

DER Report For NYSRC Executive Committee Meeting 11/13/20

Contact: Matt Koenig (koenigm@coned.com)

The November edition of the Distributed Energy Resources (DER) Report provides highlights of presentations from recent Technical Meetings, Webinars and Forums, including:

- The NYSERDA / DPS Technical Conference
- CIGRE Academy Webinar on High Penetration of Inverter Based Generation
- NPCC DER Forum
- NYS DPS – ITWG Meeting
- Upcoming webinars and tutorials

The NYSERDA / DPS Technical Conference was held on October 9th (part of [Case Number 20-E-0197](#)). A [link](#) to download the presentations can be found on the Case Summary page. The agenda included a significant presentation by Zach Smith entitled *Planning for a Grid in Transition*, along with presentations from utilities and developers covering these topical areas:

- Transmission Line Design
- Dynamic Line Rating & Power Flow Control
- Modeling and Control Software

The CIGRE Academy Webinar on Impact of High Penetration of Inverter-Based Generation on System Inertia of Networks was given on October 14th. The presentations below can be found at this [link](#).

- Fundamentals of Frequency Control & Impacts from High Share of Inverter-Based Resources
- Inertia Monitoring and Estimation, Review of International Practices
- Procurement of Inertial Products, Example of Great Britain and Ireland
- Fast Frequency Response around the World, Review of International Practices
- Inertia and Frequency Control by Generation Technologies
- Inertia and Frequency Control by Load Resources
- Methodology to Determine Amounts of Frequency Containment Reserve, Example of ERCOT

The NPCC DER Forum was held on October 15th. The agenda can be found at this [link](#). The latest DRAFT of the NPCC DER Guidance document on Considerations to Optimize and Enhance System Resilience and Reliability, along with all of the event presentations can be found starting on slide 46 of this [link](#). Topics include:

- DER Approach to Regional Guidance and DER Impact Reporting
- NY-ISO: DER Aggregation, Roadmap and Interconnection
- NYSRC: High Renewables Capacity Study
- HQ: Dynamic and Transient Behavior of Inverters used in Solar Residential Projects
- ISO-NE: DER Interconnection and Aggregation
- EPRI: Effective Grounding of DER
- National Grid/TFSP: Substation Protection issues associated with DER
- FERC Order 2222 relating to Participation DER Aggregation in Markets in ISOs and RTOs

At the NYS DPS - ITWG Meeting on October 29th, EPRI provided a [Technical Update](#) on a project performed for NYSERDA on Neutral Grounding for Inverter Connected DER. The presentation highlights concerns for inverter impacts and vulnerabilities associated with issues related to imbalances, over-voltages, load suppression and typical power grid configurations.

Upcoming Events and Available Tutorial:

On November 17th and 19th, EPRI will present a 2-day tutorial on Inverter Fundamentals and Grid Support Functions (available only to EPRI Members who support Program P174). Registration can be found at this [link](#) (member login required). The goals of the session include:

- Comprehend the challenges of higher penetration of DER, especially variable generation source like solar PV; Recognize different PV and ES system topologies, inverter choices, and control strategies.
- Understand different grid support capabilities that advanced inverters can support; Acknowledge the importance, setting options, and potential impacts of each function.
- Identify the major changes made recently in the IEEE 1547-2018 DER Interconnection standard and other grid codes like CA Rule 21 and HA 14H.

On November 19, 2020 at 2:00 pm, there will be a joint NERC / NATF / EPRI Power System Modeling Webinar ([Join the Meeting](#)) on topics related to power system modeling and system analysis. Note that this meeting is not related to the previous tutorial. Topics include:

- Latest activities related to bulk power system-connected inverter-based resources and aggregate impacts of distributed energy resources (NERC SPIDERWG and NERC IRPTF).
- High priority modeling issues facing transmission planners and upcoming changes to NERC.
- Reliability Standards in 2021 & 2022 that will impact Planning Coordinators and Transmission Planners.
- Latest research updates from EPRI related to transmission planning practices.
- Summary of IEEE topics – IEEE P2800, IEEE 1547-2018.

A publicly available [EPRI tutorial on Grid Forming Inverters](#) from October can be downloaded [here](#). This tutorial complements the research performed in the Smart Inverters and Grid Supportive Technologies (P174B) project associated with EPRI's DER Integration (P174) program. Non-members will have to provide name and company to access the file.