

Big, Fast and Flexible: Grid Operations for Efficient Variable Renewable Integration

11 October 2016

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Some Housekeeping Items

Two Options for Audio (select audio mode):

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Some Housekeeping Items (continued)

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Agenda

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**Welcome &
Introductory
Remarks**

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**Overview of the
Clean Energy
Solutions Center**

- **Stephanie Bechler**,
National Renewable
Energy Laboratory

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Presentations

- **Michael Milligan**, NREL

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**Question and
Answer
Session**

- **Jennifer Leisch**, USAID

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**Attendee
Survey**

Solutions Center Background and Vision

CleanEnergySolutions.org

The Clean Energy Ministerial (CEM) launched the Clean Energy Solutions Center in April 2011. The Solutions Center:

- Is one of 13 CEM Initiatives, which include:
 - Global Superior Energy Performance Partnership
 - Super-Efficient Equipment and Appliance Deployment initiative
 - Global Lighting and Energy Access Partnership
- Helps governments design and adopt policies and programs that support the deployment of clean energy technologies
- Has more than 35 partners, including IRENA, IEA, IPEEC, Sustainable Energy for All, Bloomberg New Energy Finance and Leonardo Energy
- Is co-chaired by the U.S. Department of Energy and the Australian Department of Industry.



Australia



Sweden



United States



Canada



France



India



Indonesia



Mexico

Clean Energy Solutions Center

CleanEnergySolutions.org

Goals

- **Serve** as the primary resource for clean energy policy information, assistance and peer learning for governments and government-affiliated practitioners.
- **Share** policy best practices, data, and analysis tools across countries.
- **Deliver** dynamic services that enable expert assistance, learning, and peer-to-peer sharing of experiences.
- **Foster** dialogue on emerging policy issues and innovation across the globe.

Primary

- Government Policy Makers
- Advisors

Secondary

- Private Sector Companies
- Energy Entrepreneurs and Investors
- Non-Governmental Organizations
- Civil Society
- Others Engaged in Clean Energy

Target Audiences

Ask-an-Expert: Our Experts in Action

CleanEnergySolutions.org

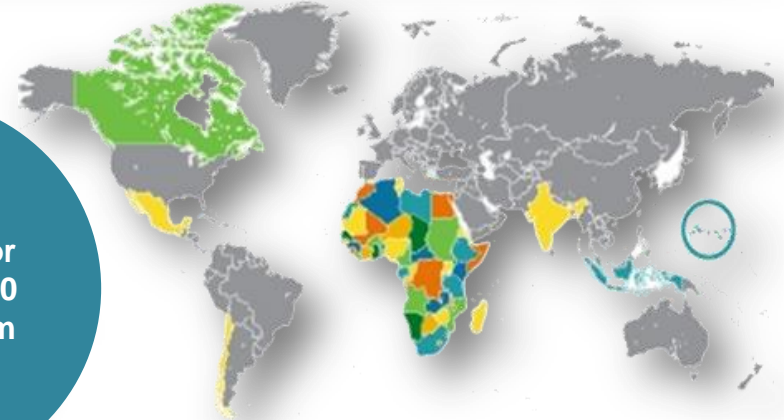


Connects policymakers to a global network of more than 30 energy experts for quick-response technical assistance on policies and programs relating to:



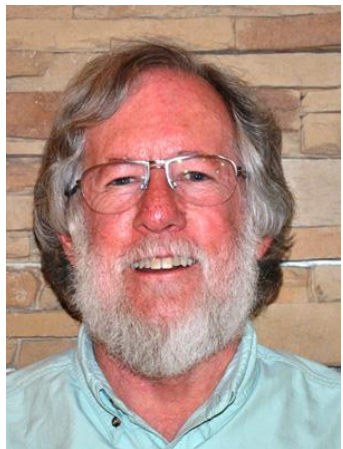
- Renewable Energy
- Energy Access
- Energy Efficiency
- Smart Grid
- Transportation
- Utilities

Delivered no-cost assistance for more than 160 requests from over 75 countries.



Please submit your question directly at cleanenergysolutions.org/expert

Michael Milligan, NREL



Michael Milligan, Ph.D., came to the National Renewable Energy Laboratory's National Wind Technology Center in 1992, and he is now with the Transmission and Grid Integration Group at NREL. His research focuses on large-scale integration of wind and solar energy on the bulk power system, on which he has authored or coauthored more than 200 journal articles, conference papers, technical reports and book chapters. Michael has provided expert testimony in numerous public utility commission proceedings and workshops, and he advises power system planners and operators on wind and solar integration issues. He leads and participates in various task forces for the North American Electric Reliability Corporation, Institute of Electrical and Electronics Engineers (IEEE) Power and Energy Society and the Western Electricity Coordinating Council (WECC). His sustained participation on the International Energy Agency Task 25 for large-scale wind integration helped launch a continuing series of international technical papers on integration issues. He was an invited panelist in 2012 to the Royal Irish Academy in Dublin and an invited keynote speaker at the 2011 Power System Computation Conference in Stockholm. He has hosted visiting researchers from Germany, Ireland, Spain, Australia, China and Italy.

Jennifer Leisch, USAID



Jennifer Leisch is a Climate Change Mitigation Specialist in the USAID Office of Global Climate Change, where she supports the U.S. Enhancing Capacity for Low Emission Development Strategies program. Jennifer manages the USAID Greening the Grid partnership, and she directs agency work to account for greenhouse gas emissions reductions as a result of USAID Clean Energy programs. She holds a Ph.D. focused on renewable energy science, and she has previously worked in the research and development of advanced solar energy and fuel cell technologies.

Contacts and Additional Information

Webinar Panel

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Greening the Grid

greeningthegrid.org

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The screenshot shows the homepage of the 'Greening the Grid' website. At the top, there is a navigation menu with links for HOME, ABOUT, QUICK READS, TRAININGS, INTEGRATION TOPICS, ASK AN EXPERT, RESOURCES, and NEWS. A search bar is located in the top right corner. The main banner features a large image of a solar farm with a dark overlay box containing the text 'Understand Grid Integration Basics' and 'Review concise fact sheets covering a variety of key issues.' Below the banner, the page is divided into three columns. The first column is titled 'What is Grid Integration?' and includes a sub-section 'The Challenge: Large-Scale, Grid Connected Clean Energy' with a brief description of power grids and a 'Read more' button. The second column is titled 'What We Do' and describes the organization's mission to provide technical assistance and collaboration, with an 'About Us' button. The third column is titled 'Ask an Expert' and offers a service to request information and assistance from experts, with a 'Submit a Request' button.

Attendee Survey

How did we do?

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Your Participation is Appreciated!

THANK YOU!

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