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| NOGRR Number | [272](https://www.ercot.com/mktrules/issues/NOGRR272#summary) | NOGRR Title | Advanced Grid Support Requirements for Inverter-Based ESRs |

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| Date | July 1, 2025 |

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| Submitter’s Information | |
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| Market Segment | Not Applicable |

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| Comments |

ERCOT submits these comments to respond to the 6/4/25 Plus Power and 6/13/25 NextEra comments, and to incorporate a revision to Nodal Operating Guide Revision Request (NOGRR) 272.

* **Effective date:** The initial proposed effective date was based on a Standard Generation Interconnection Agreement (SGIA) executed on or after April 1, 2025. To recognize the commenters’ concerns and keep timely adoption of “Advanced Grid Support” (AGS)-Energy Storage Resource (ESR), ERCOT proposes to further revise this date to January 1, 2026. This will also ensure that the effective date is after the potential Public Utility Commission of Texas’ (PUCTs’) approval of NOGRR272, which if approved is anticipated in fall 2025.
* **AGS applicability for ESR’s ongoing augmentation over the life of the asset**: Resources initially grandfathered but that subsequently undergo modifications to add MW capacity or replace equipment not in-kind must meet the AGS requirements for the additional capacity or modified portions. Additionally, ESRs must follow the process in paragraph (6) of Planning Guide Section 5.5, Generator Commissioning and Continuing Operations, regarding modifying control settings or equipment in a way that impacts dynamic response.
* **Compliance concerns**: A revision was made in paragraph (1)(a) of Section 2.14, Advanced Grid Support Requirements for Inverter-Based Resources (IBRs), to clarify an ESR must demonstrate its AGS capability by meeting the modeling requirements in Planning Guide Section 6.2, Dynamics Model Development. An ESR providing AGS must meet the performance requirements for existing Inverter-Based Resources (IBRs), such as voltage support, frequency support, and ride-through capability. All Resources must have models accurately reflecting their performance capabilities. ERCOT agrees with NextEra’s comment that model testing and validation will necessitate close coordination amongst ERCOT, Resource Entities, and “Original Equipment Manufacturers” (OEMs), especially during the early phases of AGS implementation.
* **Co-located ESR and wind/solar projects:** ERCOT will follow the existing process as described in Dynamics Working Group (DWG) Procedure Manual Section 3.1.5.4, Large Voltage Disturbance Test: (Low Voltage Ride-Through (LVRT) for IBRs, WGRs, and IBTEs), under which a co-located Resource must follow different ride-through requirements for its applicable portion of the facility. For example, a facility with a co-located ESR and a PhotoVoltaic Generation Resource (PVGR) will be tested in the following model quality test scenarios and associated requirements:

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| **Scenario** | **ESR** | **PVGR** | **Requirement** |
| 1 | Off | On | Existing IBR Requirements |
| 2 | On | Off | AGS Requirements |
| 3 | ON | ON | Existing IBR requirements |

* **Modifying test setup requirements:** The model test setup described in the DWG Procedure Manual includes the description of test conditions. For tests in which the short circuit ratio could impact response, use of a specific short circuit ratio value or a range of short circuit ratio values are specified in the DWG Procedure Manual. For example, a short circuit ratio value of 3 is recommended for the phase angle jump test. The system strength test requires an AGS-ESR to be tested in a range of short circuit ratio values from 1.2 to 10. For other tests, such as the ride-through test where a near-zero impedance between the Point of Interconnection (POI) and the ideal voltage source is shown as an example setup in the DWG Procedure Manual, the AGS-ESR must yield reasonable responses considering the typical impedance between the inverter and the POI, as well as within the ideal source itself. If any issues arise, ERCOT remains committed to working collaboratively with Resource Entities to address them on a case-by-case basis.
* **Modifying the model test set up requirement to have the initial dispatch below rated power:** As described in Section 2.14 and the DWG Procedure Manual, ESRs must demonstrate AGS through modeling requirements and performance criteria when operating within inverter current limits. If the current limit in the inverter is reached when the test is applied, the performance criteria will not apply.
* **“Grid-forming”** (**GFM) response time when the ESR is idle:** An ESR is always considered online unless on outage and accordingly must provide voltage support, primary frequency response, and AGS when online and within its inverter limit.

Finally, as raised in ERCOT’s 6/4/25 comments, ERCOT reiterates its proposal to sponsor a future Nodal Protocol Revision Request (NPRR) to implement a one-time AGS new-technology-incentive concept to encourage AGS adoption for existing IBRs. ERCOT will also work with stakeholders to develop a market-based framework to compensate ESRs if withholding headroom and maintaining State of Charge (SOC) becomes necessary in the future.

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| Revised Cover Page Language |

None

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| Revised Proposed Guide Language |

**2.14 Advanced Grid Support Requirements for Inverter-Based Resources (IBRs)**

(1) An Energy Storage Resource (ESR) shall provide the following advanced grid support when operating within the inverter current limit.

(a) An ESR shall meet the modeling requirements described in Planning Guide Section 6.2, Dynamics Model Development, to demonstrate its capability to maintain an internal voltage phasor in the sub-transient-to-transient timeframe andcontrol the voltage phasor to maintain synchronism with the ERCOT Transmission Grid.

(2) An ESR interconnected to the ERCOT Transmission Grid pursuant to a Standard Generation Interconnection Agreement (SGIA) executed before January 1, 2026 and that has paid in full to the Transmission Service Provider (TSP) the financial security required thereunder before January 1, 2026 is not required to comply with the requirements of this Section. The requirements of this Section apply to those portions of any subsequent ESR modifications that add MW capacity or make non-in-kind replacements of equipment.