

# **Power Purchase Agreements for Grid- Aware Renewable Energy Procurement**

9 May 2017

# Some Housekeeping Items

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# Some Housekeeping Items (continued)

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# Disclaimer

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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 practices resources reviewed and selected by technical experts*

# Agenda

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## Welcome & Introductory Remarks

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## Overview of the Clean Energy Solutions Center

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

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## Presentations

- **Barbara O'Neill**, National Renewable Energy Lab
- **Tara Fowler**, Xcel Energy

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## Question and Answer Session

- **Ilya Chernyakhovskiy**, National Renewable Energy Lab

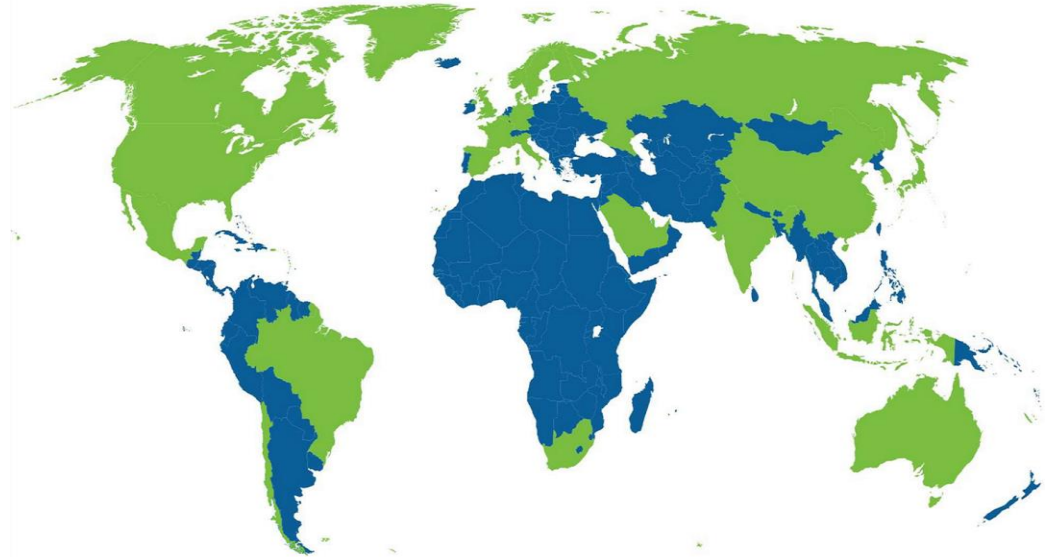
# Clean Energy Ministerial

## 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 CO<sub>2</sub>  
emissions

# Solutions Center: Background & Vision

The **Solutions Center** helps governments design and adopt policies and programs that support the deployment of clean energy technologies.

**Led by Australia, Sweden, and United States**, with in-kind support from Canada and Mexico.



# Solutions Center: Goals and Audience

## Programs and Services

- **Team of 60+ experts from around the globe delivered technical support for 350+ policy requests from more than 80 countries**
  - Extensive support across Africa, Asia, and LAC
  - Launched support for finance measures and finance portal 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 5500 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

- IRENA
- IEA
- Sustainable Energy for All (SE4ALL)
- Bloomberg New Energy Finance
- United Nations Environment Programme (UNEP)
- ECOWAS Center for Renewable Energy and Energy Efficiency
- Power Africa

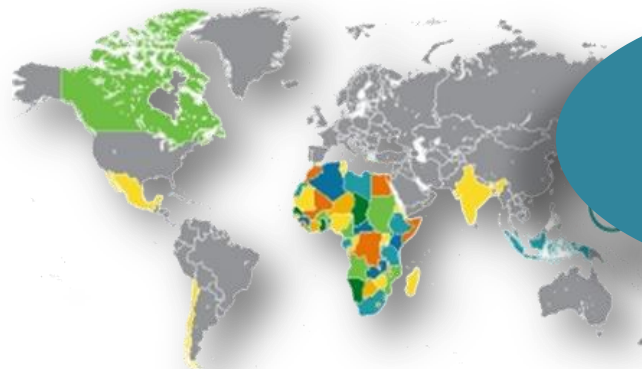


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We connect you to a global network of energy experts for personalized attention and quick response technical assistance on **strategies, regulations, standards, financial incentives, and deployment programs** for a broad range of clean energy sectors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

- Energy Access
- Energy Efficiency
- Renewable Energy
- Smart Grid
- Transportation
- Utilities



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more than 300  
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over 90 countries.

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# Barbara O'Neill, Grid Integration Manager, NREL



Barbara O'Neill is the Grid Integration Manager at NREL, where she leads projects and engages stakeholders domestically and internationally to provide information on renewable energy integration practices and technologies. Before joining NREL, she was Director of Development at EDF Renewable Energy for the Central Region, where her team developed utility-scale wind and solar project sites in the Southwest Power Pool (SPP), the Electric Reliability Council of Texas (ERCOT), and Colorado. Before that, she worked at Xcel Energy in resource planning, where she negotiated renewable energy power purchase agreements. Mrs. O'Neill received a B.S. in electrical engineering from Pratt Institute, an M.S. in energy management and policy from University of Pennsylvania, and a Diplôme d'Ingénieur in petroleum economics from the French Institute of Petroleum. She is the author of Mexico's Regulatory Engagement in *Bulk Electric Power System Planning: An Overview of U.S. Practices and Tools* and co-author of *Advanced Grid-Friendly Controls Demonstration Project for Utility-Scale PV Power Plants*, which explores ancillary services provided by a 20-megawatt photovoltaic (PV) project in Puerto Rico. Her current projects include work with the U.S. Department of the Interior, the government of Pakistan and the U.S. Virgin Islands.

# Tara Fowler, Manager of Renewable Energy Power Purchases, Xcel Energy



Tara Fowler is the Manager of Renewable Energy Power Purchases for Xcel Energy. She provides leadership and direction in the negotiation and administration of long-term renewable energy purchase agreements between Xcel Energy and power suppliers. Previously, she enjoyed an extensive career in Xcel Energy's Trading and Origination organization for over ten years. Tara currently serves on the board of directors of the North American Energy Markets Association and GROW, an internal Xcel Energy business resource group that explores and develops programs to help women succeed. Tara earned her BBA Management and BBA Marketing at the University of Iowa and her MS Global Energy Management at the University of Colorado-Denver.

# Ilya Chernyakhovskiy, Research Analyst, NREL



Ilya Chernyakhovskiy is a co-author of USAID and NREL's [GreeningtheGrid.org](https://www.greeningthegrid.org) toolkit. He serves as the lead for NREL's Scaling Up RE in Central Asia project under USAID's Power the Future initiative. Ilya also supports various capacity building and technical assistance activities in the Asia region under the Low Emission Development Strategies Global Partnership (LEDS GP). Prior to joining NREL, Ilya was involved in economic development research at the Higher School of Economics in Moscow, Russia. Ilya earned his M.Sc. in Natural Resource Economics from the University of Massachusetts Amherst.

# Contacts and Additional Information

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## Additional Resources

### **Greening the Grid**

*Resources and Technical  
Assistance*

[www.greeningthegrid.org](http://www.greeningthegrid.org)

Email: [greeningthegrid@nrel.gov](mailto:greeningthegrid@nrel.gov)

### **Power Africa Program**

*Resources and Technical Assistance, e.g.,*

[Expanding the Understanding of Power  
Purchase Agreements Handbook](#)

**Download Xcel Energy's Model Wind PPA:**

[http://www.xcelenergy.com/staticfiles/xcelenergy/Corporate/Corporate%20PDFs/Model\\_Power\\_Purchase\\_Agreement.pdf](http://www.xcelenergy.com/staticfiles/xcelenergy/Corporate/Corporate%20PDFs/Model_Power_Purchase_Agreement.pdf)

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