



Power Systems of the Future

March 18, 2015



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Agenda

1

Welcome & Introductory Remarks

2

Overview of the Clean Energy Solutions Center

- **Sean Esterly**, National Renewable Energy Laboratory

3

Presentations

- **Dr. Douglas J. Arent**, Executive Director, Joint Institute for Strategic Energy Analysis, National Renewable Energy Laboratory
- **Barry MacColl**, General Manager – Research, Testing and Development, Eskom Holdings Ltd, South Africa
- **Efraín Villanueva Arcos**, General Director of Clean Energies, Ministry of Energy, Mexico

4

Question and Answer Session

5

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



Denmark



India



Indonesia



Italy



Japan



Mexico



South Africa



Sweden



United Arab Emirates



United States

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

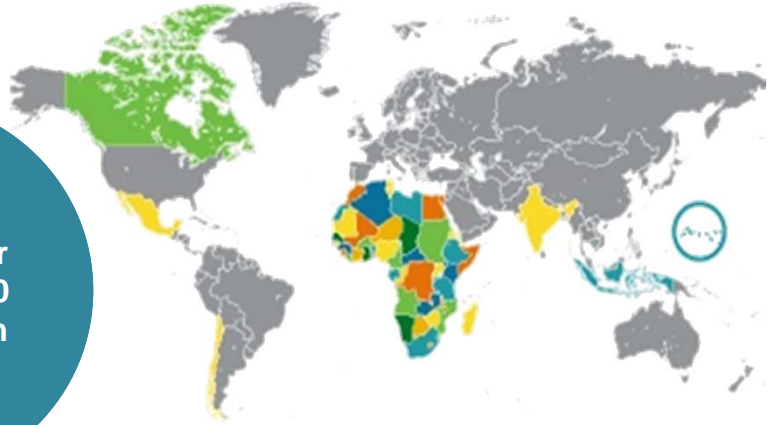


Connects policymakers to a global network of more than 30 energy experts for quick-response technical assistance on policies and programs relating to:



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

Delivered no-cost assistance for more than 120 requests from over 60 countries.



Please submit a question directly at cleanenergysolutions.org/expert
Or contact me directly to find out how the Ask-an-Expert program can benefit your work:
Sean.Esterly@nrel.gov | 303-384-7436

Dr. Douglas Arent, Exec. Director, Joint Institute for Strategic Energy Analysis, National Renewable Energy Laboratory



Doug Arent is Executive Director of the Joint Institute for Strategic Energy Analysis at the National Renewable Energy Laboratory (NREL). He specializes in strategic planning and financial analysis competencies; clean energy technologies and energy and water issues; and international and governmental policies. In addition to his NREL responsibilities, Arent is Senior Visiting Fellow at the Center for Strategic and International Studies. Arent was appointed as a Coordinating Lead Author for a chapter of the 5th Assessment Report of the Nobel Prize-winning Intergovernmental Panel on Climate Change (IPCC) and serves on the National Research Council Committee to Advise the U.S. Global Change Research Program. He is a member of the Policy Subcommittee of the National Petroleum Council Study on *Prudent Development of North America Natural Gas and Oil Resources*, and the American Academy of Arts and Sciences Steering Committee on *Social Science and the Alternative Energy Future*. Arent is a Member of the Keystone Energy Board and serves on the Advisory Council of the Smart Cities Council. Dr. Arent has a Ph.D. from Princeton University, an MBA from Regis University, and a Bachelor of Science from Harvey Mudd College in California.

Barry MacColl, General Manager – Research Testing and Development, Eskom Holdings (SOC) Ltd



Barry has been working in the power industry in South Africa for over 23 years. He is currently the National Utility's head of Research, Testing and Development and leads a team of over 400 people involved in applied research, testing and consulting in a variety of specialist energy technology related disciplines. As a utility owned facility, the focus is on finding practical solutions to the operational and strategic challenges of Eskom, Africa's largest power utility. Barry manages teams structured around centres of excellence – the renewable technology; energy storage and electric vehicles; energy efficiency and SMART grid COE as well as Fuels and Combustion, Emissions Reduction Technologies, Materials, Air Quality Monitoring and of course, Underground Coal Gasification as examples. Barry fulfils a variety of leadership positions locally and overseas: (1) He is the Chairman of the US based Electric Power Research Institute (EPRI) Research Advisory Board; (2) He is the Vice Chairman of the International Energy Agency Clean Coal Centre (IEA CCC); (3) He is a Board member of the South African Centre for Carbon Capture and Storage (SACCCS); (4) He is a Board member of the International Energy Research Exchange; (5) He is an Exco member of the National Science and Technology Forum; (6) He is on the Large Infrastructure Investment Committee of the DST; (7) He is a member of the National Intellectual Property Advisory Panel; (8) He advises on several University bodies.

Barry is an Electronics Engineer who obtained his degree from the University of Natal in South Africa in 1991. He also has an MBA from Rhodes University. Barry is married to Carey and has three children, two of them under two!

Efraín Villanueva Arcos, General Director of Clean Energies at the Ministry of Energy, Mexico



Efraín Villanueva has a degree in sociology from the Political and Social Science program at the National Autonomous University of Mexico. He has diplomas in Project Assessment, Public Policy and Constitutional Law. Efraín served as Rector of the University of the State of Quintana Roo and also as Secretary of Education and Secretary of Internal Affairs. He was elected as Legislator in the State Congress of Quintana Roo and appointed by his peers to President of the Mexican Conference of Legislators and State Congress nationwide. Since March 2013, he has served as the General Director of Clean Energies at the Ministry of Energy. He coordinates the Fund for Energy Transition and Sustainable Use of Energy (FOTEASE), and he is a member of the Sustainable Energetic Fund and Pro Secretary of the Advisory Council for Renewable Energies.

Question and Answer Session

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Questions



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THANK YOU!

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 - Sean.Esterly@nrel.gov or 303-384-7436