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| NPRR Number | [1171](https://www.ercot.com/mktrules/issues/NPRR1171) | NPRR Title | Requirements for DGRs and DESRs on Circuits Subject to Load Shedding |
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| Date | | June 14, 2023 | |
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| Submitter’s Information | | | |
| Name | | Doug Pietrucha | |
| E-mail Address | | [dpietrucha@texasadvancedenergy.org](mailto:dpietrucha@texasadvancedenergy.org) | |
| Company | | Texas Advanced Energy Business Alliance | |
| Phone Number | | 202-380-1950 ext. 3033 | |
| Cell Number | |  | |
| Market Segment | | Not Applicable | |

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| Comments |

Comment Summary

* ERCOT should provide clarity that the revisions proposed in NPRR 1171, or any modifications made to Section 3.8.6, which pertain to Distributed Generation Resources (DGRs) and Distributed Energy Storage Resources (DESRs) do not pertain to Aggregate Distributed Energy Resources (ADERs) or the ADER Pilot Project currently underway.
* ERCOT should be explicit that behind-the-meter (BTM) resources are eligible under rule changes to Section 3.8.6 if their capacity is large enough to perform Ancillary Services (AS).

TAEBA is submitting comments in support of the rule changes proposed in NPRR 1171 with some modifications and suggestions. The proposed changes would improve grid reliability by allowing DGRS and DESRs to perform ancillary services (AS) when located on a circuit subject to load shed. Allowing DGRs and DESRs which are on curtailable circuits to perform Non-Spinning Reserve Service (Non-Spin) and Regulation Down Service (Reg-Down) is a good first step to harness the grid reliability these resources can provide. Allowing DGRs and DESRs to provide certain AS will help to alleviate prices for consumers as well by introducing more competition into those products.

ERCOT could improve the rule change by explicitly allowing BTM resources to perform Reg-Down and Non-Spin services. On-site, commercial generating resources located behind customer meters can be equally capable of performing AS to facilities which are connected to the distribution grid in front of the meter. Permitting BTM resources which have the technical capability to perform AS would even further improve competition to provide these services, improving both reliability and affordability.

TAEBA reflects other stakeholders’ concern that ADER Pilot Project resources should not be affected by these rule changes. For the program to obtain complete, actionable data regarding ADER participation, the program should be allowed to continue unaffected by the rule change. Program resources totaled 40 MW capacity providing Non-Spin at the March 8, 2023 program update. Considering the moderate size of the total capacity of the ADER program, and given that a load shed event is unlikely to affect all individual component DERs that comprise an ADER resource simultaneously due to their distribution, excluding the ADER Pilot Program from the proposed rule changes should not cause operational harm to the ERCOT grid. In recent working group meetings, ERCOT staff stated that ADERs, DGRs, and DESRs are different in their definitions, and thus the rule changes would not affect the pilot program. TAEBA supports this intent, but recommends additional clarity in the form of either an explicit statement in the rule itself or in the NPRR description for the purpose of avoiding confusion and to ensure that the separation of the ADER Pilot Program from these rule changes is established in precedent .

In its report, the Protocol Revision Subcommittee (PRS) suggests the ERCOT Board be responsible for reviewing and approving “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.” TAEBA believes this is an overly cautious and redundant layer of protection that may artificially limit DGR and DESR deployment. There is a nested assumption in the rule change as written that during a load shed event Reg Down and Non-Spin services will not be relied upon as heavily as other AS. While losing multiple AS providing resources from grid participation in a load shed event is not ideal, the possibility of this scenario affecting grid security or occurring at all is small. Furthermore, capacity constraints on individual TDSP distribution grids is likely to limit this problem by preventing too many DGRs or DESRs from interconnecting at the same circuit.

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| **Market Rules Notes** |

Please note the baseline Protocol language in the following sections has been updated to reflect the incorporation of the following NPRRs into the Protocols:

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

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| Revised Cover Page Language |

None

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| Revised Proposed Protocol Language |

***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.

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| ***[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.

(4) This subsection applies only to DGRs and DESRs, and does not cover aggregated distributed energy resources (ADER) resources.

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);

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| ***[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).

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| ***[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.

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| ***[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.

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| ***[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.

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| ***[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.

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| ***[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.

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| **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:

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| 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:

|  |  |
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| 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. .

|  |  |
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| 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.

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