



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

Gunnar Shaffer, Senior Power Systems Engineer, Southwest Power Pool

CAISO speaker, TBD

European view, TBD

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

Tony Rowan, Sr. Manager, Regional Operations, 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

Ryan Quint, Director, Engineering and Security Integration, 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

Compensation Mechanisms for Cost Recovery of Generation Resources: US/EU Market Comparison

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: **John Simonelli**, Managing Director, Flashover 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

Going Beyond Order 1000

Wayman Smith, Project 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](#))