Tuesday, June 11, 2024

7:00 a.m. – 8:00 a.m.
Registration & Breakfast
Location: Salons G-J

8:00 a.m. – 12:00 p.m.
Tutorial: Weather Datasets for Power System Planning
Moderator: **John Zack**, MESOMa
Location: Salons EF

State of the Art in Datasets (20 min)
John Zack, MESO

Problems with Existing Datasets (20 min)
Justin Sharp, Principal/Owner, Sharply Focused

Evaluation and Adjustments to the ERA5 (20 min)
Jim Wilczak, Research Meteorologist, NOAA

Approaches to Historical Datasets – (1 hr)

CONUS404, A High-resolution Hydro-climate Dataset
Sue Haupt, Senior Scientist, NSF National Center for Atmospheric Research

Applying the WIND Toolkit and WTK-LED to Grid Integration
Luke Lavin, Researcher III, NREL

Historical and Forward Looking Datasets
Cameron Bracken, Earth Scientist, PNNL

10:00 a.m. – 10:20 am
Break
Location: Foyer

Approaches to Forward Looking Datasets – (1 hr)

Energy Exascale Earth System Model
Robert Arthur, Staff Scientist, LLNL

Sup3rCC Dataset
Grant Buster, Data Scientist, NREL

Creating Hourly Weather Timeseries for Future Climates
David Larson, Technical Leader, Grid Ops & Planning, EPRI

Using the Data Properly – Example and Facilitated Discussion (40 min)

A Case Study
Josh Novacheck, Transmission Planning Engineer, NextEra Energy Resources; Chair, ESIG System Planning Working Group

Facilitated Discussion
John Zack, MESO

12:00 p.m. – 1:15 p.m.
Lunch
Location: Salons G-J

1:15 p.m. – 2:30 p.m.
Introduction / Opening Remarks
Location: Salons EF

Opening Remarks
Mark Ahlstrom, President, ESIG Board of Directors & NextEra Energy Resources

Keynote: *Inventing the Future*
Melanie Frye, President & CEO, WECC

Industry Overview
Charlie Smith, Executive Director, ESIG

2:30 p.m. – 3:00 p.m.
Break
Location: Foyer

3:00 p.m. – 5:00 p.m.
Opening Plenary Session: AI Applications to Forecasting and Markets
Session Chair: Mark Ahlstrom, President, ESIG Board of Directors & NextEra Energy Resources
Location: Salons EF

AI Applications to Hazardous Weather Forecasting
Aaron Hill, Assistant Professor, University of Oklahoma

AI Applications to Long Range Energy Forecasts
Benjamin Toms, Founder, Intersphere

Use of AI in Creating Market Offers
Alan Smith, Senior Fellow, NextEra Analytics

Cloud Nowcasting Using Deep Neural Nets
Eric Grimit, Technology Manager, Applied Meteorology, Vaisala

Artificial Neural Networks for Improved Forecasting for Distributed PV
David Larson, Technical Leader, Grid Ops & Planning, EPRI

6:30 p.m. – 8:00 p.m.
Networking Reception
Location: Skylight Ballroom

Wednesday, June 12, 2024

7:00 a.m. – 8:00 a.m.
Breakfast
Location: Salons G-J

8:00 a.m. – 9:45 a.m.
Session 2A: Improving DER Participation in Organized Markets
Session Chair: Erik Ela, Technical Executive and Program Manager, EPRI
Location: Salons EF

MMS Development of Aggregated DER Bids and Implementation in CAISO for FERC Order 2222 Compliance
Ashmin Mansingh, Global VP of Engineering, Siemens Grid Software
Jay Jones, Senior Advisor, Market Technology Support, CAISO

Aggregating DERs for Wholesale Market Participation
Astrid Atkinson, CEO & Co-founder, Camus Energy (invited)

Aggregate Distributed Energy Resource (ADER) Pilot Project
Dave Maggio, Principal, Maket Design & Analytics, ERCOT

Aggregator Point of View
Geoff Ferrell, Sr. Vice President, Global C&I and VPP Project Business, sonnen

8:00 a.m. – 9:45 a.m.
Session 2B: Growth of Large Loads
Session Chair: Sophie Meyer, Director of Power Systems, Grid Strategies
Location: Salon D

Large Load Perspective
Sophie Meyer, Director of Power Systems, Grid Strategies

Industrial Thermal Batteries
Michael Hagerty, Principal, The Brattle Group

AI and Datacenters
TBD

New Manufacturing Driven Load Growth
Joseph Church, Senior Forecast & Load Analyst, Salt River Project

Forecasting Growth of Large Loads
Victor Ni, Senior Market Strategy Advisor, MISO

9:45 a.m. – 10:15 a.m.
Break
Location: Foyer

10:15 a.m. – 12:00 p.m.
Session 3A: Considerations for 100% Zero Marginal Cost Markets
Session Chair: Robin Hytowitz, Energy Management Advisor, NextEra Analytics
Location: Salons EF

Market Evolution Towards 100% Clean Electricity
Chris Geissler, Director of Economic Analysis**,** ISO-NE

Scalable Markets for the Energy Transition
Arne Olsen, Senior Partner, Energy and Environmental Economics, Inc.

Markets for Resource Adequacy and Electricity as a Public Good
Kelli Joseph, Senior Fellow, Electricity Market Design & Climate, University of Pennsylvania

A Developer's Vision for Clean Energy Markets
Jessica Greenberg, Sr. Manager, Growth Strategy & Power Markets, Enel North America (invited)

10:15 a.m. – 12:00 p.m.
Session 3B: Advances in Wind and Solar Forecasting
Session Chair: Craig Collier, Chief Meteorologist, Head of Operations, Energy Forecasting Solutions
Location: Salon D

Status and Plans for the High Resolution Rapid Refresh Model
Dave Turner, Sr. Advisor, Planning & Organizational Performance, NOAA

Solar Forecast Impact on Hybrid Resource Scheduling
Chris Bremer, Sr. Data Scientist, Salt River Project

Spreads and Gradient Spreads: An Alternative to the Standard Probabilistic Forecast
Armin Kahnert, Sr. Meteorologist, energy and meteo systems GmbH (Germany)

Use of Cloud Nowcasting for Short-term Solar Energy Predictions
Pascal Storck, Head of Technology, Vaisala

12:00 p.m. – 1:15 p.m.
Lunch
Location: Salons G-J

1:15 p.m. – 3:00 p.m.
Session 4A: Retail Pricing
Session Chair: Paul Sotkiewicz, President, E-Cubed Policy Associates
Location: Salons EF

How Well Do Customers Respond to Time Varying Retail Rates?
Sanem Sergici, Principal, The Brattle Group

New Directions in Real Time Pricing
Peter Markussen, Managing Director, Energinet (Denmark) (invited)

C&I Customers Access to Wholesale Prices in RTOs
Devin Hartman, Director, Energy and Environmental Policy, R Street (invited)

A Data Center Perspective
Brian George, Global Energy Market Development and Policy, US Federal Lead, Google (invited)

1:15 p.m. – 3:00 p.m.
Session 4B: Power System Impacts of Rapid Electrification
Session Chair: Matt Schuerger, Senior Fellow, ESIG
Location: Salon D

Infrastructure Impacts of Electrification
Jun Wen, Principal Advisor – DSO Strategy & Implementation, Southern California Edison

Unintended Consequences of Building Conversions to Heat Pumps
Nick Miller, Principal, HickoryLedge LLC

Navigating the Challenges of Rapid High-density Load Additions
Jerrod Nelson, Manager of Transmission Investment Development, Xcel Energy (invited)

DC Fast Charge Network Buildout
Damon Franz, Senior Managing Policy Advisor, Tesla (invited)

3:00 p.m. – 3:30 p.m.
Break
Location: Foyer

3:30 p.m. – 5:15 p.m.
Session 5A: Forecasting & Markets
Session Chair: TBD
Location: Salons EF

ARPA-E PERFORM Project Results on Flexibility Options and Reserves for DA Markets
Elina Spyrou, Leverhulme Lecturer, Imperial College London (UK)

Wholesale Electricity Markets and Resource Adequacy with High Clean Energy Generation Targets
Bethany Frew, Group Manager, Capacity Expansion & Electricity Markets Group, NREL
Nongchao Guo, Energy Economist & Modeler, NREL

Demand Flexibility and Market Model 3.0 in Denmark
Anders Bavnhøj Hansen, Chief Engineer, Energinet (Denmark) (invited)

Solar Eclipse: Forecasting, NWP Models and Future Needs
Adam Simkowski, Principal Meteorological Risk Analyst, MISO
Lars Rohwer, energy and meteo systems GmbH (Germany)

Market Challenges with High Solar Generation
Donny Holaschutz, Energy & Sustainability Consultant – Managing Partner, Inodu

3:30 p.m. – 5:00 p.m.
Session 5B: Utility and ISO Probabilistic Forecasting Developments
Session Chair: Tim Duffy, Manager, Demand Forecasting & Analysis, NYISO
Location: Salon D

Recent Developments in Probabilistic Forecasting in AEMO
Andrew Akman, Principal Data Scientist, AEMO (Australia) (invited)

Using Probabilistic Forecasting at SPP
Jeff Baskin, Meteorologist / Technical Analyst, SPP

Probabilistic Forecasting Developments in CAISO
Amber Motley, Director, Short Term Forecasting, CAISO

MISO Uncertainty Platform
Congcong Wang, Manager Operations Risk Assessment, MISO

Use of Probabilistic Forecasts in Operational Risk Assessment
Riaz Khan, Sr. Operations Engineer, ERCOT

<u>Thursday, June 13, 2024</u>

7:00 a.m. – 8:00 a.m.
Breakfast
Location: Salons G-J

8:00 a.m. – 9:45 a.m.
Session 10: Bridging the Gap between Atmospheric Science and Grid Modeling
Session Chair: Cathy Finley, Associate Professor, University of North Dakota
Location: Salons EF

Connecting the Dots: Status and Prospects
Justin Sharp, Principal/Owner, Sharply Focused

Modeling Extreme Events in WECC using PNNL Weather Datasets Including Climate Change Impacts Through 2099
Jon Jensen, Engineer, System Adequacy Planning, WECC

Status of Climate Change Projections on Wind & Solar Resources
Jared Lee, Project Scientist II, NSF National Center for Atmospheric Research

Forecasting Tail Events and Impact on Energy Price
Jennifer Newman, Vice President of Atmospheric Science Research, REsurety

9:45 a.m. – 10:15 a.m.
Break
Location: Foyer

10:15 a.m. – 12:00 p.m.
Session 11: Closing Plenary Session - Panel Discussion of the Issues and Challenges in the Energy Transition
Session Chair: Sue Haupt, Senior Scientist, NSF National Center for Atmospheric Research
Location: Salons EF

There are many barriers that have limited the pace of adoption of carbon-free energy generation well below the baseline trend necessary to meet aggressive decarbonization goals set by governments around the world. Some of these barriers include inadequate replacement or retiring generation with clean resources; unprecedented electrification and resulting load growth; inadequacies in weather and climate models, data and forecasts.

We plan to summarize the current situation and have an interactive discussion with panelists and the audience about what steps can be taken to overcome these barriers.

Insights and feedback for ISOs, utilities, government labs, forecasters and researchers will be sought.

Ensuring that the energy system planners and operators and atmospheric science communities have a mutual understanding of each other's needs is key to meeting society's decarbonization goals.

Summary Comments from the Power System Perspective (10 min)
Paul Sotkiewicz, President, E-Cubed Policy Associates

Summary Comments from the Meteorology Perspective (10 min)
John Zack, MESO

Panelists for the Discussion on Overcoming the Barriers
Facilitated by **Sue Haupt,** NSF National Center for Atmospheric Research
        Matt Schuerger, Senior Fellow, ESIG

- **Paul Sotkiewicz,** President, E-Cubed Policy Associates
- **John Zack,** MESO
- **Peter Markussen,** Managing Director, Energinet (Denmark) (invited)
- **Pascal Storck,** Head of Technology, Vaisala
- **Erik Ela,** Technical Executive and Program Manager, EPRI
- **Jim Wilczak,** Research Meteorologist, NOAA
- **Andrew Ackman,** Principal Data Scientist, AEMO (Australia) (invited)
- **Justin Sharp,** Principal/Owner, Sharply Focused
- **Jennifer Newman,** Vice President of Atmospheric Science Research, REsurety