UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION

Reliability Standards for Frequency and Voltage Protection Settings and Ride-Through for Inverter-Based Resources	)	Docket No. RM25-3-000

COMMENTS OF THE LONG ISLAND POWER AUTHORITY

I. INTRODUCTION

Pursuant to the Commission's December 19, 2024 Notice of Proposed Rulemaking entitled "Reliability Standards for Frequency and Voltage Protection Settings and Ride-Through for Inverter-Based Resources (the "NOPR")[1], the Long Island Power Authority ("LIPA") submits the following comments on proposed Reliability Standard PRC-029-1 (Frequency and Voltage Ride-Through Requirements for Inverter-Based Resources ["IBRs"]).[2]

NERC-registered entities' IBRs would be subject to ride-through requirements in proposed Reliability Standard PRC-029-1. The Commission states the proposed "Ride-Through Requirements . . . should strengthen the reliability of the Bulk-Power System by ensuring that IBRs are designed and operated to remain connected to the Bulk-Power system and continue to inject real and/or reactive current during system disturbances."[3]

LIPA has made extensive investments over the years to strengthen and improve the reliability and resiliency of its electric system. LIPA supports the Commission's efforts to

[1] Docket No. RM25-3-000, *Reliability Standards for Frequency and Voltage Protection Settings and Ride-Through for Inverter-Based Resources*, Notice of Proposed Rulemaking, 189 FERC ¶ 61,212 (2024) hereinafter "NOPR."

[2] LIPA is a member of the New York State Reliability Council and supports the *Comments of the New York State Reliability Council in Response to Proposed NERC Standard PRC-029-1* filed in this docket.

[3] NOPR at P 32.

strengthen the reliability of the Bulk-Power System. However, as explained below, mandatory and absolute "ride-through" requirements as specified in the proposed Reliability Standard could have the opposite effect and could result in adverse impacts on bulk power system security. In addition, impractical requirements imposed on IBR plants already in the late stages of development can adversely impact security by delaying system resources needed to meet capacity requirements.

II. COMMENTS

LIPA submits the following comments for consideration by the Commission in issuing its Final Rule in this proceeding.

A. Requirements for ride-through should be contingent on the post-event status and configuration of the power system, as determined by the respective Transmission Planner, Transmission Operator, Transmission Owner or Planning Coordinator.

Not all electric systems are the same and an absolute ride-through standard may not be appropriate in all situations and could lead to unintended consequences and lessen reliability. For example, transmission system faults are the usual cause of severe low-voltage conditions that NERC PRC-029-1 addresses. To eliminate such faults, circuit breakers are opened on the faulted transmission line, transformer, or generator, removing the affected circuit branch or source from the system. This removal inherently weakens the transmission system and reduces the transmission system short-circuit capacity at the Point of Measure of any IBR in the vicinity of the fault.

IBR plants, like conventional synchronous generators, require minimum levels of system strength to maintain stable operation. Additionally, power flow exceeding a weakened transmission system's capacity can also result in voltage collapse or circuit overload. Collapsing voltage, excessive power flow and circuit overload, or various forms of instability, among other conditions, can occur following a fault. IBR ride-through can either help mitigate or exacerbate system issues caused by a fault. For example, in certain situations continued power injection of

an IBR during or following a fault can result in system instability, whereas curtailment of power for such events, as specified by the Transmission Planner, would allow stable operation of the transmission system. The absolute ride-through requirements of PRC-029-1 do not allow the Transmission Planner to specify Remedial Action Schemes without causing the IBR plant to be non-compliant with the Standard. Therefore, the benefit of IBR plant ride-through to bulk system security would be situationally dependent.

In the interconnection review process, LIPA verifies that IBR plants can successfully ride-through, and recover to full power from fault contingencies that are within normal planning criteria. A remote potential exists, however, for contingencies to occur that are more extreme than the planning criteria. For example, transmission system protection can remove multiple transmission circuits simultaneously and by design can "weaken" the transmission system. Under such circumstances, full-power operation of certain generating resources, including IBR plants, can lead to system instability.

NERC Reliability Standard PRC-029-1 provides no specific exception, based on post-event system conditions, from its requirement that IBR plants make full recovery to 100% of pre-disturbance power from a low-voltage event within the voltage and duration criteria specified in the standard. An "absolute" low-voltage ride-through requirement does not make allowances for situations where IBR plant ride-through and recovery to pre-fault power could adversely affect bulk system security. IEEE Standard 2800-2022 states that the Transmission System Owner or Transmission System Operator should specify reasonable system conditions to which that standard's requirements, including ride-through, apply.[4] The Commission should direct NERC to clarify that similar flexibility is provided by PRC-029-1 to Transmission System Owners,

[4] IEEE Std 2800-2022, *IEEE Standard for Interconnection and Interoperability of Inverter-Based Resources (IBRs) Interconnecting with Associated Transmission Electric Power Systems*, published Apr. 22, 2022, at Clause 7.2.2.4

Transmission System Operators, Transmission Planners or Planning Coordinators to grant exemptions from ride-through requirements or to permit recovery of power to a curtailed level for certain specific situations where ride-through or full power recovery is detrimental to bulk system security. These conditions would initially be identified through interconnection studies, defined in applicable agreements, and would be updated, as appropriate, when material changes in the bulk system take place. Imposition of an absolute, inflexible ride-through requirement could have serious adverse impacts on bulk power system security.

B. Requirements for ride-through should be based on the limitations of available technology and practical limitations.

Offshore wind projects that are not relatively close to shore must necessarily use HVDC technology to transmit power from offshore to the onshore transmission system. Events, such as faults, which cause severe depression of the onshore transmission system voltage make it impossible for the HVDC system to transmit its full capacity. During this period of transmission system voltage depression, the offshore wind turbines continue to generate power which must be dissipated by resistive devices to keep the voltage of the HVDC transmission link from exceeding reasonable and practical limits. This may impede projects essential to system reliability.

The cumulative duration of voltage ride-through specified in PRC-029-1 for any 10-second period provides no exception for multiple voltage ride-through events that repeat with a period longer than 10-seconds. Because many transmission faults are temporary, automatic reclosing is commonly used on transmission systems to avoid extended transmission outages for temporary faults that go away during the delay period prior to reclosing. Where automatic reclosing is not used, it is common practice for transmission operators to manually reclose with a delay period of a few minutes. When the fault is permanent, reclosing the faulted transmission line will subject

the system to a subsequent low-voltage ride-through event. Additionally, during severe weather events, it is possible for multiple faults to occur in a transmission system over a limited period of time.

During each low-voltage ride-through event, the un-transmittable power from the offshore wind plant is dissipated in the absorption resistors as thermal energy, increasing their temperature. Any low-voltage ride-through event that occurs prior to these resistors cooling down will create an additional temperature rise. A ten-second period is an impractical time period for the thermal energy of the resistors to be dissipated to the environment; in practice this heat transfer takes hours. Without any limitation on repetitive voltage ride-through events, the requirements of PRC-029-1 effectively require designing resistors for unlimited temperature rise and in more practical circumstances, at least two or three times the energy dissipation for an individual 10-second period.

For these reasons, LIPA has concerns that the infeasible requirements of PRC-029-1 will delay or impede resources critical to maintaining adequate generation capacity to meet future system needs. The low-voltage ride-through requirement should be modified to provide an exception for offshore wind generation interconnected to the onshore transmission system using HVDC lines reflecting practical limitations and, furthermore, should provide more practical specifications applicable to fault events recurring over periods longer than ten seconds but shorter than the feasible time for equipment to be able to sustain recurring duty.

C. Exceptions to ride-through requirements based on hardware limitations should be extended to IBR plants having signed interconnection agreements signed on or before the effective date of the standard.

It is infeasible for IBR projects that are already in the advanced stages of development, after the interconnection agreement is signed and long lead-time equipment has been ordered, to modify the design and specifications of the IBR plant and its equipment to comply with

PRC-029-1. The Standard provides an exception for IBR plants in service at the effective date to its ride-through requirements where compliance is constrained by hardware limitations. Without extension of this exception to IBR plants having executed interconnection agreements at the effective date of the Standard may cause extensive IBR project delays or even cancellations. The consequences of IBR plant project delays and cancellations, resulting from imposition of the inflexible requirements of the Standard may lead to inability for the power system to meet future resource adequacy requirements. This can compromise system reliability to a much greater extent than failure of an individual IBR plant to ride-through the very extreme conditions specified in the Standard.

III. CONCLUSION

The Long Island Power Authority appreciates the opportunity to submit comments on the NOPR and respectfully requests that the Commission issue a Final Rule in this docket that directs NERC to modify proposed Reliability Standard PRC-029-1 consistent with the above recommendations.

Respectfully submitted,

LONG ISLAND POWER AUTHORITY

By: */s/ Lisa Zafonte*_____
Lisa Zafonte
Assistant General Counsel
Long Island Power Authority
333 Earle Ovington Boulevard, Suite 403
Uniondale, NY 11553
lzafonte@lipower.org
516-719-9857

CERTIFICATE OF SERVICE

I hereby certify that I have this day served the foregoing document upon each person designated on the official service list compiled by the Federal Energy Regulatory Commission in this proceeding.

Dated at Washington, DC this 24th day of March, 2025.

/s/ Marco Bracamonte
Senior Paralegal
Van Ness Feldman, LLP
2000 Pennsylvania Ave., NW
Suite 600
Washington, D.C. 20006
(202) 298-1800