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| NOGRR Number | [255](https://www.ercot.com/mktrules/issues/NOGRR255) | NOGRR Title | High Resolution Data Requirements |
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| **Date** | December 7, 2023 |
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| **Submitter’s Information** |
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| Comments |

Engie appreciates ERCOT’s continuing efforts to work with stakeholders to reach a reasonable and effective improvement to the reliability of the ERCOT grid. Nodal Operating Guide Revision Request (NOGRR) 255 touches on a lot of areas. Below Engie is summarizing some of the impacts we initially see reviewing the current proposal. Engie focuses particularly on the proposed Section 6.1.4 , Fault Recording, Sequence of Events Recording, and Phasor Measurement Unit Requirements for Inverter-Based Resources (IBRs), because Engie’s entire installed base of assets consists of IBR-based Generation Resources or Energy Storage Resources (ESRs). Engie does not have any language revisions at this time.

1. While Engie’s fleet of operating assets in the ERCOT region generally have the plant-level fault recording, disturbance monitoring and phasor measurement equipment required to comply installed today, it will take time to properly set up, test and commission existing equipment to meet the NOGRR255. Going forward ERCOT must recognize that there are limited resources to complete all the work that is being required including efforts to comply with NOGRR245, Inverter-Based Resource (IBR) Ride-Through Requirements. Meeting the IBR unit-level requirements will require new equipment, as detailed below.
2. The NOGRR adds new monthly maintenance requirements for phasor measurement units to check that they are functioning properly. Engie would like to properly evaluate this maintenance schedule to ensure that a testing and maintenance program is properly evaluated and is based on engineering and original equipment manufacturer data.
3. Meeting the proposed data retention requirements for IBRs will require the use of centralized data collection and storage systems as many pieces of substation equipment currently installed and able to record the required data are not necessarily able to store it for 30 days. This is feasible, but ERCOT must recognize the time required for implementation. In particular, Resource Entities that must introduce new external connectivity into plant control networks to comply with the NOGRR255 requirements will require sufficient time to do so in compliance with all applicable North American Electric Reliability Corporation (NERC) Critical Infrastructure Protection (CIP) standards. ERCOT should consider treating data retention requirements that require the implementation of new operational technology systems for existing dynamic disturbance recording, fault recording, and phasor measurement unit equipment similarly to the installation of new recording equipment and allow for staged implementation over time.
4. The most challenging aspect of the NOGRR is the requirement to record fault data from individual IBR units: paragraph (1)(b) of Section 6.1.4.1.1, Sequence of Events Recording Data Requirements, and paragraph (1)(b) of Section 6.1.4.1.2, Fault Recording Data and Triggering Requirements.  Unlike the changes to plant-level data recording, which largely require configuration changes to equipment that is already commonly installed or deployment of well-established technologies, Engie believes that implementing the IBR unit data recording requirements is a significant technical challenge that will require close cooperation with and participation from IBR unit original equipment manufacturers and the development of novel technical solutions. Below, Engie highlights specific examples of technical challenges with the proposed changes.
	1. The requirement to provide Global Positioning System time synchronized fault recording and sequence of events recording at the IBR unit level will require changes to IBR plant fiber-optic networks to accommodate the distribution of precision time signals from the substation to IBR units using protocols such as Institute of Electrical and Electronic Engineers (IEEE) 1588, Standard for a Precision Clock Synchronization Protocol for Networked Measurement and Control Systems. Replacement of network equipment in IBR units with equipment that supports precision time protocols will require original equipment manufacturer participation and approval.
	2. Recording IBR unit control system command values, reference values and feedback signals as required by item (1)(b)(vi) of Section 6.1.4.1.1is dependent on original equipment manufacturers providing access to that data and a method of retrieving it. IBR unit owners do not typically have access to this level of data and it may be considered proprietary by original equipment manufacturers. The feasibility of recording such data will have to be determined on a plant-by-plant basis.
	3. Pursuant to paragraph (2)(b) of Section 6.1.4.1.2, Engie does not believe that the protection and control equipment installed today in many IBR units can record this data at the resolution and duration requested. While it is technically feasible to retrofit IBR units with state-of-the-art fault recording equipment, it would be a complex engineering project requiring physical modification of one IBR unit on each feeder at each site to do so. Conservatively, Engie believes it would take several years to accomplish this effort. ERCOT should consider establishing extended timelines or exceptions for IBR unit level data recording if Resource Entities can demonstrate that retrofits are required to comply and that they have exhausted all reasonable options to maximize the capability of existing equipment.
	4. ERCOT should clarify whether the proposed IBR unit-level data recorders are required to trigger based on thresholds measured at the Point of Interconnection (POI) or at the unit terminals. Triggering based on thresholds measured remotely will increase the complexity of the required recording systems since it will necessitate very high speed communications between substation data recorders and IBR unit recorders.

In conclusion, Engie understands that NERC is currently working on NERC Reliability Standard PRC-028, which is currently being drafted and going through revisions, addressing the same issue. Engie is concerned that ERCOT is creating a similar but conflicting standard. As Engie as highlighted in its comments, many of the actions required by NOGRR255 require active involvement from IBR unit original equipment manufacturers. A single, North American reliability standard will allow the industry to focus its efforts to complying with one, mandatory standard rather than numerous different regional standards. Therefore, Engie recommends that NOGRR255 remain tabled to allow for alignment with PRC-028. Engie also recommends that ERCOT issue a Request For Information to original equipment manufacturers specifically addressing the IBR unit level data recording requirements to gain further context on the ability of existing IBR units to comply without retrofit.

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| **Revised Cover Page Language** |

None

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| Revised Proposed Guide Language |

None