

# NOGRR Comments

<b>NOGRR Number</b>	<a href="#">245</a>	<b>NOGRR Title</b>	<b>Inverter-Based Resource (IBR) Ride-Through Requirements</b>
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<b>Date</b>	August 2, 2023
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## Comments

The Texas Solar Power Association (TSPA) is a statewide industry trade association that promotes the development of solar electric generation. Our member companies invest in the development of solar photovoltaic and storage products and projects in Texas, serving customers in both wholesale and retail markets, with products ranging from utility-scale generation, community solar, and customer-sited solar and storage solutions.

### Introduction

TSPA supports ERCOT's goal of maintaining and enhancing the reliability of the ERCOT System and encourages ERCOT to continue working with stakeholders to identify commercially reasonable and technically feasible solutions to improve grid stability and the ride-through capability of Inverter-Based Resources (IBRs). TSPA also appreciates ERCOT's development of an alternative proposal to implement the 2800-2022 - IEEE Standard for Interconnection and Interoperability of Inverter-Based Resources (IBRs) Interconnecting with Associated Transmission Electric Power Systems ("IEEE 2800-2022 standard").

However, TSPA remains concerned about the lack of available technical solutions that would allow IBRs to comply with the new standards or comply with these new requirements within the timelines proposed by ERCOT and the potential reliability risk associated due to the loss of IBR generation. TSPA recommends that NOGRR245 be restructured to allow a tiered approach which maximizes system improvements for new IBRs, optimizes performance for existing IBRs, and

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provides ERCOT time to perform a comprehensive study regarding existing IBRs and alternative solutions.

Before moving forward with any new requirements for existing IBRs, TSPA urges ERCOT to perform a comprehensive cost/benefit analysis that adequately assess the ability of existing IBRs to comply, identifies appropriate timelines consistent with “Original Equipment Manufacturer” (OEM) capabilities, studies the use of other technologies or transmission upgrades, and determines the reliability risk to ERCOT’s System given the potential exit of IBR MWs due to the operating restrictions proposed in NOGRR245. To achieve reliability improvements in the shorter term, TSPA recommends that NOGRR245 should only apply to new IBR generation energized on or after October 1, 2025 and that existing IBRs should optimize performance with existing components while ERCOT performs this analysis.

### Availability of Commercial Solutions

OEMs have been consistent in expressing concerns about the application of the IEEE 2800-2022 standard to existing IBRs as well as the proposed timelines. Although ERCOT has made adjustments to these requirements in its latest proposal, the reality is that some IBR units will not be able to comply with these new requirements due to the unavailability of commercial solutions. It is likely that grandfathered units or older units will have difficulty meeting the IEEE 2800-2022 standard frequency ride-through requirements or the current voltage curves with NOGRR245 specificity. IBRs that cannot meet the updated requirements or retrofit to meet full IEEE 2800-2022 standard compliance will be restricted from generating.

TSPA previously commented<sup>1</sup> about the OEM concerns regarding NOGRR245. Since that time, additional OEMs have asked ERCOT to refrain from retroactive application of the IEEE 2800-2022 standard requirements due to a lack of available commercial solutions and to request more time for product development and testing. For example, Siemens Gamesa Renewable Energy (SGRE) stated:

SGRE cordially objects to ERCOT’s proposal on retroactive implementation of a new performance standard that significantly affects both electrical and mechanical integrity of the Wind Turbines (enforced simultaneously without a prioritization schedule, on all configurations, active and non-active designs alike and regardless of age, with implementation schedules that do not adequately consider potential resources, workforce, logistical and/or supply chain timeframes and limitations. Furthermore, as already expressed by the different manufacturers, functionalities like multiple ride-through events cannot be confirmed through analysis alone. Well-defined

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<sup>1</sup> TSPA Comments on NOGRR245, May 17, 2023.

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specifications are needed to avoid seemingly endless possible configurations during field testing (IEEE 2800-2 testing and verification pending to be released).<sup>2</sup>

In recently filed comments, Vestas also echoed the same concerns about retroactively applying the IEEE 2800-2022 standard to existing units:

The current fleet of installed Type 2 wind turbines is unable to comply with the new NOGRR245, Frequency and Voltage Ride-Through Requirements and cannot be economically retrofitted to meet them. Some Type 3 machines may also encounter difficulties in meeting the voltage ride-through requirement. Consequently, Vestas supports incorporating provisions for good cause exemptions for such legacy equipment.<sup>3</sup>

The many concerns expressed by OEMs and stakeholders about the lack of commercially reasonable and technically feasible solutions for existing IBRs is consistent with a North American Electric Reliability Corporation (NERC) presentation on IEEE 2800-2022 standard readiness.<sup>4</sup> According to this report, approximately 30% of OEMs do not expect to have IEEE 2800-2022 standard conforming equipment until after IEEE P2800.2 - Recommended Practice for Test and Verification Procedures for Inverter-based Resources (IBRs) Interconnecting with Bulk Power Systems ("IEEE P2800.2 standard") has been published so that it can be used as a basis for demonstrating equipment compliance and 10% did not intend to develop conforming equipment at all. In addition, the report states that "major OEMs have reported to NERC that they have no plans to incorporate IEEE 2800-2022 standard into equipment going into projects that are already sold and are currently in production."<sup>5</sup>

It is unreasonable for ERCOT to proceed with requiring compliance with NOGRR245 standards for existing IBRs when commercial products are not available to meet those standards within the timeframe proposed (if at all) and the impact on ERCOT's System from the loss of renewable resources is unknown. What is known, however, is that ERCOT relies on renewable resources to meet demand and that demand is growing.

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<sup>2</sup> SGRE Comments (June 6, 2023) at 1.

<sup>3</sup> Vestas Comments (June 22, 2023) at 1.

<sup>4</sup> Aung Thant, Engineer, Inverter-Based Resource Specialist, NERC, IEEE 2800 Readiness, <https://www.esig.energy/event/2022-fall-technical-workshop/> .

<sup>5</sup> *Id.*

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ERCOT estimates current renewable capacity at 54,742 MW (37,702 MW of wind and 17,040 MW of solar).<sup>6</sup> In a June System Report to the Reliability and Markets Committee of the ERCOT Board of Directors, ERCOT noted that ERCOT set a new all-time record for maximum peak demand on June 27, 2023 which was 4,069 MW more than the previous June record and 639 MW more than the previous all-time record of 80,148 set on July 20, 2022.<sup>7</sup> Renewable generation during the peak hour on that date was 28,470 MW which is 35.5% of the MW generated during the peak.<sup>8</sup>

With ERCOT relying on renewable resources to meet demand, TSPA urges ERCOT to take a reasoned approach based on the facts that have been submitted. Due to the repeated concerns of OEMs and Resource owners regarding the lack of available commercial solutions for existing IBRs to meet the new requirements within the proposed timelines and the unknown reliability consequences of removing potentially thousands of MWs from ERCOT's System, TSPA recommends that NOGRR245 be restructured to allow a tiered approach which maximizes system improvements for new IBRs, optimizes performance for existing IBRs, and provides ERCOT time to perform a comprehensive study regarding existing IBRs and alternative solutions.

ERCOT should only apply NOGRR245 to new IBRs energized after October 1, 2025. OEMs and Resource owners have commented that purchase contracts are routinely executed prior to signing interconnection agreements and energization of the units.<sup>9</sup> Extending the compliance date for new units will ensure that Resource owners who have already made a significant investment in units that have not yet been energized will not be penalized for standards that have changed after purchase and will still have the opportunity to finalize interconnection and energize the units.

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<sup>6</sup> ERCOT June 2023 Capacity Trend Charts, <https://www.ercot.com/gridinfo/resource>.

<sup>7</sup> Reliability and Markets Committee, Agenda Item 8.2 Systems Operation Update <https://www.ercot.com/calendar/02272023-Reliability-and-Markets-Committee>.

<sup>8</sup> ERCOT Grid Operations Renewable Integration Report : 06/27/2023, <https://www.ercot.com/mp/data-products/data-product-details?id=NP4-760-ER> Note, the official ERCOT report indicated peak load of 80,822 MW (a slight correction from the ERCOT Report to the Board of Directors).

<sup>9</sup> See e.g., SGRE Comments (June 6, 2023) at 2; (*SGRE has sold several turbines as part of "safe harbor" which are yet to be energized. As these turbines were sold between 2016-2018, they were not designed to meet the new performance requirements as listed in NOGRR245*); and NextEra Energy Resources (NEER) Comments July 28, 2023) at 6 (*...[T]he wind IBR development life cycle is several years long, so wind projects that will come online during the next few years were designed to meet the ride-through standards that are in effect today, and wind turbine OEMs have stated they cannot provide compliance solutions for newly developed wind IBRs within the timeframe NOGRR245 requires*).

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Applicability of the new standards to existing units (including modified units)<sup>10</sup> should be determined only after ERCOT performs a cost/benefit analysis. This study should include the identification of the specific units without an available commercial solution, the total MWs at risk of leaving the system, the impact of the loss of these MWs on ERCOT System reliability, and whether installation of synchronous condensers, static synchronous compensator dynamic reactive devices, grid forming technology, or transmission upgrades can mitigate (and to what extent) the reliability issues associated with frequency and voltage deviations and the need to retroactively apply standards on existing units. In addition, ERCOT should work closely with OEMs and Resource owners to identify not only existing hardware and software solutions for each IBR but also appropriate timelines that reflect the commercial reality of developing new components for which an existing solution is not yet available. During this time, existing IBRs should fully optimize performance with existing facilities to the extent they are able in order to enhance voltage and frequency ride-through capability.

### Good Cause Exception Process

TSPA Recommends that NOGRR245 also include a good cause exception process and identify criteria that ERCOT will consider in exercising its discretion. In lieu of a formal process, NOGRR245 allows ERCOT to use its unfettered discretion to grant temporary exemptions. If ERCOT “determines in its sole and reasonable discretion” that an IBR cannot comply with one or more of the ride-through requirements, then “ERCOT may grant a temporary exemption.” However, any IBR that cannot comply with the ride-through requirements after December 31, 2025, shall not be permitted to operate on the ERCOT System (except under two very limited conditions).

While TSPA generally supports the notion that ERCOT should be able to grant exceptions to the requirements, the basis for exercising that discretion should be clearly identified to prevent discriminatory and disparate treatment of similarly situated resources. Here, NOGRR245 does not identify the criteria which ERCOT will consider when exercising this discretion rendering the protocol requirements vague and ambiguous. The lack of criteria makes it impossible for resource owners to know what factors ERCOT considers important (and, therefore, be able to plan accordingly) or to be reassured that similarly situated resource owners will be treated the same. Without this criteria included in the protocol, ERCOT’s actions could be viewed as arbitrary.

In addition to identifying the criteria ERCOT will consider in granting exceptions in the protocol language, TSPA also recommends that a formal good cause

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<sup>10</sup> Under ERCOT’s current proposal, modified BRs with GIM initiated on or after June 1, 2023, must meet the new ride-through curves. (See, ERCOT’s NOGRR245 Update, IBRTF, July 7, 2023). Due to a lack of commercially available hardware and software solutions for existing IBRs, modified IBRs will face the same difficulty as existing IBRs that have not been modified in meeting the new requirements.

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exception process be created. Once ERCOT has exercised or refused to exercise its discretion, a resource owner should be granted the right to appeal the decision to the ERCOT Board and ultimately to the Public Utility Commission. Because an IBR may be permanently prohibited from operating on the ERCOT System, this decision is of such magnitude and importance with significant operational and financial consequences that a resource owner should be able to appeal this decision to the Public Utility Commission of Texas which should have the ultimate authority to determine if such a penalty is reasonable under the circumstances.

### Costs

While most of the comments regarding NOGRR245 have focused on the lack of commercially available solutions for existing IBRs, the timelines needed to develop such solutions, and the reliability concerns of removing IBR MWs from the grid, ERCOT should also be mindful of the cost impacts of NOGRR245. The substantial costs of compliance (such as retrofits for IBRs if an OEM solution is available) have not been identified by ERCOT, nor has ERCOT provided an opportunity for these costs to be recovered through an identified protocol mechanism.<sup>11</sup> Most importantly, however, is the possibility that NOGRR245 will result in stranded costs due to the prohibition on IBRs that cannot meet the new requirements from operating on the ERCOT System.

More than twenty years ago when Texas restructured the electric market, the concept of stranded costs was much debated. Although IBRs are not subject to the same “regulatory compact” as were regulated vertically integrated utilities of that time, the rationale underlying the recovery of stranded costs is the same. An excerpt from an article in the Texas Tech Journal of Texas Administrative Law<sup>12</sup> succinctly explains:

The Supreme Court, in *Eastern Enterprises v. Apfel*, held that when a legislative body imposes a regulatory penalty on a company, that company may seek reimbursement for a regulatory taking. [fn 21]<sup>13</sup>.

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<sup>11</sup> Thermal generators have requested cost recovery mechanisms for a variety of costs. For example, thermal generators have most recently suggested that there be an ERCOT mechanism to recover compliance costs for EPA regulations limiting NOx and other emissions.

<sup>12</sup> Texas Tech Journal of Texas Administrative Law, *Great Expectations: Stranded Cost Recovery and the Interplay of the Electricity Industry, Consumers, and the Public Utility Commission of Texas*, (2006) Vol. 7:345 at 348. <http://hdl.handle.net/2346/73989>.

<sup>13</sup> Footnote 21 contained the following: “524 U.S. 498,529-31 (1998) (plurality opinion). The plurality opinion allowed recovery based upon the Takings Clause, whereas Justice Kennedy (concurring in part and dissenting in part) argued that a substantive due process argument was the more precise argument for recovery. *Id.* at 546-47; see Benjamin S. Turin, Comment, *Eastern Philosophy: A Constitutional Argument for Full Stranded Cost Recovery by Deregulated Electric*

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<sup>14</sup> Also, the electricity industry has argued, as Alexander Hamilton proposed, that if the government could decide, at any moment, to whom it owed monetary obligations, future governments would feel compelled to do the same. [fn 22]<sup>15</sup>,

The arguments in favor of allowing stranded cost recovery "center on the concept recognized by Hamilton, namely that the government's renegeing on commitments to investors is unwise, unfair, and ultimately [a] costly exercise." [fn 23]<sup>16</sup>

Regarding the chilling effect on investment that may occur when stranded costs are uncompensated, the Journal article also noted: "One possible repercussion of not allowing full stranded cost recovery is that the ability of energy companies to attract investors and subsequently raise and invest in large capital outlays could dissipate if there was no equitable method to recover their costs."<sup>17</sup>

Resource owners have made substantial investments in renewable energy projects in Texas under the rules currently in place at ERCOT. In fact, the American Clean Power Association recently testified that there has been an investment of \$93 billion in renewable energy projects in Texas during the past couple of decades.<sup>18</sup> IBR investments are at risk if NOGRR245 is adopted, and resource owners are denied the opportunity to earn a return of and on these investments because of the imposition of requirements for which compliance is not possible. Such a result would most certainly have a chilling effect on future investments in Texas.

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Utilities, 36 HOUS. L. REV. 1411 (analyzing the history of the constitutional jurisprudence for the recovery of stranded costs)."

<sup>14</sup> It should be noted that the Supreme Court has clarified the takings analysis since *Eastern Enterprises v. Apfel* was decided. Prior to 2005, the courts generally interpreted the takings clause to mean that regulations that did not "substantially advance legitimate state interests" could result in a taking. However, the United States Supreme Court has rejected that argument in *Lingle v. Chevron U.S.A., Inc.*, 544 U.S. 528 (2005), in which the Court concluded that the "substantially advances" test no longer has a place in "takings" jurisprudence and a takings can occur even when a government advances a legitimate state interest.

<sup>15</sup> Footnote 22 contained the following: "Basheda et al., supra note 15 (citing Gordon, J.S., Hamilton's Blessing; The Extraordinary Life and Times Of Our National Debt 26-27 (1997))".

<sup>16</sup> Footnote 23 contained the following: "Id. (citing J.G. Sidak & D.F. Spulber, Deregulatory Takings and Breach of the Regulatory Contract, 71 N.Y.U. L. REV. 851 (1996))".

<sup>17</sup> Texas Tech Journal of Texas Administrative Law, Vol 7:345 at 349.

<sup>18</sup> Texas Monthly, June 2023, <https://www.texasmonthly.com/news-politics/texas-republican-war-on-renewable-energy/#:~:text=The%20American%20Clean%20Power%20Association,to%20landowners%20and%20taxes%20to> .

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It is well settled that the takings clause of the Fifth Amendment to the United States Constitution requires just compensation for private property that is taken for public use and this provision applies to the states by virtue of the Fourteenth Amendment. Similarly, Article I, § 17 of the Texas State Constitution states: “No person’s property shall be taken, damaged, or destroyed for or applied for public use without adequate compensation being made, unless by the consent of such person.” In addition to these constitutional provisions, the Texas Legislature also recognizes the importance of protecting property rights in Texas through adoption of the “The Private Real Property Rights Preservation Act,” Texas Government Code chapter 2007 (the Property Rights Act).<sup>19</sup>

TSPA encourages ERCOT to consider the costs of these requirements on IBRs and the impact of the proposed requirements on the substantial investments that have been made in Texas.

## Conclusion

TSPA thanks ERCOT for working so collaboratively with stakeholders on these important issues. TSPA supports commercially available solutions that will increase grid reliability as well as ride-through capabilities of IBRs. We encourage ERCOT to continue discussions with OEMs and Resource owners to identify workable solutions and appropriate timelines and to explore the implementation of other technologies and transmission solutions so that IBRs can continue to provide energy that is critical to meet the growing demands for electricity in Texas.

<b>Revised Cover Page Language</b>
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None

<b>Revised Proposed Guide Language</b>
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None

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<sup>19</sup> IBR installations are considered real property in Texas The Texas Comptroller, “Texas Property Tax Assistance Property Classification Guide: Reports of Property Value,” January 2022, at 10 categorizes wind turbines in the Texas ERCOT region as well as other electric generation facilities as Category F2, Real Property: Industrial.