|  |  |  |  |
| --- | --- | --- | --- |
| NPRR Number | [1171](https://www.ercot.com/mktrules/issues/NPRR1171) | NPRR Title | Requirements for DGRs and DESRs on Circuits Subject to Load Shedding |
| Date of Decision | | August 22, 2023 | |
| Action | | Recommended Approval | |
| Timeline | | Normal | |
| Estimated Impacts | | Cost/Budgetary: $350K - $550K  Project Duration: 9 – 12 months  (See 3/29/23 Impact Analysis for additional detail) | |
| Proposed Effective Date | | Upon system implementation | |
| Priority and Rank Assigned | | Priority – 2024; Rank – 4050 | |
| Nodal Protocol Sections Requiring Revision | | 3.8.6, Distribution Generation Resources (DGRs) and Distribution Energy Storage Resources (DESRs)  3.16, Standards for Determining Ancillary Service Quantities  23, Form Q, Interconnection Circuit Designation for Distribution Generation Resources (DGRs) and Distribution Energy Storage Resources (DESRs) (new) | |
| Related Documents Requiring Revision/Related Revision Requests | | Nodal Operating Guide Revision Request (NOGRR) 250, Related to NPRR1171, Requirements for DGRs and DESRs on Circuits Subject to Load Shedding  Resource Registration Guide Revision Request (RRGRR) 035, Related to NPRR1171, Requirements for DGRs and DESRs on Circuits Subject to Load Shedding | |
| Revision Description | | This Nodal Protocol Revision Request (NPRR) clarifies various reliability requirements for Distribution Generation Resources (DGRs) and Distribution Energy Storage Resources (DESRs) that are seeking qualification to provide Ancillary Service(s) and/or participate in Security-Constrained Economic Dispatch (SCED), as follows:   * Paragraph (1) of Section 3.8.6 allows for a DGR/DESR situated on a circuit subject to disconnection during Load shed events to participate in the Day-Ahead Market (DAM) and provide Ancillary Services allowed by Section 3.18, Resource Limits in Providing Ancillary Service; * Section 3.16 recognizes that ERCOT will establish limits on Ancillary Services that may be provided by DGRs/DESRs on circuits subject to disconnection during Load shed events; and * New Section 23, Form Q, establishes a formal notification process for the Distribution Service Provider (DSP) to indicate whether the interconnecting feeder for the DGR/DESR is subject to Load shed and whether the DSP has determined that there are operational restrictions on the DGR/DESR. | |
| Reason for Revision | | [Strategic Plan](https://ercot.sharepoint.com/sites/departments/stpl/ERCOT%20Strategy/ERCOT%20Strategic%20Plan%202024-2028.pdf) Objective 1 – Be an industry leader for grid reliability and resilience  [Strategic Plan](https://ercot.sharepoint.com/sites/departments/stpl/ERCOT%20Strategy/ERCOT%20Strategic%20Plan%202024-2028.pdf) Objective 2 - Enhance the ERCOT region’s economic competitiveness with respect to trends in wholesale power rates and retail electricity prices to consumers  [Strategic Plan](https://ercot.sharepoint.com/sites/departments/stpl/ERCOT%20Strategy/ERCOT%20Strategic%20Plan%202024-2028.pdf) Objective 3 - Advance ERCOT, Inc. as an independent leading industry expert and an employer of choice by fostering innovation, investing in our people, and emphasizing the importance of our mission  Administrative  Regulatory requirements  ERCOT Board/PUCT Directive  *(please select ONLY ONE – if more than one apply, please select the ONE that is most relevant)* | |
| Justification of Reason for Revision and Market Impacts | | ERCOT has noted a marked increase in interest in proposed interconnections of Resources on the Distribution System and the provision of Ancillary Services by those Resources. The Public Utility Commission of Texas (PUCT) has asked ERCOT to review all Ancillary Services provided by DGRs and DESRs and review which may be provided by a Resource on a distribution circuit that may be subject to Under-Frequency Load Shed (UFLS), Under-Voltage Load Shed (UVLS), or Load shed during an Energy Emergency Alert (EEA) event.  In response to the PUCT’s request, this NPRR identifies the Ancillary Services that can be provided by DGRs and DESRs on feeders subject to Load shedding. | |
| PRS Decision | | On 4/13/23, PRS voted unanimously to table NPRR1171 and refer the issue to ROS. All Market Segments participated in the vote.  On 7/13/23, PRS voted unanimously to recommend approval of NPRR1171 as submitted. All Market Segments participated in the vote.  On 8/10/23, PRS voted unanimously to endorse and forward to TAC the 7/13/23 PRS Report and 3/29/23 Impact Analysis for NPRR1171 with a recommended priority of 2024 and rank of 4050. All Market Segments participated in the vote. | |
| Summary of PRS Discussion | | On 4/13/23, some participants expressed concern for operational limitations, reporting accuracy, and reliability. Participants requested further review by ROS.  On 7/13/23, participants noted the 7/7/23 ROS comments endorsing NPRR1171 as submitted.  On 8/10/23, participants reviewed the 3/29/23 Impact Analysis, and the proposed rank and priority for NPRR1171. | |
| TAC Decision | | On 8/22/23, TAC voted unanimously to recommend approval of NPRR1171 as recommended by PRS in the 8/10/23 PRS Report as amended by the 8/18/23 ERCOT comments. All Market Segments participated in the vote. | |
| Summary of TAC Discussion | | On 8/22/23, TAC reviewed the ERCOT Opinion, ERCOT Market Impact Statement, Independent Market Monitor (IMM) Opinion, and Business Case for NPRR1171, and the 8/18/23 ERCOT comments to correct baseline language. Participants offered to develop a problem statement to determine if a workshop and/or additional NPRR is needed to address issues associated with transmission and distribution utility mobile generation implementation issues. | |
| Explanation of Opposing TAC Votes | | Segment/Company – (explanation)  Segment/Company – (explanation) | |
| TAC Review/Justification of Recommendation | | Revision Request ties to Reason for Revision as explained in Justification  Impact Analysis reviewed and impacts are justified as explained in Justification  Opinions were reviewed and discussed  Comments were reviewed and discussed  Other: (explain) | |

|  |  |
| --- | --- |
| **Opinions** | |
| Credit Review | ERCOT Credit Staff and the Credit Finance Sub Group (CFSG) have reviewed NPRR1171 and do not believe that it requires changes to credit monitoring activity or the calculation of liability. |
| Independent Market Monitor Opinion | IMM has no opinion on NPRR1171. |
| ERCOT Opinion | ERCOT supports approval of NPRR1171. |
| ERCOT Market Impact Statement | ERCOT Staff has reviewed NPRR1171 and believes the market impact for NPRR1171 is identification of Ancillary Services that can be provided by DGRs and DESRs on feeders subject to Load shedding. |

|  |  |
| --- | --- |
| Sponsor | |
| Name | Clayton Stice |
| E-mail Address | [clayton.stice2@ercot.com](mailto:clayton.stice2@ercot.com) |
| Company | ERCOT |
| Phone Number | 512-248-6806 |
| Cell Number | 512-627-5020 |
| Market Segment | Not Applicable |

|  |  |
| --- | --- |
| **Market Rules Staff Contact** | |
| **Name** | Brittney Albracht |
| **E-Mail Address** | [Brittney.Albracht@ercot.com](mailto:Brittney.Albracht@ercot.com) |
| **Phone Number** | 512-225-7027 |

|  |  |
| --- | --- |
| **Comments Received** | |
| **Comment Author** | **Comment Summary** |
| ROS 050423 | Requested PRS continue to table NPRR1171 for further review by the Operations Working Group (OWG) |
| Tesla 050923 | Suggested distribution connected resources should be allowed to provide all Ancillary Services based on a risk assessment; the scope of NPRR1171 should clearly exclude application to aggregated distributed energy resources; and that limiting the provision of Ancillary Services year-round to avoid distribution system interruptions is an undue burden |
| TAEBA 061423 | Suggested the scope of NPRR1171 should clearly exclude application to aggregated distributed energy resources, and that ERCOT should be explicit that behind-the-meter resources are eligible under rule changes to Section 3.8.6 if their capacity is large enough to perform Ancillary Services |
| ROS 070723 | Endorsed NPRR1171 as submitted |
| ERCOT 081823 | Reinstated baseline inadvertently omitted from paragraph (1) of Section 3.8.6 in order to show the language intentionally struck |

|  |
| --- |
| **Market Rules Notes** |

Please note that administrative revisions have been made to the language, authored as “ERCOT Market Rules”.

Please note that the following NPRR(s) also propose revisions to the following section(s):

* NPRR1183, ECEII Definition Clarification and Updates to Posting Rules for Certain Documents without ECEII
  + Section 3.16

Please note the baseline Protocol language in the following section(s) has been updated to reflect the incorporation of the following NPRR(s) into the Protocols:

* NPRR863, Creation of ERCOT Contingency Reserve Service and Revisions to Responsive Reserve (unboxed 6/9/23)
  + Section 3.16

|  |
| --- |
| Proposed Protocol Language Revision |

***3.8.6 Distribution Generation Resources (DGRs) and Distribution Energy Storage Resources (DESRs)***

(1) As a condition for the interconnection of a DGR or DESR, the affected Resource Entity, after consultation with the relevant Distribution Service Provider (DSP), shall submit an executed Section 23, Form Q, Interconnection Circuit Designation for Distribution Generation Resources (DGRs) and Distribution Energy Storage Resources (DESRs).

(a) The DSP shall indicate that the interconnecting distribution circuit for the DGR or DESR is subject to Load shed if the DSP determines that the distribution circuit may be disconnected as part of an Energy Emergency Alert (EEA) Level 3 Load shedding event, an Under-Frequency Load Shed (UFLS) event, or an Under-Voltage Load Shed (UVLS) event.

(b) The DSP shall indicate that the interconnecting distribution circuit for the DGR or DESR is not subject to Load shed if the DSP determines that the distribution circuit will not be disconnected for any Load shed purpose during any of the events listed in paragraph (a) above. This condition may be met where:

(i) A DGR or DESR is connected to a distribution circuit which the DSP has excluded from Load shedding events, which may include, but is not limited to, a distribution circuit that interconnects only DGRs or DESRs; or

(ii) A DGR or DESR is connected to a distribution circuit where a recloser or other sectionalizing device excludes the DGR or DESR from Load shedding events on the distribution circuit.

(c) If the DSP has indicated that the interconnecting distribution circuit may be subject to Load shed, the DGR or DESR may qualify to provide only the following Ancillary Services, subject to the limits established by ERCOT pursuant to Section 3.16, Standards for Determining Ancillary Service Quantities:

(i) Non-Spinning Reserve Service (Non-Spin); and

(ii) Regulation Down Service (Reg-Down).

(d) If the DSP has indicated that the interconnecting distribution circuit is not subject to Load shed, then the DGR or DESR shall not be subject to the Ancillary Service qualification limitations described in paragraph (c) above.

(e) The DSP shall identify on Section 23, Form Q, whether the DSP has identified any operational limitations for the DGR or DESR based on known system limitations and planning or operational studies, including studies performed in accordance with Planning Guide Section 5.4.2, Submission of Interconnection Agreement and TSP and/or DSP Studies and Technical Requirements. Temporary limitations, such as may occur during maintenance outage conditions, are not required to be reported on Section 23, Form Q.

(2) If a DSP at any time after the interconnection of a DGR or DESR determines that any circuit to which the DGR or DESR is interconnected will be subject to Load shed during any of the Load shedding events listed in paragraph (1)(a) above, or that a DGR or DESR will need to be electrically relocated to a circuit that will be subject to Load shed during these Load shedding events:

(a) The DSP shall promptly notify ERCOT and the designated contact for the DGR or DESR;

(b) The Resource Entity for the DGR or DESR shall promptly submit an updated Section 23, Form Q, to ERCOT and shall make a corresponding update to its Resource Registration data; and

(c) The Ancillary Service qualification limitations in paragraph (1)(c) above will apply to the DGR or DESR.

(3) If a DGR or DESR is interconnected to a circuit that is subject to Load shed and then either is relocated to a different circuit that is not subject to Load shed during any of the Load shed events listed in paragraph (1)(a) above or receives notification from the DSP that the DGR or DESR is no longer subject to Load shed during any of these events, the Resource Entity for the DGR or DESR shall submit an updated Section 23, Form Q, to ERCOT and shall make a corresponding update to its Resource Registration data.(4) For a proposed conversion of an existing Settlement Only Distribution Generator (SODG) to a DGR or DESR, the Resource Entity will follow the generation interconnection process outlined in Planning Guide Section 5, Generator Interconnection or Modification.

|  |
| --- |
| ***[NPRR995: Replace paragraph (4) above with the following upon system implementation:]***  (4) For a proposed conversion of an existing Settlement Only Distribution Generator (SODG) to a DGR or for a proposed conversion of an existing Settlement Only Distribution Energy Storage System (SODESS) to a DESR, the Resource Entity will follow the generation interconnection process outlined in Planning Guide Section 5, Generator Interconnection or Modification. |

(3) The Resource Node for a DGR or DESR shall be fixed at a single Electrical Bus in the ERCOT Network Operations Model.

(a) If a DSP determines that a topology change has altered, or is expected to alter, the electrical path connecting the DGR or DESR to the ERCOT Transmission Grid for a period longer than 60 days:

(i) The DSP shall promptly notify the interconnecting Transmission Service Provider (TSP) and the designated contact for the DGR or DESR, and the interconnecting TSP shall notify ERCOT; and

(ii) The Resource Entity shall submit a change request to ERCOT via the Resource Registration process.

3.16 Standards for Determining Ancillary Service Quantities

(1) ERCOT shall comply with the requirements for determining Ancillary Service quantities as specified in these Protocols and the ERCOT Operating Guides.

(2) ERCOT shall, at least annually, determine with supporting data, the methodology for determining the quantity requirements for each Ancillary Service needed for reliability, including:

(a) The percentage or MW limit of ERCOT Contingency Reserve Service (ECRS) allowed from Load Resources providing ECRS;

(b) The maximum amount (MW) of Responsive Reserve (RRS) that can be provided by Resources capable of Fast Frequency Response (FFR);

|  |
| --- |
| ***[NPRR1128: Replace item (b) above with the following upon system implementation:]***  (b) The maximum amount (MW) of Responsive Reserve (RRS) that can be provided by Resources capable of Fast Frequency Response (FFR) and specify the Operating Hours where prioritizing procurement of FFR up to the maximum FFR amount is beneficial in improving reliability; |

(c) The maximum amount (MW) of Regulation Up Service (Reg-Up) that can be provided by Resources providing Fast Responding Regulation Up Service (FRRS-Up); and

(d) The maximum amount (MW) of Regulation Down Service (Reg-Down) that can be provided by Resources providing Fast Responding Regulation Down Service (FRRS-Down).

|  |
| --- |
| ***[NPRR1007: Delete items (c) and (d) above upon system implementation of the Real-Time Co-Optimization (RTC) project and renumber accordingly.]*** |

(e) The minimum capacity required from Resources providing RRS using Primary Frequency Response shall not be less than 1,150 MW.

(3) The ERCOT Board shall review and approve ERCOT's methodology for determining the minimum Ancillary Service requirements, any minimum capacity required from SCED dispatchable Resources to provide Non-Spin, the maximum amount of Non-Spin that can be provided by DGRs and DESRs that are interconnected to a distribution circuit that is subject to Load shed, the minimum capacity required from Resources providing Primary Frequency Response to provide RRS, the maximum amount of RRS that can be provided by Resources capable of FFR, and the maximum amount of Reg-Up and Reg-Down that can be provided by Resources providing FRRS-Up and FRRS-Down.

|  |
| --- |
| ***[NPRR1007 and NPRR1128: Replace applicable portions of paragraph (3) above with the following upon system implementation of the Real-Time Co-Optimization (RTC) project for NPRR1007; or upon system implementation for NPRR1128:]***  (3) The ERCOT Board shall review and approve ERCOT's methodology for determining the minimum Ancillary Service requirements, any minimum capacity required from SCED dispatchable Resources to provide Non-Spin, the maximum amount of Non-Spin that can be provided by DGRs and DESRs that are interconnected to a distribution circuit that is subject to Load shed, the minimum capacity required from Resources providing Primary Frequency Response to provide RRS, the maximum amount of RRS that can be provided by Resources capable of FFR, and the Operating Hours where prioritizing procurement of FFR up to the maximum FFR amount is beneficial in improving reliability. |

(4) If ERCOT determines a need for additional Ancillary Service Resources under these Protocols or the ERCOT Operating Guides, after an Ancillary Service Plan for a specified day has been posted, ERCOT shall inform the market by posting notice on the ERCOT website, of ERCOT’s intent to procure additional Ancillary Service Resources under Section 6.4.9.2, Supplemental Ancillary Services Market. ERCOT shall post the reliability reason for the increase in service requirements.

|  |
| --- |
| ***[NPRR1007: Delete paragraph (4) above upon system implementation of the Real-Time Co-Optimization (RTC) project and renumber accordingly.]*** |

(5) Monthly, ERCOT shall determine and post on the Market Information System (MIS) Secure Area a minimum capacity required from Resources providing RRS using Primary Frequency Response. The remaining capacity required for RRS may be supplied by all Resources qualified to provide RRS, provided that RRS from Load Resources on high-set under-frequency relays and Resources providing FFR shall be limited to 60% of the total ERCOT RRS requirement. ERCOT may increase the minimum capacity required from Resources providing RRS using Primary Frequency Response if it believes that the current posted quantity will have a negative impact on reliability or if it would require additional Regulation Service to be deployed.

|  |
| --- |
| ***[NPRR1128: Replace paragraph (5) above with the following upon system implementation:]***  (5) Monthly, ERCOT shall determine and post on the Market Information System (MIS) Secure Area a minimum capacity required from Resources providing RRS using Primary Frequency Response. The remaining capacity required for RRS may be supplied by all Resources qualified to provide RRS, provided that RRS from Load Resources on high-set under-frequency relays and Resources providing FFR shall be limited to 60% of the total ERCOT RRS requirement. ERCOT may increase the minimum capacity required from Resources providing RRS using Primary Frequency Response if it believes that the current posted quantity will have a negative impact on reliability or if it would require additional Regulation Service to be deployed. ERCOT may add more Operating Hours where prioritizing procurement of FFR up to the maximum FFR amount is beneficial in improving reliability if it believes that these additional hours are vulnerable to low system inertia. ERCOT will issue an operations notice when such a change is made. |

(6) The amount of RRS that a Qualified Scheduling Entity (QSE) can self-arrange using a Load Resource excluding Controllable Load Resources and Resources providing FFR is limited to its Load Ratio Share (LRS) of the capacity allowed to be provided by Resources not providing RRS using Primary Frequency Response established in paragraph (5) above, provided that RRS from these Resources shall be limited to 60% of the total ERCOT RRS requirement.

(7) However, a QSE may offer more of the Load Resource above the percentage limit established by ERCOT for sale of RRS to other Market Participants. The total amount of RRS using the Load Resource procured by ERCOT is also limited to the capacity established in paragraph (5) above, up to the lesser of the 60% limit or the limit established by ERCOT in paragraph (5) above.

(8) Monthly, ERCOT shall determine and post on the MIS Secure Area a minimum capacity required from Resources providing ECRS. The amount of Load Resources excluding Controllable Load Resources that may or may not be on high-set under-frequency relays providing ECRS is limited to 50% of the total ERCOT ECRS requirement.

(9) The amount of ECRS that a QSE can self-arrange using a Load Resource excluding Controllable Load Resources is limited to the lower of:

(a) 50% of its ECRS Ancillary Service Obligation; or

(b) A reduced percentage of its ECRS Ancillary Service Obligation based on the limit established by ERCOT in paragraph (8) above.

(10) A QSE may offer more of the Load Resource above the percentage limit established by ERCOT for sale of ECRS to other Market Participants. The total amount of ECRS using the Load Resource excluding Controllable Load Resources procured by ERCOT is also limited to the lesser of the 50% limit or the limit established by ERCOT in paragraph (9) above.

(11) The maximum MW amount of capacity from Resources providing FRRS-Up is limited to 65 MW. ERCOT may reduce this limit if it believes that this amount will have a negative impact on reliability or if this limit would require additional Regulation Service to be deployed.

(12) The maximum MW amount of capacity from Resources providing FRRS-Down is limited to 35 MW. ERCOT may reduce this limit if it believes that this amount will have a negative impact on reliability or if this limit would require additional Regulation Service to be deployed.

(13) Resources can only provide FRRS-Up or FRRS-Down if awarded Regulation Service in the Day-Ahead Market (DAM) for that particular Resource, up to the awarded quantity.

|  |
| --- |
| ***[NPRR1007: Delete paragraphs (11)-(13) above upon system implementation of the Real-Time Co-Optimization (RTC) project.]*** |

**ERCOT Nodal Protocols**

**Section 23**

**Form Q: INTERCONNECTION CIRCUIT DESIGNATION FOR DISTRIBUTION GENERATION RESOURCES AND DISTRIBUTION ENERGY STORAGE RESOURCES**

**Date TBD**

Date Received: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**INTERCONNECTION CIRCUIT DESIGNATION FOR DISTRIBUTION GENERATION RESOURCES AND DISTRIBUTION ENERGY STORAGE RESOURCES**

A Resource Entity with a Distribution Generation Resource (DGR) or Distribution Energy Storage Resource (DESR) must complete Part I and then submit this form to the interconnecting Distribution Service Provider (DSP) in accordance with Protocol Section 3.8.6, Distribution Generation Resources (DGRs) and Distribution Energy Storage Resources (DESRs).

The DSP must indicate in Part II whether the circuit interconnecting the DGR or DESR is subject to Load shed.

In Part III, the DSP must indicate whether any operational limitations for the DGR or DESR have been identified based on known system limitations or as a result of planning or operational studies, including studies performed in accordance with Planning Guide Section 5.4.2, Submission of Interconnection Agreement and TSP and/or DSP Studies and Technical Requirements.

Part IV of this form must be signed by the Authorized Representative (“AR”) or Backup AR for the Resource Entity or by any officer with the authority to bind the Resource Entity. Part V of this form must be signed by the AR or Backup AR for the DSP or any officer with the authority to bind the DSP.

The Resource Entity must submit the completed, executed form to ERCOT via email to [MPRegistration@ercot.com](mailto:MPRegistration@ercot.com) (.pdf version). If you need assistance completing this form, or if you have any questions, please call (512) 248-3900.

**PART I – RESOURCE REGISTRATION INFORMATION FOR DGR OR DESR**

**DGR or DESR** – Resource Entity shall identify the DGR or DESR as detailed in its Resource Registration information.

|  |  |
| --- | --- |
| **Resource Name** |  |
| **GENCODE** |  |
| **METER ID (if available)** |  |

**PART II – INTERCONNECTING CIRCUIT INFORMATION FOR DGR OR DESR IDENTIFIED IN PART I**

The DSP must check one of the following boxes:

|  |  |
| --- | --- |
| The distribution circuit interconnecting the DGR or DESR is subject to Load shed |  |
| The distribution circuit interconnecting the DGR or DESR is not subject to Load shed |  |

**PART III – IDENTIFICATION WHETHER ANY OPERATIONAL RESTRICTIONS HAVE BEEN IDENTIFIED FOR DGR OR DESR IDENTIFIED IN PART I**

The DSP shall indicate if any operational limitations have been identified by checking one:

|  |  |
| --- | --- |
| Operational limitations have been identified by the DSP as a result of planning or operations studies |  |
| No operational limitations were identified by the DSP as a result of planning or operations studies |  |

If operational limitations have been identified by the DSP, describe those limitations:

**PART IV – RESOURCE ENTITY AFFIRMATION**

I affirm that I have the authority to submit this form on behalf of the Resource Entity named below. .

|  |  |
| --- | --- |
| Name of Resource Entity |  |
| Signature of AR, Backup AR or Officer: |  |
| Printed Name of AR, Backup AR or Officer: |  |
| Date: |  |

**PART V – DISTRIBUTION SERVICE PROVIDER AFFIRMATION**

I affirm that I have personal knowledge of the facts stated in Parts II and III of this form, that I have the authority to execute this form on behalf of the DSP identified below, and that the DSP identified below is the interconnecting DSP for the DGR or DESR identified in Part I. I further affirm that all statements made and information provided in Parts II and III of this form are true, correct, and complete.

|  |  |
| --- | --- |
| Name of Distribution Service Provider |  |
| Signature of AR, Backup AR or Officer: |  |
| Printed Name of AR, Backup AR or Officer: |  |
| Date: |  |