

This document is a representation of the information to be collected through DocuSign for the initial collection of ride-through capability data and is subject to change prior to ERCOT implementing the DocuSign process.

Similarly, this information is required for qualified Resources in the Generation Interconnection or Modification queue wishing to request an extension or exemption but must be submitted via an attachment-only Interconnection Change Request in the Resource Integration and Ongoing Operations (RIOO) app.

Please reference Market Notice M-A010825-02 for additional information.

The highlighting within this document has the following meaning:

- **Yellow** – The question or attachment is required
- **Green** – The question is conditional based on previous answers

2025 NOGRR245 IBR RFI

(Market Notice: M-A071024-02)

Resource Entity:

Resource Name:

DocuSign Instructions:

- Responses are due on or before April 1, 2025
- Only one person can provide responses.
- The document can be forwarded or “Assigned to Someone Else” via the “Other Actions” menu at the top of the DocuSign web page.
- Please contact your ERCOT Account Manager with any additional questions.

Background Information:

The Public Utility Commission of Texas approved NOGRR 245 to be effective October 1, 2024. Accordingly, the revised ride-through requirements in the Nodal Operating Guides (NOG) are currently in effect. ERCOT has developed an intake process for data associated with the requirements established through NOGRR 245 and this DocuSign document implements that process.

NOTE: IF YOU INTEND TO REQUEST AN EXEMPTION OR EXTENSION FOR YOUR RESOURCE, YOU MUST SUBMIT THE REQUESTED INFORMATION BY MIDNIGHT ON APRIL 1, 2025 OR YOU WILL BE FOREVER BARRED FROM REQUESTING AN EXEMPTION OR EXTENSION. See, Nodal Operating Guide § 2.11.1(2); § 2.11.2(2) and § 2.12.1(2).

Submitter signature:

Submitter name:

Submitter title:

Date:

General Comments:

General Information

Pursuant to Public Utility Commission of Texas Electric Substantive Rule § 25.503(f)(10), ERCOT requests the following information to be returned to ERCOT on or before April 1, 2025.

| | |
|---|----------------------|
| Resource Entity Name: | [pre-populated] |
| Resource Entity Data Universal Numbering System (DUNS) Number: | [pre-populated] |
| Substation Name: | [pre-populated] |
| Resource Name: | [pre-populated] |
| Fuel Type: | [pre-populated] |
| (if fuel type = wind) Wind Turbine Type: | [pre-populated] |
| Does the Resource have a Standard Generation Interconnection Agreement (SGIA) date prior to August 1, 2024? | [y/n] |
| Has the Resource implemented any modification covered by ERCOT Planning Guide Section 5.2.1(1)(c) since its original Commercial Operation Date (COD)? | [y/n] |
| Was the most recent Generation Interconnection or Modification (GIM) covered by ERCOT Planning Guide Section 5.2.1(1)(c) initiated prior to August 1, 2024? | (if above = y) [y/n] |

Comments: [text]

Frequency Ride-Through

1. Is the Resource frequency ride-through capability (i.e., software, settings, firmware, and parameterization) set to the maximum level the equipment allows in accordance with Good Utility Practice? [y/n]

(If Yes) As of what date did the Resource maximize its frequency ride-through capability?: [date]

(If Yes) Describe all software, firmware, settings or parameterization modifications the Resource owner implemented to maximize the Resource's frequency ride-through capability to the fullest extent the equipment allows in accordance with Good Utility Practice. [text]

(If No) Will the Resource maximize its frequency ride-through capability on or before 12/31/25 or by its initial synchronization date (for new IBRs synchronizing after 12/31/25)?: [y/n]

(If yes) Provide the date by which you intend to complete maximization and describe the software, firmware, settings or parameterization changes you will make to maximize the Resource's frequency ride-through capability in accordance with Good Utility Practice.
[date] [text]

2. Will the Resource owner implement changes to existing equipment *other than* software, firmware, settings or parameterization changes to increase the Resource's frequency ride-through capability, and if yes, describe those modifications and attach any supporting documentation [y/n]

(If Yes) Describe the changes to existing equipment *other than* software, firmware, settings or parameterization changes that will be made to increase the Resource's frequency ride-through capability and attach any supporting documentation. [text] [attachment point]

3. Based on the Resource's maximum frequency ride-through capability, provide the ride-through time (in seconds) at the specified frequency levels in the table below:

| Frequency (Hz) | Frequency ride-through capability (seconds) | | |
|----------------|---|-----------------------------|-----------------------------|
| | Required | Pre-Maximization | Post-Maximization |
| 61.8 | 299 | [number] | [number] |
| 61.6 | 540 | [number] | [number] |
| 58.8-61.2 | continuous | [continuous/not-continuous] | [continuous/not-continuous] |
| 58.4 | 540 | [number] | [number] |
| 57 | 299 | [number] | [number] |

I attest the table above accurately represents the pre-maximization and post-maximization frequency ride-through performance capability of the Resource and all its inter-dependent systems (such as plant controls, turbine controls and/or inverter controls - not just protective relay settings). [y/n]

4. Provide a post-maximization complete frequency ride-through capability curve (0-600 seconds) superimposed on the minimum applicable requirement.

NOTE: Submit pdf, image, or excel for curve.

[attachment point]

5. Can the Resource meet or exceed the minimum frequency ride-through requirements in Nodal Operating Guide Sections 2.6.2.1(1) - (5)? [y/n]

(If Yes) As of what date did the Resource meet the requirements in NOG Sections 2.6.2.1(1) – (5)? [date]

(If No) Submit the Initial Frequency Ride-Through Capability Report required in NOG Section 2.11.1(1) [text] [attachment point]

(If No) By the latter of 12/31/25 or the time of its synchronization with the ERCOT Transmission Grid (if synchronizing after 12/31/25), will the Resource meet or exceed the minimum frequency ride-through requirements in Nodal Operating Guide Sections 2.6.2.1(1) - (5)? [y/n]

(If No) Does the Resource meet the frequency ride-through requirements in effect on May 1, 2024 at this time? [y/n]

6. Can the Resource currently remain reliably connected to the ERCOT grid as set forth in NOG Section 2.6.2.1.1(2)? [y/n]

(If No) Provide the information required in NOG Section 2.11.1(1) [text][attachments]

7. I attest the Resource owner has made or caused to be made all software, settings, firmware, and parameterization changes (which includes memory upgrades to accommodate such changes that do not involve modifying other Resource equipment or components) to maximize the performance of the Resource's protection systems, controls, and other plant equipment (within equipment limitations and in accordance with Good Utility Practice) to exceed or achieve as close as reasonably possible, the capability and performance requirements set forth in Nodal Operating Guide Section 2.6.2.1.

[y/n checkbox]

(If No) I attest the Resource owner will make or cause to be made all software, settings, firmware, and parameterization changes (which includes memory upgrades to accommodate such changes that do not involve modifying other Resource equipment or components) to maximize the performance of the Resource's protection systems, controls, and other plant equipment (within equipment limitations and in accordance with Good Utility Practice) to exceed or achieve as close as reasonably possible, the capability and performance requirements set forth in Nodal Operating Guide Section 2.6.2.1 by 12/31/25 or the Resource's synchronization date (whichever is later) or by the end of any extension obtained for the Resource.

[y/n checkbox]

(If No) Why can you not attest the Resource owner will make or cause to be made all software, settings, firmware, and parameterization changes (which includes memory upgrades to accommodate such changes that do not involve modifying other Resource equipment or components) to maximize the performance of the Resource's protection systems, controls, and other plant equipment (within equipment limitations and in accordance with Good Utility Practice) to exceed or achieve as close as reasonably possible, the capability and performance requirements set forth in Nodal Operating Guide Section 2.6.2.1 by 12/31/25 or the Resource's synchronization date (whichever is later) or by the end of any extension obtained for the Resource. [text]

8. A. If already submitted, I attest all dynamic models including PSSE, TSAT, and PSCAD for this Resource are accurate and reflect actual frequency ride-through capability.

[y/n]

(If No) Explain why the models are not accurate or do not reflect actual frequency ride-through capability. [text]

B. If not already submitted, I attest all dynamic models including PSSE, TSAT, and PSCAD for this Resource will be accurate and reflect actual frequency ride-through capability when submitted.

[y/n]

(If No) Explain why the models will not be accurate or will not reflect actual frequency ride-through capability when submitted. [text]

Voltage Ride-Through

1. Is the Resource voltage ride-through capability (i.e., software, settings, firmware, and parameterization) set to the maximum level the equipment allows in accordance with Good Utility Practice? [y/n]

(If Yes) As of what date did the Resource maximize its voltage ride-through capability? [date]

(If Yes) Describe all software, firmware, settings or parameterization modifications the Resource owner implemented to maximize the Resource's voltage ride-through capability to the fullest extent the equipment allows in accordance with Good Utility Practice. [text]

(If No) Will the Resource maximize its voltage ride-through capability on or before 12/31/25 or its Commercial Operations Date (if not yet commercial)? [y/n]

(If Yes to above question) Provide the date you intend to complete the maximization and describe the software, firmware, settings or parameterization changes you will make to increase the Resource's voltage ride-through capability in accordance with Good Utility Practice. [date] [text]

(If No) If the Resource has a SGIA dated before 8/1/24, does the Resource meet the voltage ride-through requirements in NOG Section 2.9.1.2?: [y/n]

2. Will the Resource owner implement changes to existing equipment *other than* software, firmware, settings or parameterization changes to increase the Resource's voltage ride-through capability? [y/n]

(If Yes) Describe the changes to existing equipment *other than* software, firmware, settings or parameterization changes that will be made to increase the Resource’s voltage ride-through capability and attach any supporting documentation. [text] [attachment point]

- Based on the Resource’s maximum voltage ride-through capability, provide the ride-through time (in seconds) at the specified voltage levels in the table below:

| POIB Voltage (pu) | Ride-through capability (seconds) | | | |
|-------------------|-----------------------------------|--|-----------------------------|-----------------------------|
| | Legacy Requirements | Preferred Requirements (WGR / PVGR or ESR) | Pre-Maximization | Post-Maximization |
| 1.8 | May trip | 0.0002* | [number] | [number] |
| 1.7 | May trip | 0.001* | [number] | [number] |
| 1.6 | May trip | 0.003* | [number] | [number] |
| 1.4 | May trip | 0.015* | [number] | [number] |
| 1.2 | 0.2 | 1.0 | [number] | [number] |
| 1.175 | 0.5 | 1.0 | [number] | [number] |
| 1.15 | 1.0 | 1.0 | [number] | [number] |
| 0.9 - 1.1 | continuous | continuous | [continuous/not-continuous] | [continuous/not-continuous] |
| 0.7 | 1.394 | 3.0 / 6.0 | [number] | [number] |
| .05 | 1.039 | 2.5 / 3.0 | [number] | [number] |
| .25 | 0.594 | 1.2 | [number] | [number] |
| 0.13 | 0.381 | 0.381 | [number] | [number] |
| 0 | 0.15 | 0.16 / 0.32 | [number] | [number] |

* These requirements are from IEEE 2800-2022

I attest the table above accurately represents the Resource’s pre-maximization and post-maximization voltage ride-through performance capability and all its inter-dependent systems (such as plant controls, turbine controls and/or inverter controls - not just protective relay settings).

[y/n]

- Provide a complete voltage ride-through capability curve (0-10 seconds) superimposed on the minimum applicable requirement. A separate curve may be necessary to show sub-cycle overvoltage capability. NOTE: Submit pdf or image.

[attachment point]

5. Can the Resource meet or exceed all the voltage ride-through requirements in Nodal Operating Guide Sections 2.9.1.1(1) – (7)?
- As of what date did the Resource meet the requirements in NOG Sections 2.9.1.1(1) – (7)?:
- By the latter of 12/31/25 or its Commercial Operations Date, will the Resource meet or exceed the voltage ride-through requirements in Nodal Operating Guide Sections 2.9.1.1(1) – (7)?
- Does the Resource meet or exceed the voltage ride-through requirements in NOG Sections 2.9.1.2(1) – (7)?
- Submit the Initial Voltage Ride-Through Capability Report required in NOG Section NOG 2.11.2(1).
- By the latter of 12/31/25 or its Commercial Operations Date, will the Resource meet or exceed the voltage ride-through requirements in NOG Sections 2.9.1.2(1) – (7)?
- Does the Resource meet the voltage ride-through requirements in effect on May 1, 2024 at this time?
6. Do all instantaneous over-current or over-voltage protection systems installed and activated to trip the Resource use filtered quantities or time delays sufficient to prevent misoperation while providing the desired equipment protection?
7. Does all alternating current instantaneous over-voltage protection that could disrupt power output use a measurement period of at least one cycle (of fundamental frequency)?
8. Does the Resource use Rate of Change of Frequency measurement quantities to reduce power output or trip offline during fault conditions and subsequent recovery to a steady-state operating point within the applicable ride-through profiles in NOG Section 2.9.1.1(1) or 2.9.1.2(1)?
9. Does the Resource use phase angle jump measurement quantities to reduce power output or trip offline during fault conditions and subsequent recovery to a steady-state operating point within the applicable ride-through profiles in NOG Section 2.9.1.1(1) or 2.9.1.2(1)?
10. I attest the Resource owner has made or caused to be made all software, settings, firmware, and parameterization (which includes memory upgrades to accommodate such changes that do not involve modifying other Resource equipment or components), and other changes to maximize the performance of the Resource's protection systems, controls, and other plant equipment (within equipment limitations and in accordance with Good Utility Practice) to exceed, or achieve as close as reasonably possible, the capability and performance in Nodal Operating Guide Sections 2.9.1, 2.9.1.1 or 2.9.1.2, as applicable.

(If No) I attest the Resource owner will make or cause to be made all software, settings, firmware, and parameterization (which includes memory upgrades to accommodate such changes that do not involve modifying other Resource equipment or components), and other changes to maximize the performance of the Resource's protection systems, controls, and other plant equipment (within equipment limitations and in accordance with Good Utility Practice) to exceed, or achieve as close as reasonably possible, the capability and performance in Nodal Operating Guide Sections 2.9.1, 2.9.1.1 or 2.9.1.2, as applicable. **[y/n checkbox]**

(If No) Why can you not attest the Resource owner will make or cause to be made all software, settings, firmware, and parameterization (which includes memory upgrades to accommodate such changes that do not involve modifying other Resource equipment or components), and other changes to maximize the performance of the Resource's protection systems, controls, and other plant equipment (within equipment limitations and in accordance with Good Utility Practice) to exceed, or achieve as close as reasonably possible, the capability and performance in Nodal Operating Guide Sections 2.9.1, 2.9.1.1 or 2.9.1.2, as applicable. **[text]**

11. A. If already submitted, I attest all dynamic models including PSSE, TSAT, and PSCAD for this Resource are accurate and reflect actual post-maximization voltage ride-through capability.

[y/n]

(If No) Explain why the models are not accurate or do not reflect actual voltage ride-through capability: **[text]**

B. If not already submitted, I attest all dynamic models including PSSE, TSAT, and PSCAD for this Resource will be accurate and reflect actual post-maximization voltage ride-through capability when submitted.

[y/n]

(If No) Explain why the models will not be accurate or not reflect actual voltage ride-through capability when submitted. **[text]**

IEEE 2800-2022

1. Has the Resource owner maximized the Resource's capabilities with respect to the requirements in IEEE 2800-2022 Sections 5, 7, and 9 to the fullest extent the equipment allows in accordance with Good Utility Practice? [y/n]

(If Yes) As of what date did the Resource maximize its capabilities with respect to the requirements in IEEE 2800-2022 Sections 5, 7, and 9 to the fullest extent the equipment allows? [date]

(If Yes) Describe all software, firmware, settings or parameterization modifications the Resource implemented to maximize the Resource's capabilities with respect to the requirements in IEEE 2800-2022 Sections 5, 7, and 9 to the fullest extent the equipment allows in accordance with Good Utility Practice. [text]

(If No) By the latter of 12/31/25 or its Commercial Operations Date, will the Resource maximize its capabilities with respect to the requirements in IEEE 2800-2022 Sections 5, 7, and 9 to the fullest extent the equipment allows in accordance with Good Utility Practice? [y/n]

(If yes) Provide the date by which you intend to complete the maximization and describe the software, firmware, settings or parameterization changes you will make to increase the Resource's capabilities with respect to the requirements in IEEE 2800-2022 Sections 5, 7, and 9 to the fullest extent the equipment allows in accordance with Good Utility Practice. [date] [text]

2. Can the Resource meet or exceed the capability and performance set forth in sections 5, 7 and 9 of the IEEE 2800-2022 standard? [y/n]

(If Yes) As of what date did - or by what date will - the Resource meet or exceed the requirements in IEEE 2800-2022 Sections 5, 7, and 9 to the fullest extent the equipment allows? [date]

(If No) Describe which parts of IEEE 2800-2022 Sections 5, 7 and 9 the Resource can meet (if any) and which it cannot meet. [text]

(If No) By the latter of 12/31/25 or its Commercial Operations Date, will the Resource meet or exceed the capability and performance set forth in sections 5, 7 and 9 of the IEEE 2800-2022 standard? [y/n]

(If No) Describe which parts of IEEE 2800-2022 Sections 5, 7 and 9 the Resource will be able to meet (if any) and which it will not be able to meet. [text]

3. Will the IBR be configured to inject negative sequence current for unbalanced faults (in addition to increased positive-sequence reactive current) as described in IEEE 2800 Section 7.2.2.3.4? [y/n]

(If No) Describe why the Resource has not been configured to inject negative sequence current for unbalanced faults (in addition to increased positive-sequence reactive current). [text]

(If Yes) Complete the following table and provided additional explanation, if necessary. [text]

| Parameter | Requirement | Pre-Maximization | Post-Maximization |
|---|--|------------------|-------------------|
| Negative Sequence Current Injection allowable range to lead negative sequence voltage | 90 to 100 degrees (90 to 150 for Type 3 WGR) | [number] degrees | [number] degrees |

4. Complete the following IBR Performance Specifications per IEEE 2800-2022 Section 7.2.2.3.5, Table 13 (note that maximizing capability does not imply that actual performance needs to match the fastest response times and settling times):

| Parameter | Capability Requirement | Pre-Maximization Capability | Post- Maximization Capability |
|-----------------------------|--|---|---|
| IBR unit Step Response Time | ≤ 2.5 cycles (NA for Type 3 WGR) | [number] cycles | [number] cycles |
| IBR unit Settling Time | ≤ 4 cycles ; ≤ 6 cycles for Type 3 WGR | [number] cycles | [number] cycles |
| IBR unit Settling band | -2.5% / +10% of IBR unit max current | [#] % / [#] % of IBR unit maximum current | [#] % / [#] % of IBR unit maximum current |

Provide any additional information you deem relevant. [text]

5. Does the Resource use current blocking? [y/n]

(If Yes) Please describe any use of current blocking to ride through disturbances. **Note:** Current blocking is not allowed within the continuous or mandatory operations regions (“no trip zones”) and, if used in the “may trip” regions, current exchange must restart in ≤ 5 cycles (IEEE 2800-2022 Section 7.2.3).

[text] [attachment point]

(If Yes) Provide restart time in the following table:

| Parameter | Requirement | Pre-Maximization | Post-Maximization |
|--|-------------|------------------|-------------------|
| Restart time after return to mandatory operations region | <5 cycles | [number] cycles | [number] cycles |

6. Provide the Rate of Change of Frequency ride-through capability in the following table (See IEEE 2800-2022 Section 7.3.2.3.5):

| Parameter | Requirement | Pre-Maximization | Post- Maximization |
|---|-------------|------------------|--------------------|
| Rate of Change of Frequency (RoCoF) (df/dt) | 5 Hz/s | [number] Hz/s | [number] Hz/s |
| RoCoF average measuring window | >.1 sec | [number] seconds | [number] seconds |

7. Provide the phase angle jump (change) ride-through capability in the following table (See IEEE 2800-2022 Section 7.3.2.4):

| Parameter | Requirement | Pre-Maximization | Post- Maximization |
|---------------------------|-------------|------------------|--------------------|
| Phase angle jump (change) | 25 deg | [number] degrees | [number] degrees |

8. Provide consecutive voltage deviations ride-through data (See, IEEE 2800-2022 Section 7.2.2.4):

| Parameter | Requirement | Pre-Maximization | Post- Maximization |
|--|-------------|------------------|--------------------|
| # of excursions in a 10 second window | 4 | [number] | [number] |
| # of excursions in a 120 second window | 6 | [number] | [number] |
| # of excursions in an 1800 second window | 10 | [number] | [number] |
| # of excursions below 50% at POI in a 10 second window | 2 | [number] | [number] |
| # of excursions below 50% in a 120 second window | 3 | [number] | [number] |

9. I attest the Resource owner has collaborated with the interconnecting TSP(s) to ensure any auto-reclosing settings are coordinated with the Resource multiple fault ride-through capability to not result in unnecessary tripping of the Resource.

[y/n]

10. I attest the Resource owner has made or caused to be made all software, settings, firmware, and parameterization changes (which includes memory upgrades to accommodate such changes that do not involve modifying other Resource equipment or components) to maximize the performance of the Resource’s protection systems, controls, and other plant equipment (within equipment limitations and in accordance with Good Utility Practice) to exceed, or achieve as close as reasonably possible, the capability and performance set forth in Sections 5, 7 and 9 of the IEEE 2800-2022 standard. [y/n]

(If No) I attest the Resource owner will make or cause to be made all software, settings, firmware, and parameterization changes (which includes memory upgrades to accommodate such changes that do not involve modifying other Resource equipment or components) to maximize the performance of the Resource’s protection systems, controls, and other plant equipment (within equipment limitations and in accordance with Good Utility Practice) to exceed, or achieve as close as reasonably possible, the capability and performance set forth in Sections 5, 7 and 9 of the IEEE 2800-2022 standard. [y/n checkbox]

(If No) Why can you not attest the Resource owner will make or cause to be made all software, settings, firmware, and parameterization changes (which includes memory upgrades to accommodate such changes that do not involve modifying other Resource equipment or components) to maximize the performance of the Resource’s protection systems, controls, and other plant equipment (within equipment limitations and in accordance with Good Utility Practice) to exceed, or achieve as close as reasonably possible, the capability and performance set forth in Sections 5, 7 and 9 of the IEEE 2800-2022 standard. [text]

Extension Request

1. Are you requesting an extension for the Resource under Nodal Operating Guide Sections 2.6.2.1(7); 2.9.1(6); 2.9.1.1(8) or (9); or 2.9.1.2(9)? [y/n]

(If Yes) Complete the following table:

| Section for which you request and extension | Yes/No | If yes, date on which you want the extension to end |
|---|--------|---|
| Section 2.6.2.1(7) | Yes/No | (If yes) [date] |
| Section 2.9.1(6) | Yes/No | (If yes) [date] |
| Section 2.9.1.1(8) | Yes/No | (If yes) [date] |
| Section 2.9.1.1(9) | Yes/No | (If yes) [date] |
| Section 2.9.1.2(9) | Yes/No | (If yes) [date] |

(If Yes) What is the Resource's Commercial Operations Date? [date]

(If Yes) For each section you are requesting an extension, provide the information set forth in NOG Sections 2.11.1 (for frequency ride-through extensions) or 2.11.2 (for voltage ride-through extensions). [text] [attachment point]

(If Yes) Provide the information set forth in NOG Section 2.12.1.2 as applicable for the extension requested. [text] [attachment point]

Exemption Request

1. Do you intend to request an exemption pursuant to Nodal Operating Guide Section 2.6.2.1(7) for the Resource? [y/n]

(If Yes) Specify the sub-section(s) of NOG Section 2.6.2.1 for which you seek the exemption and provide the information set forth in NOG Section 2.11.1: [text] [attachment point]

Section 2.6.2.1(1)? [y/n]

Section 2.6.2.1(3)? [y/n]

Section 2.6.2.1(4) [y/n]

Section 2.6.2.1(5) [y/n]

Section 2.6.2.1(6) [y/n]

2. Do you intend to request an exemption pursuant to Nodal Operating Guide Section 2.9.1.2(9) for the Resource? [y/n]

(If Yes) Specify the sub-section(s) of NOG Section 2.9.1.2 for which you seek the exemption and provide the information set forth in NOG Section 2.11.2: [text] [attachment point]

Section 2.9.1.2(1)? [y/n] [attachment]

Section 2.9.1.2(3)? [y/n] [attachment]

Section 2.9.1.2(4)? [y/n] [attachment]

Section 2.9.1.2(5)? [y/n] [attachment]

Section 2.9.1.2(6)? [y/n] [attachment]

Section 2.9.1.2(7)? [y/n] [attachment]

3. Do you intend to request an exemption pursuant to Nodal Operating Guide Section 2.9.1(5)? [y/n]

(If Yes) Provide the information set forth in NOG Section 2.11.2. [text] [attachment point]