



2024 SPRING TECHNICAL WORKSHOP

TUCSON, AZ

MARCH 25 - 28

Monday, March 25, 2024

7:00 – 8:00 a.m.

Registration & Breakfast

Location: Kiva Patio

8:00 a.m. – 12:00 p.m.

Tutorial: Electromagnetic Transient Analysis Simulation Tools

Location: Kiva A

Moderator: Julia Matevosyan, Chief Engineer, ESIG

Introduction & Industry Need

Julia Matevosyan, Chief Engineer, ESIG

Identification of Need for EMT Studies and EMT Study Scope

Lukas Unruh, Power System Studies Engineer, Electranix

Matthew Richwine, Founding Partner, Telos Energy

Data Intake and Organization

Lukas Unruh, Power System Studies Engineer, Electranix

Matthew Richwine, Founding Partner, Telos Energy

System Model Construction and Quality Assurance

Lukas Unruh, Power System Studies Engineer, Electranix

Matthew Richwine, Founding Partner, Telos Energy

10:15 – 10:30 a.m.

Break

Location: Kiva Patio

Simulations

Lukas Unruh, Power System Studies Engineer, Electranix

Analysis and Actions/Mitigations

Lukas Unruh, Power System Studies Engineer, Electranix

Matthew Richwine, Founding Partner, Telos Energy

Available Tools

Henry Gras, COO, EMTP

Aditya Ashok, Director – Energy Systems, OPAL-RT TECHNOLOGIES

12:15 – 1:15 p.m.

Lunch

Location: Kiva Patio

1:15 – 2:30 p.m.

Introduction & Keynote Comments

Location: Kiva A

Welcome

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

Keynote: *A New Paradigm for System Control*

Deepak Divan, Professor and Director of Center for Distributed Energy, Georgia Institute of Technology

Industry Overview

Charlie Smith, Executive Director, ESIG

2:30 – 3:00 p.m.

Break

Location: Kiva Patio

3:00 – 5:00 p.m.

Opening Plenary Session: Grid Forming Technology Applications

Location: Kiva A

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

GFM Technology and Project Specifications

Frank Berring, Head of Business Development, Large Scale, SMA America

Are All GFM Controls Created Equal? – Lessons Learned

Lukas Unruh, Power System Studies Engineer, Electranix

GFM BESS Project Development Experience and Future Plans

Amit Barnir, Vice President, US – Network Infrastructure, Zenobē

Integration of GFM Solutions for Compliance on Plant Level

Benjamin Braun, Principal Engineer Power Systems Control, Fluence (Germany)

6:00 – 8:30 p.m.

Board Meeting & Dinner (*only open to ESIG board members*)

Location: Executive Boardroom

Tuesday, March 26, 2024

7:00 – 8:00 a.m.

Registration & Breakfast

Location: Kiva Patio

8:00 – 9:45 a.m.

Session 2: Markets for Transmission

Location: Kiva A

Chair: **Aaron Bloom**, Executive Director Transmission, NextEra Energy

Interprovincial Planning in Canada
Madeleine McPherson, Assistant Professor, University of Victoria (Canada)

Regulatory Options for Improvement of Interregional Transmission Investment Signals
Joshua Macey, Assistant Professor, University of Chicago

Regional Transmission Planning Reforms
Matthew Christiansen, General Counsel, FERC

Large-scale Transmission Expansion: What's the Prognosis?
Ross Baldick, Professor, University of Texas at Austin

9:45 – 10:15 a.m.

Break

Location: Kiva Patio

10:15 a.m. – 12:00 p.m.

Session 3a: Transmission Expansion Studies

Location: Kiva A

Chair: **Juliet Homer**, Senior Energy Research Engineer/Analyst, PNNL

Context, Resource Adequacy and HOT Paths
David Palchak, Manager and Research Engineer, NREL

Economic Analysis: Benefit-cost of Portfolios and Regional Insights
Amy Rose, Energy Analyst, NREL

Zonal-to-nodal: National Transmission Plans and Production Cost Modeling
Jarrad Wright, Senior Researcher, NREL

System Security: AC Power Flow
Nader Samaan, Chief Engineer and Team Lead (Grid Analytics), Electricity Security Group, PNNL

10:15 a.m. – 12:00 p.m.

Session 3b: Grid Forming Technology Developments

Location: Kiva B

Chair: **Jason MacDowell**, Chief Systems Integration Officer, ESIG & GE Energy Consulting

BESS Applications – Project Examples, Grid Forming, and Augmentation
Prashant Kansal, Sr. Staff Power Systems Engineer, Tesla

Beyond Inertia Capabilities for Grid of the Future
Sam Maleki, Senior Principal Power Systems Engineer, Electric Power Engineers

Stabilize High-IBR Power Systems with Grid-Forming Inverters
Shuan Dong, Researcher, NREL

GFM Inverter Hardware Testing
Shahil Shah, Principal Engineer, NREL

12:00 – 12:20 p.m.

Annual Meeting

Location: Kiva A

12:00 – 1:15 p.m.

Lunch

Location: Kiva Patio

1:15 – 3:00 p.m.

Session 4A: Resilience

Location: Kiva A

Chair: **Warren Lasher**, President, Lasher Energy Consulting

Operational Impacts of Extreme Weather Events

Stephen George, Director, Operational Performance, Training & Integration, ISO New England

Extreme Events and Transmission Analysis in Probabilistic Modeling

Megan Pamperin, Strategic Assessments Engineer, MISO

Resilience and Transmission Task Force

Ryan Deyoe, Power Markets Specialist, Telos Energy

Forward Looking Extreme Weather Datasets

Casey Burleyson, Scientist, PNNL

1:15 – 3:00 p.m.

Session 4b: Virtual Power Plants

Location: Kiva B

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

VPP - Planning and Operating a Utility Asset

Angela Long, CEO, Rockcross Consulting

Dispatch of Residential Assets

Ed Gunn, Commercial Director, Lunar Energy (UK)

Cost and Value of VPPs

Ryan Hledik, Principal, The Brattle Group

Models for VPPs

Elaine Hale, Senior Research Engineer, NREL

3:00 – 3:30 p.m.

Break

Location: Kiva Patio

3:30 – 5:30 p.m.

Session 5a: Transmission Interconnection Process

Location: Kiva A

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

IBR Interconnection Requirements, Latest Developments

Julia Matevosyan, Chief Engineer, ESIG

GFM Battery Application for Weak Grid Conditions in the Chilean Power System

Henry Gras, Chief Operating Officer, EMTP (Canada)

Clean Repowering with Renewable and Storage Resources
Sarah Toth, Senior Associate, Rocky Mountain Institute

Grid Interconnection Process – Lessons from Australia
Jarman Stephens, Co-founder, gridmo (Australia)

i2X Transmission Roadmap
Cynthia Bothwell, Technology Manager/Grid Integration Engineer, Boston Government Services, contractor to US Dept. of Energy

3:30 – 5:30 p.m.

Session 5b: Resource Adequacy

Location: Kiva B

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

RA Metrics and Criteria

Derek Stenclik, Founding Partner, Telos Energy / ESIG RA Task Force Lead

European Resource Adequacy Assessment (ERAA) 2023 – Methodology and Results
Ralph Pfeiffer, Asset Management – Head of National and European Grid Planning Processes, Amprion GmbH (Germany)

Marlene Petz, System Development – Team Lead System Adequacy, Austrian Power Grid AG (Austria)

A Probabilistic Approach to Resource Adequacy Assessment

Anaisha Jaykumar, Reliability Engineer, SERC Reliability Corporation

Evolution of Probabilistic Modeling and Need for Revised Risk Metrics for Resource Adequacy
Durgesh Manjure, Sr. Director, Resource Adequacy Planning, MISO

A Comparison of Three Different Reserve Margin Methods in the Context of an Island System
Arne Olson, Senior Partner, Energy and Environmental Economics, Inc.

6:30 – 8:00 p.m.

Annual Awards/Networking Reception

Location: Ventana Heights Terrace

Wednesday, March 27, 2024

7:00 – 8:00 a.m.

Breakfast

Location: Kiva Patio

8:00 – 9:45 a.m.

Session 6: Price-based Demand Flexibility

Location: Kiva A

Chair: **Lisa Schwartz**, Sr. Policy Researcher and Strategic Advisor, LBNL

Real Time Pricing for Residential Customers

Peter Markussen, Managing Director, Energinet (Denmark)

Price-based Demand Response as a Resource in System Planning
Juan Pablo Carvalho, Research Scientist, LBNL

Price-Based Demand Flexibility
Jason Klotz, Sr. Manager Distribution Resource Planning, Strategy & Engagement,
Portland General Electric

PG&E CalFUSE Agricultural Flexible Irrigation Technology Dynamic Rate Pilot
Andrew Au, Manager, Rate Products, PG&E (invited)

9:45 – 10:15 a.m.

Break

Location: Kiva Patio

10:15 a.m. – 12:00 p.m.

Session 7a: System Planning

Location: Kiva A

Chair: **Leah Kaffine**, Director, Fundamentals, Pattern Energy Group

Integrated System Planning Process at Xcel Energy
Steve Martz, Vice President, Integrated Planning, Xcel Energy

ERCOT Reliability, Economic and Resiliency Planning
Prabu Gnanam, Director, Grid Planning, ERCOT

How Do the Answers Change if You Study 100% Clean Energy vs 100% Clean Electricity?
Jeremy Hargreaves, Principal, Evolved Energy Research

Value of Long Term Energy Storage
Carlo Brancucci, Co-founder & CEO, encoord

10:15 a.m. – 12:00 p.m.

Session 7b: DER

Location: Kiva B

Chair: **Josh Novacheck**, Transmission Planning Engineer, NextEra Energy Resources

Dynamic Operating Envelopes
Brendan Banfield, CEO, GRIDSIGHT (Australia)

Analyzing the Reliability of Distributed PV plus Storage
Juan Pablo Carvalho, Research Scientist, LBNL

Integrated System Planning with a DER Perspective
Greg Adams, Technical Executive Consultant, EPRI

Management of High DER Levels
Speaker TBD

12:00 – 1:15 p.m.

Lunch

Location: Kiva Patio

1:15 – 3:15 p.m.

Session 8a: System Oscillations

Location: Kiva A

Chair: **Mark O'Malley**, Leverhulme Professor of Power Systems, Imperial College London

A System Oscillation Reference Guide

Nick Miller, Principal, HickoryLedge

Damping System Oscillations with IBR Controls

Vahan Gevorgian, Chief Engineer, NREL

System Oscillation History in the GB System

Xiaoyao Zhou, Operability Policy Manager, Networks, National Grid ESO (UK)

Analysis of Oscillations in AEMO's West Murray Zone

Shahil Shah, Principal Engineer, NREL

Managing System Oscillations in the ERCOT System

Yunzi Cheng, Manager, Operations Stability Analysis, ERCOT

1:15 – 3:15 p.m.

Session 8b: EV Impacts on Electrification

Location: Kiva B

Chair: **Sean Morash**, Principal, Telos Energy

ESIG Grid Planning for Vehicle Electrification Task Force Report

Sean Morash, Principal, Telos Energy

Applications of AI to Managing EV Charging Loads

Mike Ting, Sr. Product Manager, Itron

Utility Planning for Distribution-Optimized Electric Vehicle Charging

Kyle Garton, Head of Product, WeaveGrid

Revolutionizing Grid Dynamics: Distributed AI for Electric Vehicles

YC Zhang, Vice President of Product Solutions, Utilidata

Turning EV Load into a Flexible System Resource

Nick Morelli, Expert Strategic Analyst, Pacific Gas & Electric

3:15 – 3:45 p.m.

Break

Location: Kiva Patio

3:45 – 5:45 p.m.

Closing Plenary Session: Plant Retirement Planning – A Panel Discussion

Location: Kiva A

Chair: **Paul Sotkiewicz**, President & Founder, E-Cubed Policy Associates

Framing the Discussion

Paul Sotkiewicz, President & Founder, E-Cubed Policy Associates

Solution: Keeping a Gas Plant Without Running It

Matt Schuerger, Consultant

Solution: Reliability Standards
Mark Olson, Manager, Reliability Assessments, NERC

Solution: Transmission Buildout and RMR Contracts
David Lapp, Maryland Office of People's Counsel

Solution: Storage
Paul Denholm, Sr. Energy Analyst, NREL

Solution: Demand Flexibility
Debbie Lew, Associate Director, ESIG

5:45 – 5:50 pm
Closing Comments
Charlie Smith, Executive Director, ESIG

Thursday, March 28, 2024

8:00 – 9:00 a.m.
Breakfast
Location: Kiva Patio

9:00 a.m. – 4:00 p.m.
Working Group Sessions

[\(Click here to download the full Working Group Sessions Schedule\)](#)