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| NOGRR Number | [245](https://www.ercot.com/mktrules/issues/NOGRR245) | NOGRR Title | Inverter-Based Resource (IBR) Ride-Through Requirements |

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| Date | September 25, 2023 |

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| Submitter’s Information | |
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| Comments |

Avangrid Renewables, LLC (Avangrid), is an owner and operator of utility-scale Intermittent Renewable Resources (IRRs) in the ERCOT Region and a Corporate Member of ERCOT, Inc. (ERCOT). Avangrid’s existing generation fleet in Texas accounts for more than 1,000 MW of capacity on the ERCOT System. Avangrid’s entire fleet of generation resources in Texas, which is made up of technologies from multiple original equipment manufacturers (OEMs), is directly impacted by Nodal Operating Guide Revision Request (NOGRR) 245, Inverter-Based Resource (IBR) Ride-Through Requirements.

Avangrid appreciates the considerable work NextEra Energy Resources, LLC (NEER), Southern Power Company (Southern Power), Invenergy LLC (Invenergy), and many other IBRs and OEMs have undertaken in a very short period of time to identify complex technical solutions to decrease the impact of reliability events associated with the need for IBRs to ride through ERCOT System disturbances. The current version of NOGRR245 submitted by NEER on September 13, 2023, and approved by ERCOT’s Reliability Operations Subcommittee (ROS)[[1]](#footnote-2) on September 14, 2023, is a substantial improvement to ERCOT’s proposals.

Avangrid wholly supports mitigating disturbances related to the inability of resources to ride-through frequency and voltage deviations on the ERCOT System. However, ERCOT’s NOGRR245 proposals have not sufficiently addressed the technical feasibility, regulatory uncertainty, and commercial reasonability associated with retroactively changing operational design requirements.

As the grid operator ERCOT has an obligation to ensure ongoing reliable operations. Likewise, generators, transmission operators, and participating loads (as grid participants) must meet standards to ensure reliable operations. In order to promote and maintain grid reliability, rules and standards must be non-discriminatory and justified; they must be based on evident reliability benefits. Avangrid appreciates the challenges associated with the arrival of new technologies on a system designed for the production, transmission, and distribution of traditional generation. However, in developing reliability rules—like NOGRR245 intends to do—proposed rules must be systematically evaluated against the risks and impacts of the rule’s implementation on all affected parties.

NOGRR245 involves material policy changes to existing IBRs that have not been adequately considered, and if implemented, will impose insurmountable technical challenges on many IBRs. Accordingly, while NEER’s proposal is a meaningful improvement over ERCOT’s, Avangrid respectfully maintains that the best way to address the issues in NOGRR245 is to bifurcate it—i.e., (a) limit NOGRR245 to apply to new IBRs not yet interconnected (Standard Generation Interconnection Agreement (SGIA) date to be determined as discussed at the September 14, 2023 ROS meeting), and (b) create a new NOGRR to address ride-through requirements for existing IBRs.[[2]](#footnote-3)

The new NOGRR, applicable to existing IBRs, would allow ERCOT, Market Participants, and OEMs to: (1) properly determine the technical feasibility and timing for retrofitting existing IBRs (allow OEMs to model the technical feasibility for IBR compliance); (2) study existing IBRs and capacity impacts associated with implementing new ride-through requirements; (3) develop targeted enhancements and requirements for existing IBRs based on attributes like location, SGIA execution date, and prior performance; (4) provide existing IBR owners with information necessary to evaluate the economics essential for determining whether to retrofit or retire an IBR; (5) evaluate the reliability impact of retirements associated with new ride-through requirements; (6) develop timelines for implementing the necessary software/hardware on existing IBRs; (7) explore alternative methods for strengthening the ERCOT Transmission Grid to help prevent ERCOT System disturbances associated with frequency and voltage deviations—e.g., consideration of failures by other resource types to ride-through system disturbances (synchronous generators[[3]](#footnote-4) and large loads[[4]](#footnote-5)); adding 345kV lines; and strategic installation of grid-forming transformers. For additional information, please refer to [Avangrid's initial comments](https://www.ercot.com/files/docs/2023/06/07/NOGRR245-20%20Avangrid%20Renewables%20Comments%20060723.pdf) to NOGRR245, submitted on June 7, 2023.

Avangrid appreciates the opportunity to comment on NOGRR245.

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| Revised Cover Page Language |

None

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| Revised Proposed Guide Language |

None

1. ROS is the ERCOT subcommittee specifically delegated to develop, review and maintain the Nodal Operating Guide as it relates to the reliable operation of the ERCOT System. [↑](#footnote-ref-2)
2. Similarly, several other Market Participants and OEMs, such as [RWE Clean Energy, LLC](https://www.ercot.com/files/docs/2023/04/26/245NOGRR-10%20RWE%20Comments%20042623.doc) and [Siemens Gamesa Renewable Energy](https://www.ercot.com/files/docs/2023/09/22/245NOGRR-47%20Siemens%20Gamesa%20Renewable%20Energy%20Comments%20092223.docx) have also recommended bifurcation of NOGRR245. [↑](#footnote-ref-3)
3. *See e.g.,* ERCOT Board of Directors Reliability and Markets Committee Meeting, Agenda Item 7.2.1, ERCOT Presentation, Slide 6 (Jun. 19, 2023) (In the Odessa 2 event, ERCOT noted an 844 MW loss of synchronous generation. “Key Takeaway: The 6/4/22 Odessa Event was the largest of several events in which some **IBRs** **and synchronous generators** **did not appropriately ride-through a fault**” (emphasis added)), available at <https://www.ercot.com/files/docs/2023/06/12/7-2-1-inverter-based-resource-and-large-load-ride-through-events-background-and-mitigation.pdf>. [↑](#footnote-ref-4)
4. *See* *e.g.,* Nodal Protocol Revision Request (NPRR) 1191, ERCOT Comments, Business Case (Aug. 1, 2023) (“Indeed, over the last twelve months there have been multiple instances where large and rapid changes in Large Load Demand caused or contributed to the severity of a grid event. For example, during a low-voltage event on December 7, 2022, on the 138-kilovolt (kV) transmission lines near Odessa, in West Texas, Load quickly dropped by a total of approximately 1,560 MW… During this event, frequency spiked to 60.235 Hz and did not return to 60 Hz until more than 12 minutes later. This event is one example in which ERCOT observed that **Large Loads did not ride through a low-voltage condition, and that failure created a risk to frequency control**”(emphasis added)), available at

   <https://www.ercot.com/files/docs/2023/08/01/1191NPRR-01%20Registration,%20Interconnection,%20and%20Operation%20of%20Customers%20with%20Large%20Loads;%20Information%20Required%20of%20Customers%20with%20Loads%2025%20MW%20or%20Greater%20080123.docx>. [↑](#footnote-ref-5)