

Via electronic submission

December 21, 2023

Mr. Herbert Schraysheuen, Secretary  
New York State Reliability Council

**RE: Ørsted comments on revised NYSRC PRR 151: Establish minimum interconnection standards for Large Inverter Based Resources Generating Facilities based on IEEE Standard 2800-2022**

Dear Mr. Schrayshuen,

**I. Introduction**

Please accept the following comments in response to the New York Reliability Council’s (NYRC) revised PRR 151: Establish minimum interconnection standards for Large Inverter Based Resources (IBR) Generating Facilities based on IEEE Standard 2800-2022. Ørsted appreciates the desire and need to have uniform technical minimum requirements for the interconnection, capability, and lifetime performance of IBRs connecting to the transmission (and sub-transmission) system. We submitted comments in response to the PRR 151 original proposal on April 27, 2023. The NYRC posted a revised PRR 151 on November 16, 2023. Ørsted offers the following comments on the revised proposal. Specifically, changes are needed to the revised proposal to accommodate evolving technologies. This includes the need for a good cause exemption; the ability for IBR developers to self-attest to models with the best available data; and a recognition that IBR developers will not be able to self-attest to all elements of IEEE 2800-2022.

**II. Comments**

**A. The NYSRC should include a “good cause” exemption as part of the final PRR 151 as the drafters of IEEE 2800 envisioned.**

A good cause exemption from compliance is needed as some technologies used by IBR developers may not be able to demonstrate conformance with IEEE 2800. The standard itself plainly recognizes this fact. IEEE 2800 1.4 General Remarks and Limitations the standard provides:

“It is not the intent of this standard to limit the adoption of emerging use cases of synchronous machines, for example, the use of a synchronous condenser as a supplemental IBR device to improve the ride-through capability of an IBR plant under extreme contingency conditions. At the time of writing of this standard, neither design details, test data, nor technical literature is available to confirm that these emerging use cases (i.e., synchronous condenser as a

supplemental IBR device) will be able to meet all specified requirements of this standard, unless the synchronous condenser exceeds applicable equipment standards, for example, IEEE Std C50.12™ [B60], IEEE Std C50.13 [B61], and IEC 60034-3 [B30] for synchronous machines, including synchronous condensers, and ANSI/NEMA MG-1 [B4] for motors and generators. Due consideration should be given to the benefits and risks of the emerging use cases of synchronous machines in deciding which IBR plant requirements of this standard should be adopted and which may be exempted. This should be done in coordination between IBR owner and TS owner/TS operator not later than the IBR plant design evaluation where capabilities and performance of a synchronous condenser are adequately considered.”

Ørsted notes that at the time the IEEE 2800 standards were under development, it was unclear if grid forming (GFM) technologies would comply with these standards.<sup>1</sup> Hence, a good cause exemption would allow deployment of new technologies, like GFM battery energy storage systems, that provide multiple benefits to the grid. Therefore, Ørsted recommends that the NYRC amend PRR 151 to clearly establish a “good cause” exemption provision. Under such a provision, IBR developers who incorporate new technologies would qualify for a good cause exemption and would not need to demonstrate conformance with IEEE 2800.

**B. PRR 151 should recognize that any self-attestation of IBR plant models needs to be based on the best data available to the IBR plant developer at that point in time.**

If an IBR plant developer needs to provide self-attestation to IBR plant models, the IBR plant developers should be allowed to provide the best information/model/data they have at that point in time. This is due to the fact that for some technologies, a final IBR plant model will not be available until fairly late in the interconnection process. This is especially true for HVDC equipment, where IBR site-specific equipment models are not finalized until tuning has been completed near the time of commercial operation. Ørsted recommends that any self-attestation requirements should be based on the best available information an IBR plant developer has from the original equipment manufacturer and the NYISO/Transmission Owner and not on final models.

**C. Absent EMT models IBR plant developers are not able to test to portions of IEEE 2800 and PRR 151 should recognize and codify these elements.**

Without adequate representation of the grid for EMT studies IBR plant developer cannot attest to sub-sections of Clause 7 in IEEE 2800. Specifically, without EMT study (as stated by NYSRC in PRR 151, Nov 2023 revision “EMT models and studies are not required by this PRR but may be required by the as-built requirements, to be covered in future PRRs.”) and

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<sup>1</sup> See: [https://www.nerc.com/comm/RSTC\\_Reliability\\_Guidelines/White\\_Paper\\_GFM\\_Functional\\_Specificati on.pdf](https://www.nerc.com/comm/RSTC_Reliability_Guidelines/White_Paper_GFM_Functional_Specificati on.pdf)

appropriate grid/transmission system models, self-attestation cannot be done for IBR plant performance referring to the following in Clause 7 of IEEE 2800:

- unbalanced faults;
- negative sequence current injection;
- those sub-clauses that require three phase representation (including PLL response, weak grid fault response, transient overvoltage ride through -Table 14).

IBR plant developers are unable to self-attest to these portions because even assuming accurate models are available from the original equipment manufactures, changes to the grid topology may occur that preclude the IBR plant developers from having a full understanding the grid. This does not allow an IBR plant developer to self-attest. If the IBR plant is not designed to meet these requirements, then complying with these requirements after the plant is built is not cost efficient as it may require expensive hardware and IBR unit retrofits. If NYSRC chooses to not require EMT studies in this round of PRR 151 adoption, then they should not mandate compliance for these requirements retrospectively (i.e., after NYISO accepts the IBR plant design and interconnection studies are complete).

### **III. Conclusion**

Ørsted appreciates the efforts of the NYRC to maintain reliability in the NYCA. We recognize that standards like IEEE 2800 will have an important role in the grid of the future and we look forward to continued dialog with the NYRC and NYISO on how PRR 151 can improve system reliability. We intend that the comments provide herein assist the NYRC. Ørsted is concerned that without additional clarifications, there is a potential for unintended consequences that will delay the adoption of IBRs and endanger both reliability and New York's ability to meet its clean energy and climate requirements as articulated in the Climate Leadership and Community Protection Act. We urge the NYRC to address compliance and verification at an appropriate time in the future when those portions of the standards are available.

Respectfully submitted,  
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