & Electric (1984-1999). David holds an MBA from John F. Kennedy University, and a BS in Electrical Engineering from Brigham Young University and is a licensed electrical engineer in the state of California. David is a senior member of the Institute of Electrical and Electronics Engineers (IEEE) and participating member of the IEEE-Standards Association, where he has participated in the balloting of various versions of IEEE-1547 Standard for Interconnecting Distributed Resources with Electric Power Systems. In addition, David serves on the executive board of California's General Order 95/128 Rules Committee (Utility overhead and underground construction standards). His 35-year career has included distribution system capacity planning, overcurrent protection design, dispersed generation interconnection, reliability planning, distribution automation project management, and technical support on a variety of R&D projects. David also served as SMUD's technical representative to the California Public Utility Commission's (CPUC) Rule 21 Smart Inverter Working Group (SIWG).

Question and Answer Session

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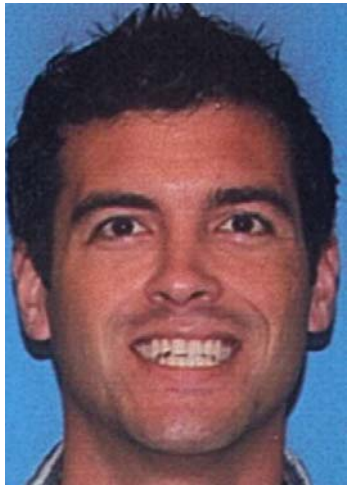
Julieta Giraldez, NREL

Ignacio Romero, Argentina



David Parsons, HPUC

David Brown, SMUD

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