



Utility-Owned Distributed Generation Models

06 March 2019

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Agenda

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**Welcome &
Introductory
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**Overview of the
Clean Energy
Solutions Center**

- **Katie Contos**, Clean Energy Solutions Center

**Overview of Distributed
Generation Campaign**

- **Riccardo Bracho**, Senior Project Leader, NREL

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Presentations

- **Douglas Gagne**, Project Analyst, NREL
- **Dr. Daniel Haughton**, Manager Distributed Energy Resource Integration Engineering Group, Arizona Public Service
- **Kerry Klemm**, Manager, Renewable Choice Programs, Xcel Energy
- **Christopher Bilby**, Research Engineer, Holy Cross Energy

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**Question and
Answer Session**

Clean Energy Ministerial

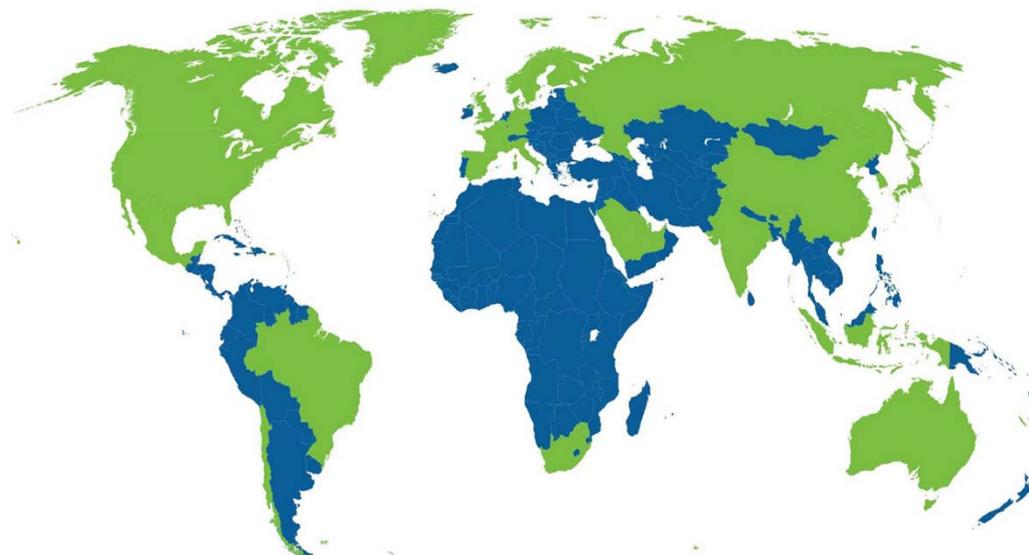


The Solutions Center:

- 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 CO₂
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



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)

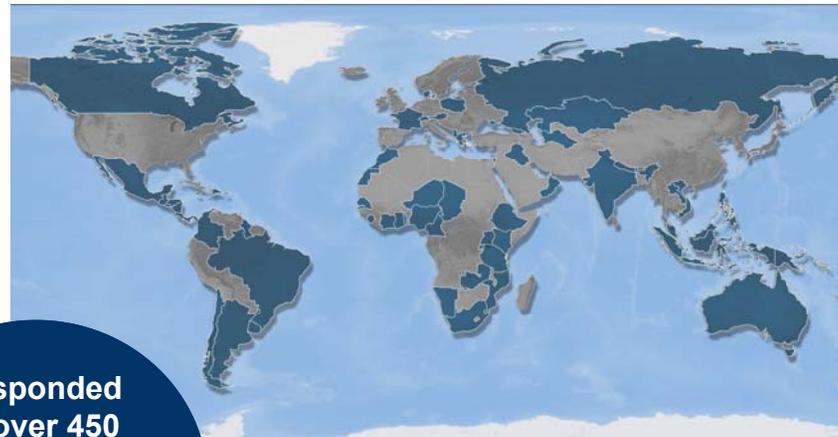


Ask an Expert: Our Experts in Action



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>

Riccardo Bracho, Senior Project Leader, NREL



Riccardo Bracho joined NREL in 2011 and is a Senior International Program Manager within the Project Development and Finance Department in the Integrated Applications Center. Riccardo manages international programs that provide technical, policy, and regulatory assistance to the power system transformation in developing countries, and has assisted the Government of Mexico in various energy reform initiatives including the design and implementation of their wholesale power market monitor, long-range power system planning, and various activities to design smart grid and distributed generation technologies. Riccardo has worked on various domestic and international programs with economic, financial, and technical evaluation of renewable energy projects, and providing technical, financial and policy solutions to reduce barriers for increased renewable energy penetration and increased private sector financing.



Douglas Gagne, Project Analyst, NREL



Douglas Gagne is a Project Analyst at the National Renewable Energy Laboratory (NREL). He currently provides early stage federal project development support for renewable energy and resilience projects. He has evaluated the transaction structures, valuation and technical characteristics of projects spanning most conventional renewable energy technologies, and brings a robust understanding of solar photovoltaic project costs and financing mechanisms. He joined NREL after graduating from the University of Denver with a Master of Business Administration.

Dr. Daniel Haughton, Manager Distributed Energy Resource Integration Engineering Group, APS



Dr. Daniel A. Haughton earned his Ph.D. and Masters degrees in Electrical Engineering from Arizona State University (ASU), and Bachelors of Science in Electrical Engineering from the University of South Florida (USF) in Tampa, FL. Prior to APS, Daniel has served in various engineering capacities as a transmission or distribution engineer at the Intel Corporation, Tampa Electric Company (TECO), the California ISO and Belize Electricity Limited. Daniel has worked at Arizona Public Service (APS) since 2012, in various engineering and technical leadership roles, including Transmission Planning, Transmission Operations Engineering, and Distributed Energy Resource (DER) Engineering. He is an advisor with EPRI and NREL Technical Advisory Committees on DER Interconnection practices and Distribution Planning Modernization. His present role at APS is Manager of Distribution Engineering and DER Interconnections, and he is also adjunct professor of Electrical Engineering at ASU.

Kerry Klemm, Manager, Renewable Choice Programs, Xcel Energy



Kerry Klemm oversees the implementation of Xcel Energy's Renewable Choice programs across seven states, including the nation's largest community solar program, private solar interconnection options, and green pricing programs like Windsource and Xcel Energy's latest innovation in renewable choice programs, Renewable*Connect. Her team also oversees the Company's time-of-use and demand-based rate pilots for residential customers. Kerry's 20-plus years at Xcel Energy started in Corporate Communications, with various program management and leadership roles in energy efficiency, new product development and renewable energy programs. While Kerry's base is in Minnesota, her involvement with renewable choice and rate options across Xcel Energy's service area gives her a unique perspective on how regulatory, regional and program-design variances impact the solar industry players, the Xcel Energy customer experience and cost implications of the programs her team delivers.

Christopher Bilby, Research Engineer, Holy Cross Energy



Christopher Bilby is a Research and Programs Engineer with Holy Cross Energy (HCE), a not-for-profit, member-owned electric cooperative utility providing electricity, energy products and services to more than 43,000 members in Western Colorado. Christopher supports the power supply department by studying and planning for the increasing number of distributed energy resources and their effects on system loading and load profiles. He is the author of HCEs electrification of transportation strategy and leads HCEs Department of Energy grant programs. Bilby has a broad range of engineering experience with a background related to electrical distribution design, machine design, machine-to-machine communications, and composite part production. Bilby earned his Bachelor of Science in Mechanical Engineering at the University of Oklahoma. He resides in Carbondale, Colorado with his wife and daughter.

Question and Answer Session



**Riccardo Bracho,
NREL**



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NREL**



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