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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 | June 04, 2025 |

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| Market Segment | Independent Generators |

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| Comments |

Plus Power appreciates the opportunity to provide these comments on Nodal Operating Guide Revision Request (NOGRR) 272. As a developer and owner of stand-alone Energy Storage Resources (ESRs) in ERCOT and across the United States, we recognize and share ERCOT’s commitment to improving system stability through advanced inverter technologies. However, Plus Power still strongly opposes NOGRR272 in its current form—specifically due to its impractical implementation timeline, its ambiguous performance requirements, and its unsupported assumption that grid-forming functionality is standard or is cost-free in battery storage projects.

This proposal, while well-intentioned to improve reliability, creates regulatory uncertainty. ERCOT is attempting to mandate a new operational standard without a corresponding market signal, without clear performance requirements, and without time for the industry to adjust future equipment purchase specifications. In effect, it imposes a new regulatory obligation that negatively impacts one type of Generation Resource, namely ESRs, which then provides a benefit for all other types of Generation Resources, in addition to the overall system-wide benefit.

As written, the performance requirements are unclear and create confusion and uncertainty. For example, how will ERCOT monitor and enforce whether the voltage phasor is “constant” or “near constant”? Where is the “sub-transient” or “transient” time frame defined in required language? How fast is “immediate” in responding? How will ERCOT evaluate if the unit passed or failed in regulating power “appropriately”? Plus Power does appreciate ERCOT’s work to test a subset of OEMs and provide model

quality guidance to Market Participants. However, that model quality guidance only identifies capability in terms of model validation. The performance requirements in NOGRR272 language drafted by ERCOT are currently ambiguous as identified, which is problematic as they would create a performance compliance obligation.

While Plus Power recognizes the reliability needs identified by ERCOT, battery projects often must purchase equipment 24-48 months in advance of the anticipated Commercial Operations Date (COD). To avoid retroactive application of new requirements, ERCOT should adjust its proposed effective date to Standard Generation Interconnection Agreements (SGIAs) signed six months after Public Utility Commission of Texas (PUCT) approval of the NOGRR. Equipment specifications are locked in at those times, and the cost is baked into contractual agreements. Major design changes now, such as adding grid forming capabilities, requires revisiting the battery design, re-procurement of necessary parts and services, re-testing, and re-modeling. These changes will further delay project timelines and the reliability benefits ERCOT seeks. If ERCOT wants to evolve grid standards, something we support in principle, it should do so with lead time that reflects actual procurement cycles. Plus Power believes a reasonable timeline for industry adjustment would be to require such capabilities on all projects with an SGIA of six months after the PUCT approves of the language. This would recognize both the cost and time associated with modifying the development to add these capabilities or enable the withdrawal of projects due to the added cost and ongoing regulatory uncertainty.

There also seems to be a fundamental misconception as to how batteries obtain grid forming capabilities.

Grid-forming capabilities require:

* Specific inverter technology;
* Initial and ongoing custom system modeling and testing;
* Parameter adjustment; and
* Performance monitoring.

In a market design where these options are requested by a customer, the additional costs and impacts can be reflected in the price of power in a power purchase agreement. In the event of a merchant plant, such as a Resource Entity in ERCOT, grid-forming capabilities can then be added in response to market signals as the developer knows there will be compensation if the feature is added and available.

Plus Power has experience in providing grid-forming capability at a BESS site. Our Kapolei Energy Storage (KES) project in Oahu was designed to provide grid-forming services as part of a utility contract. However, Hawaiian Electric compensates Plus Power for those capabilities because they understand that providing them involved significant cost and operational tradeoffs. Grid-forming services are advanced grid support services that can be provided as an Ancillary Service to the ERCOT system. While ERCOT has only identified one portion of grid-forming capability (i.e., ESR being a voltage source), it is still the same impact on the ESR to provide this engineered capability. Like any engineered service, this must be planned, integrated, and compensated.

NOGRR272 proposes an unfunded mandate. It asks ESRs to deliver enhanced reliability functionality that benefits the entire system—with *no path for compensation*.

While ERCOT Staff suggested this is a “design capability,” that framing conveniently sidesteps the upfront and ongoing investments required to enable and maintain the capability. This framing also essentially ignores the reality that the very benefits ERCOT seeks to realize from this capability only impacts the market when the services are provided. In other words, mere capability does not provide reliability benefits – provision does. But even if the focus of NOGRR272 is to ensure the capability to provide advanced grid support services, there are real, tangible costs for selecting capable inverters, modeling and testing, State of Charge (SOC) management, performance and compliance monitoring, etc.

ERCOT should consider engaging and advancing Nodal Protocol Revision Request (NPRR) 1278, Establishing Advanced Grid Support Service as an Ancillary Service, which is a model ESRs support to: identify system needs, procure services through a market-based framework, and let capable ESRs offer the service voluntarily—with compensation and clear performance requirements. This will allow even existing operational ESRs that may be capable of providing this service that ERCOT has identified as a reliability need much sooner. It can also serve as a framework for future advanced grid support services such as inertia, black start services from ESRs, and advanced voltage support services. This framework would allow such future reliability services to be integrated efficiently while attracting focused investment that supports reliability. We respectfully urge ERCOT to withdraw NOGRR272 and direct its efforts toward a more thoughtful, market-aligned approach. In the alternative, if ERCOT insists on moving forward NOGRR272, ERCOT should consider a realistic timeline, define requirements for compliance, and a market structure for compensation.

Plus Power provides the attached, recommended language changes if ERCOT is not amenable to withdrawing NOGRR272 or adding its performance requirements in conjunction with a new paid reliability service approach like NPRR1278. This language adjusts the dates for effectiveness and modifies the language to simply focus on requiring capabilities but not performance until performance requirements are specified with a later NOGRR.

We welcome continued engagement on this topic and are committed to working with ERCOT to build a resilient and reliable grid for Texas.

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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) A Resource Entity shall, for each Energy Storage Resource (ESR), be capable of providing the following advanced grid support when operating within the inverter current limit.

(a) An ESR shall demonstrate its capability to maintain an internal voltage phasor that is constant or near-constant in the sub-transient to transient timeframe by meeting the modeling requirements described in the Planning Guide Section 6.2, Dynamics Model Development. An ESR shall be capable of:

(i) Immediately responding to changes in the ERCOT Transmission Grid;

(ii) Maintaining ESR control stability during normal and disturbance conditions;

(iii) Controlling the voltage phasor to maintain synchronism with the ERCOT Transmission Grid; and

(iv) Regulating real power and Reactive Power appropriately to support the ERCOT Transmission Grid.

(2) An ESR that interconnects to the ERCOT Transmission Grid is not required to comply with the requirements of this Section if the ESR:

(a) Connects pursuant to an executed Standard Generation Interconnection Agreement (SGIA) no later than six months after approval of the Public Utility Commission of Texas (PUCT); and

(b) Pays the required financial security in full to the Transmission Service Provider (TSP) no later than six months after approval of the PUCT.

(3) An ESR is not required to perform to the capabilities identified in the model quality testing associated with paragraph (1) above.