

OPTIMIZING THE INTERCONNECTION PROCESS FOR RENEWABLES & STORAGE

A National Interconnection Forum to Address Process & Technical Issues

February 17-18, 2021
Online | Central Time

“

Conference was very informative. It is encouraging to hear from others in the industry and their views for addressing DER challenges and solutions.” -

Senior Product Manager, Alliant Energy

EUCI ONLINE CONFERENCE

EUCI is pleased to offer this virtual conference on its online interactive platform. Enjoy a valuable learning experience with a smaller impact on your time and budget. You will gain new knowledge, skills, and hands-on experience from the convenience of your remote location.



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conference

OVERVIEW

The process for interconnecting new energy generation to the electric grid — both large scale (LGIP) and small scale (SGIP) — has become increasingly complex. Challenges remain to federal and state regulations and requirements; technical and regulatory issues facing owners of generation and transmission assets continue to evolve; and different motivations influencing the actors in the interconnection process often result in miscommunications and delays around prospective projects.

Even greater complexity is added to the interconnection process when considering renewable energy and battery storage resources. Wind, solar PV, and storage technologies are increasingly moving into mainstream use, with projects of all shapes and sizes proposed and in development requesting to be interconnected to the transmission and distribution grid. Due to the recent emergence of these types of resources in many parts of the country, the power industry is still very much in a ramp-up phase to understand their impacts on the electric grid. Thus, special consideration is required for renewable and battery projects during the interconnection process to ensure these resources are connected to the grid in an optimal way that maintains system stability and reliability. States with aggressive renewable and climate change goals are especially challenged, as they will be required to interconnect these types of projects and manage the operational aspects of a grid with increasingly high renewable penetrations.

The intent of this conference is to serve as a forum for the multiple entities involved in the interconnection process. Sessions will feature the perspectives of project developers, vertically-integrated utilities, transmission and distribution utilities, balancing authorities and system operators to share their expertise and discuss best practices for optimizing the interconnection process. The content will address both large and small generation projects, comparing the interconnection processes and experiences of different entities across the country, identifying the technical requirements of the interconnection process from start to finish, and evaluating potential regulatory and policy directions at the federal and state level.

LEARNING OUTCOMES

- Identify the latest interconnection regulatory changes and rulemakings in process on the state and FERC level
 - o Impacts of FERC Order No. 2222 on generation interconnection and DER integration planning – effects on interconnection processes in specific RTO markets
 - o Update on FERC 845 impacts and results so far on storage interconnection
- Review NERC updates on interconnection guideline requirements at both T&D levels:
 - o Technical requirements for bulk power system interconnection
 - o Preview of NERC's Battery Storage and Hybrid Plant Guideline (currently in development)
 - o DER aggregation and system planning – implications for distribution interconnection
- Evaluate how new technologies and a changing grid create new technical and operational challenges for interconnection
- Identify opportunities and developments for enhanced “hybrid” (i.e., solar + storage) interconnections
- Examine interconnection processes of utilities in different regions of the country and how they are managing increasing volumes of interconnection applications
- Evaluate interconnection case studies across regional jurisdictions and project requirements for generator interconnection for specific RTOs, ISOs, and PMAs
- Assess specific challenges for interconnecting grid-scale wind, solar and battery projects
- Assess specific challenges for interconnecting Distributed Energy Resources (DERs)
- Review the interconnection process from the perspective and experiences of:
 - o Investor-owned utilities in regulated and retail markets
 - o Renewable and storage project developers
 - o Independent System Operators (ISOs), Regional Transmission Organizations (RTOs), and Power Marketing Administrations (PMAs)
- Identify advanced modeling tools and techniques utilized by utilities and transmission owners leading the way in distributed energy resource (DER) and storage interconnection
- Review key issues that cause delays in utility interconnection timelines, and solutions for expediting scheduling without sacrificing safety and reliability
- Review a value proposition analysis for projects from an interconnection standpoint

AGENDA

WEDNESDAY, FEBRUARY 17, 2021 – CENTRAL TIME

8:45 – 9:00 am

Log In

9:00 – 10:30 am

Grid Interconnection: A Brief History, FERC Update, FERC Order 2222

- A brief history on policy/regulation re: interconnection to the electric grid
 - o Transmission-level vs. Distribution-level interconnections
 - o How did we get where we are today with the interconnection process and rules?
 - o Background/history of FERC standard interconnection agreements and procedures for generators
- Overview of the standard interconnection process and current related rulemakings
- Generator interconnection – what is the core guidance for interconnection, and why do we have that guidance?
- Commission-issued core guidance for interconnection:
 - o Standard large generator interconnection procedures (LGIP) and agreements (LGIA)
 - o Standard small generator interconnection procedures (SGIP) and agreements (SGIA)
- Regional variations from the commission-issued interconnection procedures and agreements & RTO/ISO reforms
- Update on FERC Order No. 2222
 - o Impacts on generation interconnection and DER integration planning
 - o Implications on future landscape of interconnection processes in specific RTO markets
- Recent FERC action on electric storage resources
 - o Update on FERC 845 impacts and results so far on storage interconnection

Myra Sinnott, Energy Industry Analyst – Commission's Office of Energy Policy and Innovation, FERC

10:30 – 10:45 am

Morning Break

10:45 am – 12:15 pm

The Developer Perspective: Renewable, Storage, & Hybrid Interconnection

This session will describe lessons learned and experiences with the interconnection process, hearing from the perspective of renewable project developers. The session will generally describe a renewable developer's process for interconnecting renewable and storage projects, and then discuss specific projects the developers have developed and interconnected in jurisdictions across the country. The session will also address:

- Interconnection case studies in traditional bilateral markets as well as in the grid-operated regions
- Benefits and challenges of serial vs. cluster processes throughout the US
- Developer recommendations for interconnection studies to properly reflect the technical properties and capabilities of storage + solar hybrid projects that have a power plant controller
- Tips for lining up the timing of PPA procurement and interconnection processes

Patrick Tan, Manager - Transmission & Interconnection, 8minutenergy

12:15 – 1:00 pm

Break for Lunch

AGENDA

WEDNESDAY, FEBRUARY 17, 2021 – CENTRAL TIME (CONTINUED)

1:00 – 2:00 pm

CAISO: Interconnection Process Overview, Innovations, and Interconnection Enhancements

The California Independent System Operator (CAISO) has one interconnection process for both large and small generators looking to interconnect to the grid. CAISO has been very active over the years in innovating and reforming their interconnection process to manage their queue more efficiently, be consistent with the pace of development of new transmission needed to ensure reliability, and to facilitate compliance with California's Renewable Portfolio Standard (RPS) of 50% by 2030. This session will provide an overview of CAISO's interconnection process for generators and discuss notable reforms they have undergone to better accommodate renewables, storage, and other new technologies coming onto the grid. It will also discuss:

- Impacts of FERC 845 and FERC 2222 on CAISO interconnection process
- Upcoming enhancements to the interconnection process
- New tariffs and upcoming tariff changes with some of the process enhancements

Linda Wright, Senior Interconnection Specialist – Interconnection Resources, California ISO (CAISO)

2:00 – 2:15 pm

Afternoon Break

2:15 – 3:30 pm

MISO: Interconnection Process Overview, Innovations, Initiatives & Updates

This session present MISO's interconnection process and will provide insights and updates regarding multiple initiatives and developments, discussing:

- Queue policies, procedures, deadlines and requirements
 - o Making requests and applying for interconnection
 - o Required and optional studies and analyses
 - o Interconnection agreements for a generator
- Percentages of specific technologies currently in MISO's queues (T&D)
- Overview of MISO's current focus areas:
 - o interconnection process improvement
 - o application process improvement
 - o studying hybrid project activity
- Update on MISO coordination with SPP, PJM & non-RTO jurisdictional systems
 - o Update on SPP joint study - impact to affected systems
 - o Impacts to traditional interconnection process with regional overlap
 - o Optimizing analysis and studies of effects to the system
- MISO's 2017 Queue Reform – results and successes so far
- Impacts of FERC 845 and FERC 2222 on MISO interconnection process
- Projection of future footprint of MISO's interconnection queue

Jesse Phillips, Manager – Resource Utilization Project Management, Midcontinent Independent System Operator (MISO)



“High quality of attendees and topics!”

Manager, Transmission & Interconnection,
8minutenergy



“Relevant - many important interconnection topics were addressed at this conference. EUCI always puts together a high quality conference with great amenities.”

Principal Engineer, TVA

AGENDA

WEDNESDAY, FEBRUARY 17, 2021 – CENTRAL TIME (CONTINUED)

3:30 – 5:00 pm

NERC Bulk Power System Update: Interconnection Requirements in Reliability Guideline & Update on Forthcoming Battery Storage and Hybrid Plant Guidelines

This session will discuss the North American Electric Reliability Corporation (NERC) work relevant to reliability as it pertains to bulk power system interconnection, addressing:

- Preview of NERC’s forthcoming ‘Battery Storage and Hybrid Plant Guidelines’: addressing best practices for interconnection practices for enhanced system reliability
- Update on NERC’s Reliability Guideline on recommended practices for transmission service providers to improve their interconnection requirements to support implementation of NERC Reliability Standards FAC-001-3 and FAC-002-2.
 - o The guideline focuses specifically on bulk power system-connected inverter-based resources and how interconnection requirements should be updated to ensure clarity and consistency for those resources. The guideline focuses on the performance of inverter-based resources, monitoring capabilities, modeling, and study approaches

Ryan Quint, Senior Manager - BPS Security and Grid Transformation, NERC

5:00 pm

Program Adjourns for the Day

THURSDAY, FEBRUARY 18, 2021- CENTRAL TIME

8:45 – 9:00 am

Log In

9:00 – 9:45 am

Puget Sound Energy (PSE): Interconnection Process to the T&D Grid and Adapting to the Changing Interconnection Landscape

- Overview of Puget Sound Energy (PSE) interconnection process
 - o Making requests and applying for interconnection
 - o Required and optional studies and analyses
 - o Interconnection agreements for a generator
- Open Access Transmission Tariff (OATT) Scheduling Challenges
- Break down of specific technologies in the queue
- Operational and management initiatives to accommodate increasing requests for rooftop solar & energy storage

Laura Hatfield, Contract Manager, Transmission Policy & Contracts, Puget Sound Energy (invited)



“Enjoyable conference with relevant and timely information and great networking opportunities”

Principal Engineer, Salt River Project



“Really well-run conference with great variety of experts who are engaging and well versed on topic. Great way to meet professionals in your field.”

Engineer, Lincoln Clean Energy, LLC

AGENDA

THURSDAY, FEBRUARY 18, 2021- CENTRAL TIME (CONTINUED)

9:45 – 10:30 am

Southern California Edison: Optimizing Interconnections to the Distribution Grid - Solar PV, Storage & DERs

- Overview of Southern California Edison (SCE) interconnection process
- Break down of specific technologies in the queue
- Optimizing technical studies for resource interconnection to the distribution grid
- DER criteria and operations — considerations for utilities that are reaching higher DER penetration levels
- Evaluation and management for interconnection of specific technologies:
 - o Solar PV
 - o Storage
 - o Solar + Storage/hybrid projects
 - o Microgrids
 - o Electric vehicles (EVs)
- Grid connected storage:
 - o Front of the meter vs. behind the meter
 - o Benefits and challenges
 - o Improving the processes and standards for energy storage interconnection
 - o Optimizing grid-connected battery storage to enhance renewable energy performance
 - o Interactions between net metering and storage systems
 - o Compensation for providing ancillary services
- Harnessing smart inverters
- Contractual considerations for interconnection projects based on reliability considerations

Nathan Smith, Senior Advisor – Grid Interconnection & Contract Development, Southern California Edison

10:30 – 10:45 am

Morning Break

10:45 am – 12:00 pm

NERC System Planning Impacts from Distributed Energy Resources Working Group (SPIDERWG)

The purpose of the System Planning Impacts from Distributed Energy Resources Working Group (SPIDERWG) at NERC is to address aspects of key points of interest related to system planning, modeling, and reliability impacts to the bulk power system (BPS). This session will present:

- NERC's work on system planning as it relates to distribution grid operations, specifically related to aggregating impacts of DERs on the BPS to enhance grid performance and behavior
- Update on guideline focus areas related to telemetry reading, verification & modeling
- NERC's perspective on FERC Order. 2222: impacts for DER interconnection and how they play into various markets

John Skeath, Engineer – Advanced System Analytics and Modeling, NERC

12:00 pm

Program Adjourns



“All very good presentations with lots of updated info to optimize and understand challenges and opportunities.”

Contract Manager – Interconnection, HECO

INSTRUCTIONAL METHODS

Case Studies, Panel Discussions and PowerPoint presentations will be used in the program.

IACET CREDITS



EUCI has been accredited as an Authorized Provider by the International Association for Continuing Education and Training (IACET). In obtaining this accreditation, EUCI has demonstrated that it complies with the ANSI/IACET Standard which is recognized internationally as a standard of good practice. As a result of their Authorized Provider status, EUCI is authorized to offer IACET CEUs for its programs that qualify under the ANSI/IACET Standard.

EUCI is authorized by IACET to offer 1.0 CEUs conference

REQUIREMENTS FOR SUCCESSFUL COMPLETION

Participants must login for the entirety of conference to be eligible for continuing education credit.

ONLINE COURSE DELIVERY & PARTICIPATION DETAILS

EUCI is pleased to offer this virtual course on its online interactive platform. Enjoy a valuable learning experience with a smaller impact on your time and budget. You will gain new knowledge, skills, and hands-on experience from the convenience of your remote location.

We will be using Microsoft Teams to facilitate your participation in the upcoming event. You do not need to have an existing Teams account in order to participate in the broadcast – the course will play in your browser and you will have the option of using a microphone to speak with the room and ask questions, or type any questions in via the chat window and our on-line administrator will relay your question to the instructor.

You will receive a meeting invitation that will include a link to join the meeting.

Separate meeting invitations will be sent for the morning and afternoon sessions of the course. You will need to join the appropriate meeting at the appropriate time.

If you are using a microphone, please ensure that it is muted until such time as you need to ask a question.

The remote meeting connection will be open approximately 30 minutes before the start of the course. We encourage you to connect as early as possible in case you experience any unforeseen problems.

To Register Click Here, or

Mail Directly To:

PMA Conference Management
405 Highview Rd
Englewood NJ 07631
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ONLINE DELIVERY & PARTICIPATION DETAILS

EUCI will use Microsoft Teams to facilitate participation in the upcoming event. Attendees do not need to have an existing Teams account to participate in the broadcast. The course will play in attendee's browser. When attendees sign on, their microphones are typically muted. Attendees should keep their mic muted until such time as it's needed to ask a question. During the event, participants will have the option of using a microphone to speak with the room and ask questions, or type in any questions via the chat window and our online administrator will relay your question to the instructor.

- Each attendee will receive an event invitation by e-mail, which will include one link to sign on for each half-day of the event (i.e., three links for a 1 ½ day event). The appropriate link must be used to join each half-day event segment at the appropriate time.
- The remote meeting connection will open approximately 30 minutes before the start of the course. We encourage attendees to connect as early as possible in case of unforeseen problems.

OPTIMIZING THE INTERCONNECTION PROCESS FOR RENEWABLES & STORAGE ONLINE CONFERENCE

FEBRUARY 17-18, 2021: US \$1195 (Single Connection)

PACK OF 5 CONNECTIONS: US \$ 4,780 (20% Discount)

PACK OF 10 CONNECTIONS: US \$8,365 (30% Discount)

PACK OF 20 CONNECTIONS: US \$14,340 (40% Discount)

Recording: Each event is recorded, and will be available for three business days. For registrants only.

How did you hear about this event? (direct e-mail, colleague, speaker(s), etc.)

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OR Enclosed is a check for \$ _____ to cover _____ registrations.

Substitutions & Cancellations

Your registration may be transferred to a member of your organization up to 24 hours in advance of the event. Cancellations must be received on or before January 15, 2021 in order to be refunded and will be subject to a US \$195.00 processing fee per registrant. No refunds will be made after this date. Cancellations received after this date will create a credit of the tuition (less processing fee) good toward any other EUCI event. This credit will be good for six months from the cancellation date. In the event of non-attendance, all registration fees will be forfeited. In case of course cancellation, EUCI's liability is limited to refund of the event registration fee only. For more information regarding administrative policies, such as complaints and refunds, please contact our offices a EUCI reserves the right to alter this program without prior notice.