



2022 SPRING TECHNICAL WORKSHOP

March 21-24, 2022

Loews Ventana Canyon Resort - Tucson, AZ

PROGRAM AGENDA

Monday, March 21, 2022

8:00 a.m. – 9:00 a.m.

Registration & Breakfast

Location: Kiva Patio

9:00 a.m. – 12:00 p.m.

Tutorial: Hydrogren - How can hydrogen-derived fuels ‘complete’ the energy transition and how will we integrate those into planning and operations?

Co-Chairs: **Aidan Tuohy**, EPRI & **William D’haeseleer**, KU Leuven (Belgium)

9:00 a.m. – 10:15 a.m.

Location: Kiva

Introduction to Session

Aidan Tuohy, Program Manager, EPRI

Introduction to Hydrogen

William D’haeseleer, Professor, KU Leuven (Belgium)

Q&A Session – 15 minutes

10:15 a.m. – 10:45 a.m.

Break

Location: Kiva Patio

10:45 a.m. – 12:00 p.m

Location: Kiva

Panel Discussion

Brittany Westlake, Senior Technical Leader, EPRI
(Technology Perspective)

Pierluigi Mancarella, Chair Professor, University of Melbourne (Australia)
(Electrical Engineering Perspective)

Elizabeth Endler, Principal Technology Advisor & Senior Principal Science Expert, Shell
(Industrial Perspective)

Q&A Session – 25 minutes

12:00 p.m. – 2:00 p.m.

Lunch

Location: Kiva Patio

2:00 p.m. – 5:00 p.m.

Introduction, Keynote Comments & Opening Plenary

Location: Kiva

Session Theme: A Swiftly Tilting Planet (Changing Landscape)

2:00 p.m. – 3:15 p.m.

Welcome

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

Keynote Comments: What's Been Happening and Where Are We Going?

Danielle Merfeld, Vice President & Chief Technology Officer, GE Renewable Energy

Meeting Overview

Charlie Smith, Executive Director, ESIG

3:15 p.m. – 3:45 p.m.

Break

Location: Kiva Patio

3:45 p.m. – 5:00 p.m.

Opening Plenary: System Disturbances and Renewable Energy

Chair: **Luke Robinson**, Manager Grid Performance & Integration, AEMO (Australia)

The Changing Impacts of System Disturbance Events

Tahir Kapetanovic, Head of National Control Center, Austrian Power Grid (Austria)

Chair of ENTSO-E System Operations Committee

DER Curtailment in South Australia

Callan Masters, Principal Engineer, AEMO (Australia)

Renewable Power Plants Interaction with Power Grid and Grid Code Practices in China

Yongning Chi, Chief Engineer of Renewable Energy Center of CEPRI (China)

Discussion – 30 minutes

5:00 p.m. – 5:30 p.m.

Annual Membership Meeting

Location: Kiva

Tuesday, March 22, 2022

8:00 a.m. – 9:00 a.m.

Registration & Breakfast

Location: Kiva Patio

9:00 a.m. – 12:30 p.m.

Session 1: Resource Adequacy

Location: Kiva

Session Theme: Responses to Texas weather events. The February events in Texas instigated a conversation. Industry is facing challenges in the area of Resource Adequacy. How is industry dealing with them? How do we plan for a modern grid?

*Session Keynote: **Commissioner Jimmy Glotfelty**, Public Utility Commission of Texas*

9:30 a.m. – 10:45 a.m.

Evolutions in Resource Adequacy

Chair: **Mark O'Malley**, Chief Scientist, ESIG

European-wide RA Study ERAA: Methodology

Ralph Pfeiffer, Head of National and European Grid Planning Processes, Amprion

RA Study of the West

Elaine Hart, Founding Principal, Moment Energy Insights

Characterization of Extreme Weather Events and Grid Impacts

Hannah Bloomfield, Research Associate - Climate Risk Analytics University of Bristol (United Kingdom)

Evolution of RA for a Decarbonized Future

Genevieve de Mijolla, Engineer / Scientist III, EPRI

Discussion – 15 minutes

10:45 a.m. – 11:15 a.m.

Break

Location: Kiva Patio

11:15 a.m. – 12:30 p.m.

Capacity Accreditation and Market Constructs

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

Delta Method for Assigning Capacity Credit to Resources

Nick Schlag, Partner, Energy & Environmental Economics (E3)

CPUC "Slice of Day" Method for Improving Their RA Approach

Peter Griffes, Chief, Comprehensive Market Design, Pacific Gas & Electric Co.

ISO/RTO ELCC Changes

Andrew Levitt, Sr. Market Strategist, PJM Interconnection

Discussion – 30 minutes

12:30 p.m. – 2:00 p.m.

Lunch

Location: Kiva Patio

2:00 p.m. – 5:30 p.m.

Session 2: Progress with Grid Forming Inverters

Location: Kiva

Session Theme: Exploration of what progress has been made in getting GFM equipment into the marketplace. Where are we? What remains to be done? What is the path forward?

Session Keynote: Some Practical Considerations Around IBR and the Transition to GFM Applications

Christian Schaefer, Executive Advisor – Power Systems, GHD, (Australia)

2:30 p.m. – 3:45 p.m.

Grid Forming Inverters – A Quickly Evolving Landscape

Chair: **Jason MacDowell**, Senior Technical Director, GE

ESIG GFM Whitepaper Overview

Julia Matevosyan, Chief Engineer, ESIG

Positive Sequence Generic Model for GFM

Deepak Ramasubramanian, Technical Leader, EPRI

WindVSM – A Grid Forming Wind Turbine Control

Vahan Gevorgian, Principal Engineer, NREL

Discussion – 30 minutes

3:45 p.m. – 4:15 p.m.

Break

Location: Kiva Patio

4:15 p.m. – 5:30 p.m.

Grid Forming Inverters – Some Practical Considerations

Chair, **Nick Miller**, HickoryLedge

National Grid ESO Update With GC0137 and Stability Pathfinder

Julian Leslie, Head of Networks and Chief Engineer, National Grid ESO (UK)

Grid-Forming Type 3 Wind Turbine – Design Considerations and Prototype Demonstration Results

Dustin Howard, Technical Director, GE Energy Consulting

Requirements for GFM STATCOMs and HVDC in Germany

Cornelius Heck, Team Leader, Stability Analysis and Large Projects, Strategic Grid Planning, 50Hertz Transmission GmbH (Germany)

Discussion – 30 minutes

6:00 p.m. – 8:30 p.m.

Board Meeting & Dinner

Location: Ventana Dining Room

Wednesday, March 23, 2022

8:00 a.m. – 9:00 a.m.

Breakfast

Location: Kiva Patio

9:00 a.m. – 12:30 p.m.

Session 3: Flexibility and Complexity – Storage, Hydro, & Operations

Location: Kiva

Session Theme: Dealing with a more complex set of planning and operational issues, ESI, and the never-ending search for flexibility.

Session Keynote: A Holistic View of Systems Integration

Antje Orths, Chief Engineer, Energinet (Denmark)

9:30 a.m. – 10:45 a.m.

Looking for Flexibility

Chair: **Aidan Tuohy**, Program Manager, EPRI

US DOE Study: Role and Value of Pumped Storage in High RE Penetration

Chrissy Bisceglia, Senior Engineer & Project Manager, GE Energy Consulting

Iron-air 100 Hour Battery: Technology, Applications and Business Case

Annie Baldwin, Director of Product Management, and **Scott Burger**, Sr. Manager of Analytics, Form Energy

Storage Modeling in Capacity Expansion Planning

Kai Van Horn, National Grid

Discussion – 30 minutes

10:45 a.m. – 11:15 a.m.

Break

Location: Kiva Patio

11:15 a.m. – 12:30 p.m.

Planning & Operations: A Few New Things to Consider

Chair: **Caitlin Murphy**, Senior Energy Policy Analyst, NREL

Coordinated G&T Planning

Miguel Ortega-Vazquez, Principal Technical Leader, EPRI

Probabilistic Methods in Operations

Will Hobbs, Southern Company

Impact of Thermal Plant Operational Flexibility on VRE Curtailment

Bethany Frew, Engineer, NREL

Discussion – 30 minutes

12:30 p.m. – 2:00 p.m.

Lunch

Location: Kiva Patio

2:00 p.m. – 5:30 p.m.

Session 4: Transmission and DER

Location: Kiva

Session Theme: The interconnection process is no longer working well. System events have occurred; queues are long; the process is not efficient for either developers or ISOs.

Session Keynote: Is the Interconnection Process Broken? What Do We Need to Do to Fix it? Can DER/DR Help?

Carlos Rodriguez, Senior Vice President, Interconnections and Grid Analysis, Invenergy

2:30 p.m. – 3:45 p.m.

Interconnection Processes: Symptom or Solution?

Chair: **Julia Matevosyan**, Chief Engineer, ESIG

NERC IRPWG Interconnection Process Reform Guideline

Jens Boemer, Principal Technical Leader, EPRI

RTO Perspective

Jennifer Swierczek, Supervisor, Generator Interconnection, Southwest Power Pool

OEM Perspective

Alex Shattuck, Lead Electrical Engineer, Vestas

Regulatory Perspective

Kelsey Bagot, Legal Advisor, FERC

Discussion – 15 minutes

3:45 p.m. – 4:15 p.m.

Break

Location: Kiva Patio

4:15 p.m. – 5:30 p.m.

Buildings as a Source of Grid Flexibility

Chair: **Obadiah Bartholomy**, Manager, Distributed Energy Resources, SMUD

Unlocking End-user Flexibility

Henrik Madsen, Professor, Technical University of Denmark

Planning Grid Flexibility into Buildings

Mark Frankel, Director of Policy and Innovation, Ecotope

Value of Building Load Flexibility

Andy Satchwell, LBNL

Discussion – 30 minutes

6:30 p.m. – 8:00 p.m.

Networking Reception

Location: Bill's Grill

Thursday, March 24, 2022

8:00 a.m. – 9:00 a.m.

Breakfast

Location: Kiva Patio

9:00 a.m. – 12:00 p.m.

Working Group Meetings

9:00 a.m. – 12:00 p.m.

Reliability Working Group

Location: Kiva A

Co-Chairs: **Jason MacDowell**, Senior Technical Director, GE; **Julia Matevosyan**, Chief Engineer, ESIG

9:00 a.m. – 10:30 a.m.

System Operation & Market Design Working Group

Location: Kiva B

Co-chairs: **Aidan Tuohy**, Program Manager, EPRI & **Erik Ela**, Principal, EPRI

10:30 a.m. – 12:00 p.m.

Joint System Operation & Market Design Working Group / Distributed Energy Resources Working Group Session

Location: Kiva B

12:00 p.m. – 1:30 p.m.

Lunch

Location: Kiva Patio

1:30 p.m. – 5:00 p.m.

Working Group Meetings

1:30 p.m. – 3:30 p.m.

System Planning Working Group

Location: Kiva A

Chair: **Aaron Bloom**, Senior Director, Regulatory Affairs, NextEra Energy Resources

1:30 p.m. – 2:30 p.m.

Distributed Energy Resources Working Group

Location: Kiva B

Chair: **Obadiah Bartholomy**, Manager, Distributed Energy Resources, SMUD

4:00 p.m. – 5:00 p.m.

Joint Meeting of All Working Groups

Location: Kiva A