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| NPRR Number | [1100](http://www.ercot.com/mktrules/issues/NPRR1100) | NPRR Title | Emergency Switching Solutions for Energy Storage Resources |
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| Date | November 3, 2021 |
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| Submitter’s Information |
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| Market Segment | Independent Generator |

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| Comments |

These comments are in response to various questions and suggestions Tesla has received regarding the originally filed language in Nodal Protocol Revision Request (NPRR) 1100, which was posted by ERCOT on 10/6/2021. These comments reflect the following changes or clarifications to the proposed solution in NPRR1100:

* Clarifies that the proposed emergency switching solution is available to any ERCOT Resource connected to the transmission system. As Tesla discussed at the NPRR1100 Workshop hosted by ERCOT on October 26, 2021, while this proposed emergency switching solution has some unique elements for battery energy storage systems (“BESS”) seeking to qualify given that BESS and certain other technologies may avail of Wholesale Storage Load (WSL), the solution is intended to be made available to any Resource qualified to participate in the ERCOT market;
* Clarifies that the emergency switching solution proposed would apply specifically when the ERCOT transmission system has experienced an Outage that affects both the Resource and the co-located Load (as opposed to during an Energy Emergency Alert (EEA) Load Shed event directed by ERCOT). This clarification narrows the use case for NPRR1100 to a scenario where the Resource is permitted to switch its energy delivery capabilities to serve a co-located Load only when it cannot participate in ERCOT due to a loss of the transmission system;
* Adds language indicating that if and when a Resource is qualified to perform an emergency switching service to a co-located Load, then the Qualified Scheduling Entity (QSE) for that Resource would activate the switching solution to be applicable in the Operating Period (a Current Operating Plan (COP) status of OFF indicating the Resource is available but cannot be dispatched in ERCOT) and return the Resource to normal operations after the transmission system event has concluded. This addition clarifies that the Resource is not decommitted from ERCOT while the market is available, but rather is represented as OFF when the transmission system is not available;
* Strikes language specific to WSL treatment for BESS Resources to reflect that in the BESS Resource scenario, the co-located Load and the Resource would be subject to an ERCOT-Polled Settlement (EPS) metering scheme that continues to record all inflows and outflows from the interconnected Load and Resource and be accurately settled by ERCOT regardless of whether or not the Resource is serving its generator Point of Interconnection (POI) or switching to serve its co-located Load in the scenario contemplated by NPRR1100 (loss of transmission system for both the co-located Load and the Resource). Language is added to specify, as is the case with the project in which Tesla seeks to use the NPRR1100 proposed solution (discussed at the NPR1100 Workshop on 10/26/21), where the solution requires EPS Meters behind the Resource’s POI, then those meters may be subject to additional ERCOT requirements to ensure compliance with Meter Design Proposal/EPS Metering Scheme requirements. Such requirements may be articulated in Settlement Metering Operating Guide requirements, ERCOT Metering scenario/WSL documents, or in the Meter Design Proposal specific to such a project, as required by the interconnecting Transmission and/or Distribution Service Provider (TDSP). Relatedly, these comments add language clarifying that for a BESS Resource, if the co-located Load has netted generation behind its POI during normal operations (such as rooftop solar), then that generation cannot be used to charge during the switched condition if the Resource is an Energy Storage Resource (ESR); and
* Clarifies in proposed Section 3.11.7, Emergency Switching Solution for a Resource, that this solution would not apply to distribution system-connected Resources and Loads.

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| Revised Cover Page Language |

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| NPRR Number | [1100](http://www.ercot.com/mktrules/issues/NPRR1100) | NPRR Title | Emergency Switching Solutions for Resources during Transmission Outages  |
| Nodal Protocol Sections Requiring Revision  | 3.11.7, Emergency Switching Solution for a Resource (new)6.4.7, QSE-Requested Decommitment of Resources and Changes to Ancillary Service Resource Responsibility of Resources10.3.2.3, Generation Netting for ERCOT-Polled Settlement Meters  |
| Revision Description | This Nodal Protocol Revision Request (NPRR) allows a Resource to provide its full capability to ERCOT for energy and Ancillary Services, and the Resource is not available to serve the ERCOT grid due to a transmission Outage event, to then provide emergency backup power to a co-located facility to create a resiliency. The Resource must have an emergency switching solution operational plan approved by the Transmission Service Provider (TSP), Distribution Service Provider (DSP), and ERCOT, which also accounts for retail Load metering of the discharged energy.The emergency service may only occur once both the transmission system-connected Resource and the co-located Load are both disconnected from the transmission system in an Outage.This is not a Private Use Network, and the co-located Load and Resource will not net during normal circumstances.  |

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| Revised Proposed Protocol Language |

3.11.7 Emergency Switching Solution for a Resource

(1) A Resource interconnected to the ERCOT transmission system with a co-located Load may request an emergency switching solution to serve the co-located Load when both the Resource and the co-located Load have experienced a loss of transmission service due to a transmission Outage.

(2) Such an emergency switching solution for a Resource requires approval of an operational plan by the TSP, DSP, and ERCOT which shall specify additional criteria under which the Resource may disconnect itself from the transmission system to facilitate the emergency switching solution.

(3) A Resource’s requirements to comply with Section 3.11.6, Generation Interconnection Process, are not altered by requesting an emergency switching solution described in this Section.

(4) If the co-located Load has netted generation behind its Point of Interconnection (POI) during normal operations, then that generation cannot be used to charge during the switched condition if the Resource is an ESR.

6.4.7 QSE-Requested Decommitment of Resources and Changes to Ancillary Service Resource Responsibility of Resources

(1) A Resource must remain committed during any Reliability Unit Commitment (RUC)-Committed Interval or RUC Buy-Back Hour unless the Resource has a Forced Outage.

(2) In the Operating Period, a QSE may request to decommit a Resource other than a Quick Start Generation Resource (QSGR) for any interval that is not a RUC-Committed Interval or RUC Buy-Back Hour by verbally requesting ERCOT to consider its request.

(3) In the Operating Period, a QSE may decommit a QSGR without any request for any interval that is neither a RUC-Committed Interval, a RUC Buy-Back Hour, nor an interval in which a manual override by the ERCOT Operator has been given.

(4) In the Adjustment Period, a QSE may request to decommit a Resource for any interval that is not a RUC-Committed Interval or RUC Buy-Back Hour by indicating a change in unit status in the QSE’s COP, unless the Resource received a Weekly Reliability Unit Commitment (WRUC) instruction for the hour. A QSE may request to decommit a Resource for any interval that is a WRUC-instructed Interval and that is not a RUC-Committed Interval or RUC Buy-Back Hour by verbally requesting ERCOT to consider its request.

(5) In the Adjustment Period, a QSE may request ERCOT approval for moving an Ancillary Service Resource Responsibility from one Resource to another like Resource by changing its COP. A QSE may transfer Ancillary Service Resource Responsibility for any Ancillary Service to any like Generation Resource telemetering an ONOPTOUT Resource Status. ERCOT shall use the Hourly Reliability Unit Commitment (HRUC) and other processes to study the move and if Ancillary Services become infeasible as a result of the proposed move, ERCOT shall follow the provisions of Section 6.4.9.1.2, Replacement of Infeasible Ancillary Service Due to Transmission Constraints. The phrase “like Resource” means that Ancillary Service Resource Responsibility moves may only be from a Generation Resource to a Generation Resource, from a Load Resource to a Load Resource, or from a Load Resource to a Generation Resource.

(6) In the Operating Period, a QSE shall only provide an Ancillary Service from a Resource which was reported to ERCOT in the COP to be providing that Ancillary Service for the effective Operating Hour unless modified pursuant to paragraph (7) below.

(7) A QSE may vary the quantity of the Ancillary Service Resource Responsibility on Resources without obtaining prior ERCOT approval during the time window beginning 30 seconds prior to a five-minute clock interval and ending ten seconds prior to that five-minute clock interval, provided that the QSE complies with its total Ancillary Service Supply Responsibility.

(8) If a Resource has an emergency switching solution pursuant to Section 3.11.7, Emergency Switching Solution for a Resource, then the QSE representing the Resource may activate the switching solution in the Operating Period when the transmission system has experienced an Outage that has caused a loss of transmission service to both the Resource and the co-located Load. The QSE may return the Resource to normal operations the Resource after transmission service has been restored. During this emergency, the Resource’s COP status shall be OFF.

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| [NPRR1010: Replace Section 6.4.7 above with the following upon system implementation of the Real-Time Co-Optimization (RTC) project:]***6.4.7 QSE-Requested Decommitment of Resources*** (1) A Resource must remain committed during any Reliability Unit Commitment (RUC)-Committed Interval or RUC Buy-Back Hour unless the Resource has a Forced Outage.(2) In the Operating Period, a QSE may request to decommit a Resource other than a Quick Start Generation Resource (QSGR) for any interval that is not a RUC-Committed Interval or RUC Buy-Back Hour by verbally requesting ERCOT to consider its request.(3) In the Operating Period, a QSE may decommit a QSGR without any request for any interval that is neither a RUC-Committed Interval, a RUC Buy-Back Hour, nor an interval in which a manual override by the ERCOT Operator has been given. (4) In the Adjustment Period, a QSE may request to decommit a Resource for any interval that is not a RUC-Committed Interval or RUC Buy-Back Hour by indicating a change in unit status in the QSE’s COP, unless the Resource received a Weekly Reliability Unit Commitment (WRUC) instruction for the hour. A QSE may request to decommit a Resource for any interval that is a WRUC-instructed Interval and that is not a RUC-Committed Interval or RUC Buy-Back Hour by verbally requesting ERCOT to consider its request.(5) If a Resource has an emergency switching solution pursuant to Section 3.11.7, Emergency Switching Solution for a Resource, then the QSE representing the Resource may activate the switching solution in the Operating Period when the transmission system has experienced an Outage that affects both the Resource and the co-located Load. The QSE may return the Resource to normal operations after the transmission system event has concluded. During the emergency, the Resource’s COP status shall be OFF. |

10.3.2.3 Generation Netting for ERCOT-Polled Settlement Meters

(1) Generation Resources and netted Loads, including construction and maintenance Load that is netted with existing generation auxiliaries, must be metered at their POIs to the ERCOT Transmission Grid. Interval Data Recorders (IDRs) must be used to determine generator output or Load usage. In the intervals where the generation output exceeds the Load, the net must be settled as generation. In the intervals where the Load exceeds the generation output, the net must be settled as Load, and carry any applicable Load shared charges and credits.

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| ***[NPRR917: Replace paragraph (1) above with the following upon system implementation:]***(1) Generation Resources or Settlement Only Generators (SOGs) and netted Loads, including construction and maintenance Load that is netted with existing generation auxiliaries, must be metered at their POIs to the ERCOT Transmission Grid or Service Delivery Point. Interval Data Recorders (IDRs) must be used to determine net generator output or Load usage. In the intervals where the generation output exceeds the Load, the net must be settled as generation. In the intervals where the Load exceeds the generation output, the net must be settled as Load and carry any applicable Load shared charges and credits. |

(2) For Settlement purposes, netting is not allowed except under the configurations described in paragraphs (2)(a) through (2)(d) below, and only if the service arrangement is otherwise lawful. ERCOT has no obligation to independently determine whether a site configuration that includes both Loads and Generation Resource(s) or SOGs complies with Public Utility Regulatory Act (PURA) or the Public Utility Commission of Texas (PUCT) Substantive Rules, and ERCOT’s approval of a metering proposal for such a site is not a verification of the legality of that arrangement:

(a) Single POI or Service Delivery Point with delivered and received metering data channels;

(b) Multiple POIs where the Loads and generator output are electrically connected to a common switchyard, as defined in paragraph (6) below. In addition, there must be sufficient generator capacity to serve all plant Loads for netting to occur;

(c) A Qualifying Facility (QF) with POIs, where the QF is selling energy to a thermal host, may net the Load meters of the thermal host with the QF’s generation meters when the Load and generation are electrically connected to a common switchyard. In instances in which Load is served by new on-site generation through a common switchyard, the TSP or DSP may install monitoring equipment necessary for measuring Load to determine stranded cost charges, if any are applicable, as determined under the PURA and applicable PUCT rules. For purposes of this Section, new on-site generation has the meaning as contained in Public Utility Regulatory Act, Tex. Util. Code Ann. §§ 39.252 and 39.262(k) (Vernon 1998 & Supp. 2007) (PURA); or

(d) For Generation Resources and/or Load with flow-through on a private, contiguous transmission system (not included in a TSP or DSP rate base) and in a configuration existing as of October 1, 2000, the meters at the interconnections with the ERCOT Transmission Grid may be netted for the purpose of determining Generation Resources or Load. For Settlement purposes, when the net is a Load, the metered interconnection points must be assigned to the same Load Zone and Unaccounted for Energy (UFE) zone.

(3) For Energy Storage Resource (ESR) sites, Wholesale Storage Load (WSL) must be separately metered from all other Loads and generation, and must be metered using EPS Metering Facilities.

(a) For configurations where the Resource Entity telemeters an auxiliary Load value to the EPS Meter:

(i) The total energy into the ESR must be separately metered from all other Loads and generation, and must be metered using EPS Metering Facilities and

(ii) The auxiliary Load energy shall be stored in the EPS Meter’s IDR, per channel assignments defined in the SMOG.

(b) For configurations where the WSL is not at the POI, it must be metered behind a single POI metering point, per the requirements in paragraph (3) or (3)(a) above; and

(c) WSL for a compressed air energy storage Load Resource is exempt from the requirement to be electrically connected to a common switchyard, as defined in paragraph (6) below.

(4) ERCOT shall maintain descriptions of the Metering Facilities of all common switchyards that contain multiple POIs of Loads (ESI IDs) and generation meters (EPS). The description is limited to identifying the Entities within a common switchyard and a simplified diagram showing the metering configuration of all Supervisory Control and Data Acquisition (SCADA) and Settlement Metering points.

(5) All Load(s) included in the netting arrangement for an EPS Metering Facility shall only be electrically connected to the ERCOT Transmission Grid through the EPS metering point(s) for such Facility.  Such Loads shall not be electrically connected to the ERCOT Transmission Grid through electrical connections that are not metered by the EPS metering point(s) for the Facility.

(6) For purposes of this Section, a common switchyard is defined as an electric substation Facility where the POI for Load and Generation Resources are located at the same Facility but where the interconnection points are physically not greater than 400 yards apart. The physical connections of the Load to its POI and the Generation Resource to its POI cannot be Facilities that have been placed in a TSP’s or DSP’s rate base.

(7) An ESR with an emergency switching solution pursuant to Section 3.11.7, Emergency Switching Solution for a Resource, must have EPS Meters sufficient to record all inflows and outflows. If the approved solution requires EPS Meters behind the ESR’s POI, then those meters may be subject to additional ERCOT requirements.

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|  ***[NPRR945: Insert paragraph (8) below upon system implementation:]***(8) ERCOT shall post on the ERCOT website a report listing all Generation Resources or Settlement Only Generators (SOGs) that have achieved commercial operations, excluding Decommissioned Generation Resources, Mothballed Generation Resources, and decommissioned SOGs, whose Resource Registration data indicates that the Generation Resource or SOG is part of a Private Use Network. The report must identify the name of the Generation Resource or SOG site, its nameplate capacity, and the date the Generation Resource or SOG was added to the report. The report shall not identify any confidential, customer-specific information regarding netted loads. ERCOT shall update the list at least monthly. |