



2023 METEOROLOGY & MARKET DESIGN FOR GRID SERVICES WORKSHOP

June 13-15, 2023

The Embassy Suites – Denver, Colorado

PROGRAM AGENDA

Tuesday, June 13, 2023

7:00 a.m. – 8:00 a.m.

Registration & Breakfast

Location: Crestone Foyer

8:00 a.m. – 8:15 a.m.

Introduction/Opening Comments

Location: Crystal B/C

Opening Comments and Reflections on the Inflation Reduction Act (IRA)

Mark Ahlstrom, President, ESIG Board of Directors

Workshop Introduction

Charlie Smith, Executive Director, ESIG

8:15 a.m. – 10:15 a.m.

Session 1: Ancillary Services Markets and Ramping Products for Renewable Energy

Session Chair: Emma Nicholson, Senior Economist, FERC

Location: Crystal B/C

CAISO Day-ahead Market Enhancements and Ramp Products

James Friedrich, Lead Policy Developer, CAISO

MISO Short Term Reserve and Ramping Products

Jason Howard, Director, Operations Risk Management, MISO

Evolution and Value of the ERCOT Operating Reserve Demand Curve

Ryan King, Manager, Market Design, ERCOT

Flexibility and Ramping in a Vertically Integrated Market Structure

Keith Parks, Senior Trading Analyst, Xcel Energy

Flexibility Products and ORDC: Are They Really That Different?

Ryan Schoppe, Senior Technical Leader, EPRI

10:15 a.m. – 10:45 a.m.

Break

Location: Crestone Foyer

10:45 a.m. – 12:15 p.m.

Session 2: DER Forecasting for Operations

Session Chair: Andrew Akman, Senior Data Scientist, AEMO (Australia)

Location: Crystal B/C

Forecasting of DERs for Distribution Operations

David Larson, Technical Leader, Grid Ops & Planning, EPRI

Forecasting of DERs for Bulk System Operations

Jared Lee, Project Scientist II, National Center for Atmospheric Research

Forecasting and Operation of DERs under Different T/D Coordination Frameworks

Ali Golriz, Lead, System & Sector Development, Innovation and R&D, IESO (Canada)

Forecasting for Renewable Energy and Grid Analysis for Congestion Management

Lars Rohwer, energy and meteo systems (Germany)

12:15 p.m. – 1:30 p.m.

Lunch

Location: Crestone Foyer

1:30 p.m. – 3:00 p.m.

Session 3: Aligning Retail Rates and Grid Needs for Flexibility and Balancing Considerations

Session Chair: Obadiah Bartholomy, Manager, Distributed Energy Strategy, SMUD

Location: Crystal B/C

Regulatory Perspective – A Key Piece of the Puzzle

Eric Blank, Chairman, Colorado Public Utilities Commission

Demand Response Programs in Action

Bryan Hannegan, President & CEO, Holy Cross Energy

Extracting Flexibility from Price-Sensitive Loads Through Bid-in Demand

Richard O'Neill, Distinguished Senior Fellow, ARPA-E

Orchestrating Customer Programs and Rates for a Customer-centric Path to Clean Energy

Tom Hines, Consultant, Arizona Public Service

3:00 p.m. – 3:30 p.m.

Break

Location: Crestone Foyer

3:30 p.m. – 5:30 p.m.

Session 4: Progress in the Use of Probabilistic Forecasts: A Panel Discussion

Session Chair: Julia Matevosyan, Chief Engineer, ESIG

Location: Crystal B/C

This panel will be an interactive discussion with the audience. Each of the panelists will be asked to give a 5 minute overview on one probabilistic forecasting application being used or planned in their company. The panel will be grouped according to application areas, such as Short Term Reserve, Flex Ramp Requirements, Imbalance Reserve Requirements, RUC Uncertainty Requirements, system pre-positioning, etc. with group discussion following each set of presentations.

- **Nitika Mago**, Manager, Balancing Operations Planning, ERCOT
- **Amber Motley**, Senior Manager, Short Term Forecasting, CAISO
- **Jon Black**, Manager of Load Forecasting, ISO-NE
- **Andrew Akman**, Senior Data Scientist, AEMO (Australia)
- **Jason Howard**, Director Operations Risk Management, MISO
- **Anneliese Alexander**, Senior Meteorologist, Xcel Energy
- **Faraz Majid**, Planner/Data Engineering, IESO (Canada)
- **Joseph Mulhern**, Lead Engineer, Markets Coordination, PJM

6:30 p.m. – 8:00 p.m.

Networking Reception

Location: TBD

Wednesday, June 14, 2023

7:00 a.m. – 8:00 a.m.

Breakfast

Location: Crestone Foyer

8:00 a.m. – 9:45 a.m.

Session 5: Market Design for 100% Renewable Markets

Session Chair: Bethany Frew, Group Manager, Capacity Expansion & Electricity Markets Group, NREL

Location: Crystal B/C

The Value of Marginal Cost Pricing in a High Renewables and Storage World

Emma Nicholson, Senior Economist, FERC

Key Research Challenges Related to Evolving Electricity Markets

Todd Levin, Electricity Markets Team Lead, Argonne National Laboratory

Controllable Loads for Ancillary Services: Green Hydrogen and Beyond

Andrew Reimers, Director of R&D and Regulatory Affairs, Lancium

Storage is to Temporal Prices as Transmission is to Locational Prices

Erik Ela, Principal, EPRI

9:45 a.m. – 10:15 a.m.

Break

Location: Crestone Foyer

10:15 a.m. – 12:00 p.m.

Session 6: State of the Art and Outlook for Renewable Energy Forecasting

Session Chair: Sue Ellen Haupt, Deputy Director, Research Applications Laboratory, NCAR

Location: Crystal B/C

Winter Storm Elliot - Lessons Learned

Craig Collier, Chief Meteorologist, Head of Operations, Energy Forecasting Solutions

HRRR Model Update and Next Steps

Dave Turner, Senior Scientist, NOAA's Global Systems Laboratory

Evaluating the Ability of Met Models to Characterize Daily Cycles in Wind Generation

Dev Millstein, Research Scientist, Lawrence Berkeley National Laboratory

Forecasting for Hydro Power in an Increasingly Climate Stressed Environment

Daniel Palmer, Business Development & Partnerships, Upstream Tech

12:00 p.m. – 1:30 p.m.

Lunch

Location: Crestone Foyer

1:30 p.m. – 3:00 p.m.

Session 7: Electricity Market Performance Under Extreme Events

Session Chair: Erik Ela, Principal, EPRI

Location: Crystal B/C

An Assessment of Market Reform Options in ERCOT including the new Performance Credit Mechanism (PCM) Rule Review

Zach Ming, Director, Energy & Environmental Economics (E3)

PJM Performance Assessment Interval Penalty Assessments under Winter Storm Elliott

Paul Sotkiewicz, President, E-Cubed Policy Associates

Performance of Batteries in CAISO During the 2022 Heat Wave

Guillermo Alderete, Director, Market Analysis and Forecasting, CAISO

3:00 p.m. – 3:30 p.m.

Break

Location: Crestone Foyer

3:30 p.m. – 5:15 p.m.

Session 8: Data Sets for Future System Planning and Extreme Weather Events

Session Chair: Bri-Mathias Hodge, Chief Scientist, NREL

Location: Crystal B/C

Incorporating Uncertainty into the Use of Climate Data to Inform Planning Studies

Robin Kaiser, Network Development Engineer, Amprion GmbH (Germany)

Development of Correlated Wind, Solar and Load Forecasts for Power System Planning

Ian Schomer, Data Team Lead, Newton Energy Group

Need for Better Datasets for Resource Adequacy Planning

Elaine Hart, Founding Principal, Moment Energy Insights

Need for a National Power System Planning Weather Database

Justin Sharp, Principal & Owner, Sharply Focused

Thursday, June 15, 2023

7:00 a.m. – 8:00 a.m.

Breakfast

Location: Crestone Foyer

8:00 a.m. – 10:00 a.m.

Session 9: Incorporating Risk into Power Systems and Markets (work from ARPA-e PERFORM)

Session Chair: Richard O’Neill, Distinguished Senior Fellow, ARPA-E

Location: Crystal B/C

Probabilistic Forecasting of Extreme Market Events

Alex Rudkevich, President & Founder, Newton Energy Group

Risk-Aware Power System Control, Dispatch and Market Incentives

Dan Bienstock, Professor, Industrial Engineering & Operations Research, Columbia University

Grid that’s Risk-Aware for Clean Electricity - GRACE

Dimitris Floros, Postdoctoral Associate, Duke University

An Integrated Paradigm for the Management of Delivery Risk in Electricity Markets:
From Batteries to Insurance and Beyond

Michael Blonsky, Research Engineer, NREL

10:00 a.m. – 10:30 a.m.

Break

Location: Crestone Foyer

10:30 a.m. – 12:00 p.m.

Session 10: Closing Plenary: Where Have We Been and Where Are We Going?

Session Chair: Charlie Smith, Executive Director, ESIG

(Session chairs and industry representatives reflect and look into the crystal ball)

Location: Crystal B/C

- **Erik Ela**, Principal, EPRI
- **Obadiah Bartholomy**, Manager, Distributed Energy Strategy, SMUD
- **Richard O’Neill**, Distinguished Senior Fellow, ARPA-E
- **Craig Collier**, Chief Meteorologist, Head of Operations, Energy Forecasting Solutions
- **Bethany Frew**, Group Manager, Capacity Expansion & Electricity Markets Group, NREL
- **Sue Ellen Haupt**, Deputy Director, Research Applications Laboratory, NCAR
- **Nitika Mago**, Manager, Balancing Operations Planning, ERCOT
- **Bri-Mathias Hodge**, Chief Scientist, NREL
- **Pascal Storck**, Head of Technology, Vaisala
- **Justin Sharp**, Principal & Owner, Sharply Focused
- **Andrew Akman**, Senior Data Scientist, AEMO (Australia)