

DER Report For NYSRC Executive Committee Meeting 12/4/20

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The December edition of the Distributed Energy Resources (DER) Report provides highlights of recently published documents by FERC, NERC SPIDERWG, NPCC, NYISO and EPRI. In addition, the recent PSC Technical Conference covering Offshore Wind and the Zero Emission Grid is covered in greater detail. The topics are covered in the following order:

- NERC White Paper - Assessment of DER impacts on TPL001 Reliability Standard
- NPCC DER Guidance Document final version approved and released
- NY PSC Technical Conference Covering Impacts of Offshore Wind and Zero Emission Grid
- NYISO Guide on Zero Emissions Grid by 2040
- FERC Issues Proposed Rulemaking on Transmission Line Ratings
- Publicly Available EPRI Reports on DER impacts, DER based inverter support for transmission, and Non-Wires Alternatives

A NERC White Paper entitled *Assessment of DER Impacts on NERC Reliability Standard TPL001* was published by the SPIDER working group on November 5th. The [white paper](#) contains an in-depth review for each of TPL requirements, and evaluates the impacts of DER on these requirements based on the following concerns:

- Is the requirement relevant for consideration of DER?
- Does the existing requirement language preclude consideration of DER in any way?
- Is the requirement language clear regarding consideration of DER?

The intent of the white paper is to highlight potential gaps or areas for improvement within TPL-001 along with some potential solutions such that a SAR (Standard Authorization Request) can be developed (as needed) to address various issues by an SDT (Standard Drafting Team). For each requirement, the report provides targeted review findings along with supplemental discussions.

The Final Version of the NPCC DER Guidance Document was approved and published by their Regional Standards Committee on November 20th, and can be found at this [link](#). The official announcement can be found [here](#), and additional comments from stakeholders can be found [here](#).

The second edition of the document includes:

- Closer alignment with the activities of the NERC System Planning Impacts of DER WG (“SPIDERWG”) to avoid duplication and promote delineation of activities and scope.
- Identification of State and Provincial Regulatory Carbon emission-related objectives and links to pertinent local requirements.
- Emphasis on the significance of working with Authorities Governing Interconnection Requests (AGIR) to align with IEEE-1547-2018.
- Addition of an Appendix describing an “Autonomous Energy Grid”
- The Energy Storage section has been expanded to identify benefits associated with Hybrid resources where control of energy production and storage is controlled behind the point of interconnection
- Additional 26 recommendations for further consideration
- Additional references and helpful links to NERC and industry pertinent to DER.

PSC Technical Conference Covering Impacts of Offshore Wind and Zero Emission Grid

On November 23, the PSC held a Technical Conference to present the preliminary results of studies being conducted by DPS, NYSEDA, and the New York utilities pursuant to the Accelerated Renewable Energy Growth and Community Benefit Act. All of the material related to the meeting can be found at the PSC's website under [Case 20-E-0197](#). Note that some of the direct links below may not resolve on your browser.

The agenda can be found [here](#). The cover letter and slides for the six presentations below can be found [here](#):

• Onshore Assessment	PowerGEM	Page 7	
• Initial Offshore Assessment	DNV GL	Page 43	
• Cable Route Environment & Permitting	WSP	Page 46	
• Detailed Offshore Assessment	DNV GL	Page 57	
• Utilities Local Transmission Studies	T&D Inv Wkg Grp	Page 76	Link to Full Report
• Zero Emission Grid in NY by 2040	Siemens	Page 117	

Pertinent conclusions from the Siemens study indicate that:

- New York can achieve its 70 x 30 and zero emission generation by 2040 goals with a mix of distributed energy, energy efficiency measures, energy storage, planned transmission projects, utility-scale renewables, and zero emission resources.
- Energy storage will be needed to store excess solar and wind energy so that this energy may be utilized during evening peak hours. Energy storage will contribute to the maintenance of locational planning reserve margins.
- Regarding 2030, the addition of the Western NY, AC Transmission, Northern NY and NYC Tx projects support achievement of the 70% renewable goal with very low levels of bulk system curtailment (0.1%) and congestion.
 - Significant additional upgrades are likely necessary at the local transmission levels
 - Impact on the downstate system associated with injecting 6 GW of offshore wind by 2030 requires additional research
- In 2040, while achieving the zero-emissions generation goal:
 - Even assuming local transmission constraints are alleviated, a modest level of state-wide curtailment is observed (1.5%) and significant bulk congestion is identified.
 - Land-based wind had the highest levels of curtailment (4.5%), particularly in central NY (8.7%).
 - Illustrative bulk system upgrade projects were found to be effective in significantly reducing potential upstate curtailment and relieving bulk congestion, but additional research is needed.

NYISO Issues Guide on Zero Emissions Grid by 2040

The NYISO published a [Guide](#) entitled *Achieving a Reliable Zero-Emissions Grid by 2040 (A Guide for the Climate Action Council)* on November 19th. This Guide highlights various strategies to achieve the CLCPA target of 100% carbon-free electricity by 2040, including targets for offshore wind, energy storage and solar. A major portion of the document focuses on carbon pricing, defining the concepts and looking to make a case for its establishment in the state's wholesale electricity market.

Supporting documents that are referenced in the guide include:

- 2020 Climate Change Impact Study [Link](#)
- 2020 Reliability Needs Assessment [Link](#)
- Congestion Assessment and Resource Integration Study (CARIS) [Link](#)
- Role of Carbon Price in NYISO Wholesale Electricity Markets [Link](#)
- Draft Carbon Pricing Proposal from 2018 [Link](#)

FERC Issues Notice of Proposed Rulemaking on Transmission Line Ratings

On November 19, FERC issued a Notice of Proposed Rulemaking (NOPR), aimed at improving the accuracy and transparency of transmission line ratings, which are used to define maximum transfer capability. The Staff Presentation can be found [here](#). The NOPR can be found at the FERC website under Docket # [RM20-16-000](#).

The NOPR proposes to use ambient-adjusted ratings (or AARs) or dynamic line ratings (or DLRs) AARs incorporate near-term forecasted ambient air temperatures, while Dynamic line ratings can use additional factors such as wind, cloud cover, solar irradiance intensity, precipitation, and transmission line sensor for load, tension or sag.

The use of AARs or DLRs would typically increase ratings, leading to greater utilization of transmission equipment, improved reliability, and reduced costs. However, it should also be noted that AARs and DLRs may yield ratings that are at times less than those currently used for seasonal or static ratings, thereby reducing transfer capabilities and equipment utilization from present levels.

The NOPR would require transmission providers to develop and implement AARs or DLRs through 4 initiatives:

- Transmission providers to implement ambient-adjusted ratings (AARs) and seasonal line ratings on their transmission. AARs would be used for near-term service requests, and seasonal ratings for evaluating longer-term requests.
- RTOs and ISOs to establish systems and procedures for transmission owners to update transmission line ratings at least hourly
- Transmission owners / providers to share transmission line ratings and methodologies with RTOs/ISOs,
- Transmission providers to use unique emergency ratings

Publicly Available EPRI Reports:

A New Operation Paradigm for a Bulk Power System with Very High Levels of Inverter Based Resources [Link](#)

This white paper investigates whether IBRs should conform to slower operational paradigms of synchronous machine operation or utilize their inherently faster response characteristics to obtain superior frequency control. Several simulation results are included to support this new operational paradigm while additional open research questions are also noted.

Can Smart Inverters on the Distribution Circuit Provide Transmission Voltage Support? [EPRI](#) or [NationalGrid](#)

EPRI worked with National Grid to perform a technical analysis on two distribution feeders in Massachusetts, to determine whether DER inverters could absorb enough reactive power to reduce nearby transmission system over-voltages. This study included a cost-benefit analysis comparing a DER-based solution against traditional options such as shunt reactors.

Integrating Non-Wires Alternatives into Utility Planning: 2020 EPRI Research Guide [Link](#)

The rising popularity of NWA solutions is due to technological advancements, falling DER technology costs, and supportive regulatory directives. But while NWAs present opportunities for distribution and transmission planners, they have a significant impact on the complexity of the planning process, and pose new challenges to associated analytics, tools, and business processes.

Energy Storage Executive Briefing – Industry Trends and EPRI Research Summary [link](#) (must be member)

This highly recommended presentation is available only to NYSRC members whose companies are EPRI members participating in the Energy Storage program. It provides a comprehensive summary on the state of Energy Storage efforts in four focus areas: Regulatory and Market Insights, Business Models and Case Studies, Technology, and Energy Storage Research priorities. The EPRI Energy Storage roadmap provides examples associated in 5 topical areas: Safety, Reliability, Economics, Environment, and Innovation.