



## 2022 FALL TECHNICAL WORKSHOP

**October 24-27, 2022**

Loews Minneapolis Hotel – Minneapolis, MN

### PROGRAM AGENDA

#### **Monday, October 24, 2022**

7:00 – 9:00 a.m.

##### **Registration & Breakfast**

Location: Foyer

8:00 a.m. – 12:00 p.m.

##### **Special Event: Capacity Expansion Modeling for Transmission Planning**

Location: Stone Arch III/IV

Co-Chairs: **Debbie Lew**, Associate Director, ESIG & **Aaron Bloom**, Senior Director of Regulatory Affairs, NextEra Energy Resources

9:00 a.m. – 12:00 p.m.

##### **Tutorial: Evolution and Effectiveness of Flexibility Products in Markets and Operations**

Location: Stone Arch I/II

Chairs: **Aidan Tuohy**, Senior Program Manager, EPRI; **Julia Matevosyan**, Chief Engineer, ESIG

With growing shares of variable energy resources, the need for flexibility on the grid is also increasing. This need is driven by increased need for ramping capability to be committed and dispatched to address system net load variability and uncertainty within real time economic dispatch look-ahead periods, and between day ahead and real time. Some system operators have introduced flexibility products to manage this issue. Here, we will first provide background on the design and implementation of such products, focusing on the general needs for flexibility, how requirements are set and other potential options for obtaining flexibility beyond new products. Then, a panel of system operators will provide information on their flexibility products in response to a set of questions sent in advance. This includes discussion of the intentions behind their development, the specific design of the products in different regions, covering aspects such as when the flexibility is procured and released, how resources qualify, how the requirements for flexibility are calculated, and how effective they are at addressing ramping needs and attracting new flexibility solutions. A panel discussion will wrap up the session.

Introduction and Overview of Flexibility Products

**Aidan Tuohy**, Senior Program Manager, EPRI (20 mins)

Background on Flexibility Products and Alternative Options, Implementation Details and Evolution of Flexibility

**Nikita Singhal**, Technical Leader, EPRI (30 mins)

Q&A – 10 mins

10:00 a.m. – 10:15 a.m.

**Break**

Location: Ballroom Foyer

Experiences with Flexibility Products (15 mins per panelist)

**Chen-Hao Tsai**, Advisor I, Operation Risk Assessment, MISO

**Amber Motley**, Sr. Manager Short Term Forecasting, CAISO

**Eamonn Lannoye**, Program Manager & Managing Director, EPRI

Panel discussion

12:00 – 2:00 p.m.

**Lunch**

Location: Foyer

2:00 – 5:00 p.m.

**Introduction & Keynote Comments**

Location: Stone Arch

2:00 - 3:15 p.m.

Welcome

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

Keynote Comments: Planning for the Energy Transition at MISO

**Aubrey Johnson**, Vice President, System Planning & Competitive Transmission, MISO

Meeting Overview

**Charlie Smith**, Executive Director, ESIG

3:15 – 3:45 p.m.

**Break**

Location: Ballroom Foyer

3:45 – 5:00 p.m.

**Opening Plenary: A Panel Discussion: High VRE Futures – 100% Clean Electricity**

Chair: **Aaron Bloom**, Sr. Director of Regulatory Affairs, NextEra Energy Resources

The Opening Plenary will present a discussion of alternate pathways to a clean energy future, featuring the views of leading experts from several different sectors of the industry, bridging the gap between research and practice.

**Panelists:**

**Joe Sullivan**, Commissioner, Minnesota Public Utilities Commission

**PJ Martin**, Xcel Energy

**Elizabeth Cook**, General Manager, Advanced Grid Solutions, Duquesne Light Company

**Jacob Mays**, Assistant Professor, Civil and Environmental Engineering, Cornell

**Paul Denholm**, Principal Energy Analyst, NREL

6:00 – 8:30 p.m.

**Board Meeting & Dinner**

Location: North Loop

## **Tuesday, October 25, 2022**

7:00 – 8:00 a.m.

### **Registration & Breakfast**

Location: Foyer

8:00 – 9:45 a.m.

### **Session 1: Congestion Management Practices, Challenges and Potential Mitigation Solutions**

Location: Stone Arch

Chair: **Jay Caspary**, Vice President, Grid Strategies

European Perspective

**Anders Bavehoj Hansen**, Chief Engineer, Energinet (Denmark)

US RTO Perspective

**Trevor Hines**, Manager – South Region Reliability Coordination, MISO

Market Participant Perspective

**Temujin Roach**, Sr. Transmission Policy Manager, EDF Renewables North America

GETs: A New Approach

**Pablo Ruiz**, Sr. Consultant, The Brattle Group and CEO/CTO, NewGrid  
**Germán Lorenzón**, Senior Engineer, NewGrid (Argentina)

Rethinking the Role of FTRs for Renewables

**James Kim**, Energy Policy Project Scientist, LBNL

9:45 a.m. – 10:15 a.m.

### **Break**

Location: Ballroom Foyer

10:15 a.m. – 12:00 p.m.

### **Session 2: IEEE 2800 and IBR Modelling**

Location: Stone Arch

Chair: **Andy Hoke**, Senior Engineer, NREL

IEEE 2800 OEM Readiness

**Aung Thant**, Engineer, Inverter-Based Resource Specialist, NERC

Gap Analysis Between IEEE 2800 and Existing Interconnection Requirements

**Jens Boemer**, Principal Technical Leader, EPRI

Interconnection Study Process - Reliability Implications and Improvements Needed

**Jason MacDowell**, Senior Technical Director, GE Energy Consulting

MISO Interconnection Requirements

**Patrick Dalton**, MISO

IBR Models and Modelling Needs

**Deepak Ramasubramanian**, Technical Leader, EPRI

12:00 p.m. – 1:30 p.m.

**Lunch**

Location: Ballroom Foyer

1:30 – 3:00 p.m.

**Session 3: Planning and Deployment Implications with Storage and IBRs**

Location: Stone Arch

Chair: **Cristin Lyons**, ScottMadden

Exploring Hydrogen's Role in the Power Sector

**Kai Van Horn**, Manager, National Grid

Understanding Economic and Deployment Benefits of Wind-PV Hybrid Power Plants

**Caitlin Murphy**, Sr. Energy Policy Analyst, NREL

Insights from Studying a Dispatchable Emission Free Resource (DEFER)

**Jason Frasier**, Manager, Economic Planning, NYISO

Grid Operational Impacts of Widespread Storage Deployment

**Nikita Singhal**, Technical Leader, EPRI

3:00 – 3:30 p.m.

**Break**

Location: Ballroom Foyer

3:30 – 5:30 p.m.

**Session 4: Aligning Retail Pricing with Grid Needs**

Location: Stone Arch

Chair: **Carl Linvill**, Principal, Regulatory Assistance Project

Introduction to the Nexus between Customers, Prices, and Grid Needs

**Debbie Lew**, Associate Director, ESIG

Regulatory Policy in Aligning Retail Rates with Grid Needs

**Travis Kavulla**, Vice President, Regulatory Affairs, NRG Energy

Aligning Retail Rates with the Needs of Transitioning Power Systems

**Arne Olson**, Sr. Partner, Energy and Environmental Economics (E3)

Heat Pump-friendly Retail Rate Designs

**Sanem Sergici**, Principal, The Brattle Group

Putting the "Curve" in Demand Curves: Moving Beyond Supply-curve "Demand Response" to Consumer Empowerment at the Grid Edge

**Michael Hogan**, Senior Advisor, Regulatory Assistance Project

6:30 p.m. – 8:00 p.m.

**Networking Reception**

Location: Cosmos

**Wednesday, October 26, 2022**

7:00 a.m. – 8:00 a.m.

**Breakfast**

Location: Ballroom Foyer

8:00 a.m. – 9:45 a.m.

**Session 5: Future Market Design for Resource Adequacy**

Location: Stone Arch

Chair: **Rob Gramlich**, Founder & President, Grid Strategies

Linking Resource Adequacy Analysis to Real-Time Availability

**Derek Stenclik**, Founding Partner, Telos Energy

Estimating Capacity Performance Risk Using Statistical and Economic Models

**Muhsin Abdur-Rahman**, Manager of PJM Market Fundamentals, Vistra Corp.

Resource Accreditation Considering Correlated Outages

**Joel Dison**, Sr. Managing Consultant, Astrapé Consulting

MISO's Path to Resource Adequacy

**Durgesh Manjure**, Resource Adequacy Policy, MISO

Towards Zero-Carbon Electricity Markets: Challenges and Solutions for Resource Adequacy

**Audun Botterud**, Principal Energy Systems Engineer, Argonne National Laboratory

9:45 a.m. – 10:15 a.m.

**Break**

Location: Ballroom Foyer

10:15 a.m. – 12:00 p.m.

**Session 6: IBR Stability and Control**

Location: Stone Arch

Chair: **Nick Miller**, Principal, HickoryLedge LLC

Comparison of Current GFM Equipment Specs

**Julia Matevosyan**, Chief Engineer, ESIG

Assessment of GFL and GFM Inverter and Synchronous Condenser Connection in Australia: Lessons Learned

**Babak Badrzadeh**, Technical Director, Power Systems, Aurecon (Australia)

Replication and Identification of Causes of Grid Oscillations

**Lingling Fan**, Professor, University of South Florida

Stability Impacts of Providing Frequency Response from IBRs in Lower Inertia Regions

**Pengwei Du**, Lead Engineer-Renewable Integration, ERCOT

**Shruti Rao**, Senior Engineer, GE Power

12:00 p.m. – 1:30 p.m.

**Lunch**

Location: Foyer

1:30 p.m. – 3:00 p.m.

**Session 7: Topics in Power Systems Operations**

Location: Stone Arch

Chair: **Nick Miller**, Principal, HickoryLedge LLC

European Synchronization with Ukrenergo and Moldelectrica

**Albino Marques**, Director, REN (Portugal)

Online Oscillations Analysis at ISO New England: Current Status and Future Needs with Respect to IBR

**Slava Maslennikov**, Technical Manager, ISO-NE

Grid-support Opportunities Provided by GFL and GFM IBR

**Babak Badrzadeh**, Technical Director, Power Systems, Aurecon (Australia)

The Future Role of Hydropower in the Northeastern US and Beyond

**Nick Miller**, Principal, HickoryLedge LLC

A Novel Offshore Pumped Storage Concept

**Bernhard Ernst**, Deputy Head of Energy Storage, Fraunhofer Institute (Germany)

3:00 – 3:30 p.m.

**Break**

Location: Ballroom Foyer

3:30 – 5:00 p.m.

**Session 8: Closing Plenary: Inter-regional Transmission Planning - Why Is it Important and How Do We Make it Happen?**

Location: Stone Arch

Chair: **Juliet Homer**, Energy Policy Analytics Team Lead, PNNL

ENTSO-E Minimum Inter-TSO Transmission Capacity Requirements

**Peter Markussen**, Managing Director, Energinet

DOE's Building a Better Grid Initiative

**Hamody Hindi**, Electrical Engineer, DOE

National Transmission Planning Study - Learnings to Date

**Patrick Brown**, Researcher, NREL

Atlantic Offshore Wind Study

**Jian Fu**, Program Manager, Grid Integration, Wind Energy Technologies Office, DOE

How Can We Move Interregional Transmission Planning Forward?

**Hassan Hayat**, Regional Transmission Planning Manager, AEP

5:00 – 5:10 p.m.

**Closing Comments**

**Charlie Smith**, Executive Director, ESIG

6:00 – 8:30 p.m.

**Advisory Council Dinner/Meeting**

Location: North Loop

**Thursday, October 27, 2022**

7:00 – 8:00 a.m.

**Breakfast**

Location: Ballroom Foyer

8:00 a.m. – 5:00 p.m.

**Working Group / Task Force Meetings** (open to members of ESIG)

Location: Stone Arch I/II and Stone Arch III/IV

8:00 - 9:15 a.m. **DER Working Group** ([download agenda](#))

9:15 - 9:45 a.m. **Aligning Retail Pricing and Grid Needs Task Force** ([download agenda](#))

9:15 - 10:45 a.m. **Research & Education Working Group** ([download agenda](#))

9:45 a.m. – 10:15 a.m.

**Break**

Location: Ballroom Foyer

10:15 - 10:45 a.m. **Aligning Retail Pricing and Grid Needs Task Force** ([download agenda](#))

10:45 a.m. - 12:00 p.m. **System Operation & Market Design Working Group**  
([download agenda](#))

12:00 p.m. – 1:00 p.m.

**Lunch**

Location: Ballroom Foyer

1:00 - 2:45 p.m. **Reliability Working Group** ([download agenda](#))

2:45 – 3:15 p.m.

**Break**

Location: Ballroom Foyer

3:15 - 5:00 p.m. **System Planning Working Group** ([download agenda](#))