|  |  |  |  |
| --- | --- | --- | --- |
| NPRR Number | [1094](http://www.ercot.com/mktrules/issues/nprr1094) | NPRR Title | Allow Under Frequency Relay Load to be Manually Shed During EEA3 |
| Date of Decision | | December 10, 2021 | |
| **Action** | | Recommended Approval | |
| Timeline | | Normal | |
| Proposed Effective Date | | Upon Public Utility Commission of Texas (PUCT) approval - December 17, 2021 | |
| Priority and Rank Assigned | | Not applicable | |
| Nodal Protocol Sections Requiring Revision | | 6.5.9.4.2, EEA Levels | |
| Related Documents Requiring Revision/Related Revision Requests | | Nodal Operating Guide Revision Request (NOGRR) 233, Related to NPRR1094, Allow Under Frequency Relay Load to be Manually Shed During EEA3  Nodal Operating Guide Section 4.5.3.3, EEA Levels | |
| Revision Description | | This Nodal Protocol Revision Request (NPRR) allows a Transmission Operator (TO) and a Transmission and/or Distribution Service Provider (TDSP) to manually shed Load connected to under-frequency relays during an Energy Emergency Alert (EEA) Level 3 if the affected TO can meet its overall Under-Frequency Load Shed (UFLS) requirement in Nodal Operating Guide Section 2.6.1, Automatic Firm Load Shedding, and its Load shed obligation under Nodal Operating Guide Section 4.5.3.4, Load Shed Obligation. | |
| Reason for Revision | | Addresses current operational issues.  Meets Strategic goals (tied to the [ERCOT Strategic Plan](http://www.ercot.com/content/wcm/lists/144926/ERCOT_Strategic_Plan_2019-2023.pdf) or directed by the ERCOT Board).  Market efficiencies or enhancements  Administrative  Regulatory requirements  Other: (explain)  *(please select all that apply)* | |
| Business Case | | During extreme Load shed events, the amount of Load connected to UFLS feeders will substantially exceed the required percentage levels prescribed in paragraph (1) of Nodal Operating Guide Section 2.6.1 due to high system loading and the manual reduction in demand from manual Load shed.  The Protocols and Nodal Operating Guide currently state that Entities “shall not manually drop Load connected to under-frequency relays during the implementation of Level 3 of an Energy Emergency Alert (EEA).”  The modifications proposed in this NPRR remove the prohibition from manually shedding any UFLS feeder-connected Load during an EEA Level 3.  TOs and TDSPs would be allowed to shed UFLS feeder-connected Load as long as they continue to maintain the required percentage levels of UFLS.  This modification provides the following benefits:  1) TOs can utilize the “margin” in their UFLS-represented Load to shed Load and rotate outages.  This substantially increases the amount of Load available for rotating outages, which spreads the burden of those outages to a larger and more diverse pool of Load.  2) Reduces the risk of a significant overshoot in frequency in the event of a UFLS operation while UFLS levels substantially exceed the required levels.  Oncor requests consideration of this NPRR in a timeline that would allow it to be considered at the December 2021 ERCOT Board of Directors meeting, which should enable the operational changes described to be reflected in TO/DSP Winter 2021/2022 Load shed plans. | |
| Credit Work Group Review | | ERCOT Credit Staff and the Credit Work Group (Credit WG) have reviewed NPRR1094 and do not believe that it requires changes to credit monitoring activity or the calculation of liability. | |
| PRS Decision | | On 9/16/21, PRS voted unanimously via roll call to recommend approval of NPRR1094 as amended by the 9/15/21 Oncor comments. The Independent Retail Electric Provider (IREP) Market Segment did not participate in the vote.  On 10/14/21, PRS voted unanimously via roll call to endorse and forward to TAC the 9/16/21 PRS Report and Impact Analysis for NPRR1094. All Market Segments participated in the vote. | |
| Summary of PRS Discussion | | On 9/16/21, the sponsor provided an overview of the NPRR and 9/15/21 Oncor comments.  On 10/14/21, there was no discussion. | |
| TAC Decision | | On 11/29/21, TAC voted unanimously via roll call to recommend approval of NPRR1094 as recommended by PRS in the 10/14/21 PRS Report with a recommended effective date of upon PUCT approval (12/17/21). All Market Segments participated in the vote. | |
| Summary of TAC Discussion | | On 11/29/21, TAC reviewed the ERCOT Opinion and ERCOT Market Impact Statement for NPRR1094. | |
| ERCOT Opinion | | ERCOT supports approval of NPRR1094. | |
| ERCOT Market Impact Statement | | ERCOT Staff has reviewed NPRR1094 and believes NPRR1094 improves efficiency and reliability by removing restrictions on manually shedding UFLS feeder-connected Load during an EEA Level 3. | |
| Board Decision | | On 12/10/21, the ERCOT Board recommended approval of NPRR1094 as recommended by TAC in the 11/29/21 TAC Report. | |

|  |  |
| --- | --- |
| Sponsor | |
| Name | Collin Martin |
| E-mail Address | [collin.martin@oncor.com](mailto:collin.martin@oncor.com) |
| Company | Oncor Electric Delivery Company LLC |
| Phone Number | 817-215-6174 |
| Cell Number |  |
| Market Segment | Investor Owned Utility (IOU) |

|  |  |
| --- | --- |
| **Market Rules Staff Contact** | |
| **Name** | Phillip Bracy |
| **E-Mail Address** | [Phillip.Bracy@ercot.com](mailto:Phillip.Bracy@ercot.com) |
| **Phone Number** | 512-248-6917 |

|  |  |
| --- | --- |
| **Comments Received** | |
| **Comment Author** | **Comment Summary** |
| Oncor 091521 | Reverted changes to paragraphs (2)(a)(i), (ii), and (vii) of Section 6.5.9.4.2 back to the original language; and modified paragraph (3)(b) of Section 6.5.9.4.2 to clarify the distinction between disconnecting a relay and shedding Load |

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

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

* NPRR1105, Option to Deploy Distribution Voltage Reduction Measures Prior to Energy Emergency Alert (EEA)
  + Section 6.5.9.4.2
* NPRR1106, Deployment of Emergency Response Service (ERS) Prior to Declaration of Energy Emergency Alert (EEA)
  + Section 6.5.9.4.2

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

***6.5.9.4.2 EEA Levels***

(1) ERCOT will declare an EEA Level 1 when PRC falls below 2,300 MW and is not projected to be recovered above 2,300 MW within 30 minutes without the use of the following actions that are prescribed for EEA Level 1:

(a) ERCOT shall take the following steps to maintain steady state system frequency near 60 Hz and maintain PRC above 1,750 MW:

(i) Request available Generation Resources that can perform within the expected timeframe of the emergency to come On-Line by initiating manual HRUC or through Dispatch Instructions;

(ii) Use available DC Tie import capacity that is not already being used;

(iii) Issue a Dispatch Instruction for Resources to remain On-Line which, before start of emergency, were scheduled to come Off-Line; and

(iv) At ERCOT’s discretion, deploy available contracted ERS-30 via an XML message followed by a VDI to the all-QSE Hotline. ERCOT shall post a message electronically to the ERCOT website that ERS-30 has been deployed. The ERS-30 ramp period shall begin at the completion of the VDI.

(A) If less than 500 MW of ERS-30 is available for deployment, ERCOT shall deploy it as a single block.

(B) If the amount of ERS-30 available for deployment equals or exceeds 500 MW, ERCOT, at its discretion, may deploy ERS-30 as a single block or by group designation. ERCOT shall develop a random selection methodology for determining how to place ERS Resources in ERS-30 into groups, and shall describe the methodology in a document posted to the ERCOT website. Prior to the start of an ERS Contract Period for ERS-30, ERCOT shall notify QSEs representing ERS Resources in ERS-30 of their ERS Resources’ group assignments.

(C) ERS-30 may be deployed at any time in a Settlement Interval.

(D) Upon deployment, QSEs shall instruct their ERS Resources in ERS-30 to perform at contracted levels consistent with the criteria described in Section 8.1.3.1.4, Event Performance Criteria for Emergency Response Service Resources, until either ERCOT releases the ERS-30 deployment or the ERS-30 Resources have reached their maximum deployment time.

(E) ERCOT shall notify QSEs of the release of ERS-30 via an XML message followed by VDI to the all-QSE Hotline. ERCOT shall post a message electronically to the ERCOT website that ERS-30 has been recalled. The VDI shall represent the official notice of ERS-30 release. ERCOT may release ERS-30 as a block or by group designation.

(F) Upon release, an ERS Resource in ERS-30 shall return to a condition such that it is capable of meeting its ERS performance requirements as soon as practical, but no later than ten hours following the release.

|  |
| --- |
| ***[NPRR1010: Insert paragraph (v) below upon system implementation of the Real-Time Co-Optimization (RTC) project:]***  (v) At ERCOT’s discretion, manually deploy, through ICCP, available RRS and ECRS capacity from Generation Resources having a Resource Status of ONSC and awarded RRS or ECRS. |

(b) QSEs shall:

(i) Ensure COPs and telemetered HSLs are updated and reflect all Resource delays and limitations; and

|  |
| --- |
| ***[NPRR1010: Replace paragraph (i) above with the following upon system implementation of the Real-Time Co-Optimization (RTC) project:]***  (i) Ensure COPs and telemetered HSLs, Normal Ramp Rates, Emergency Ramp Rates, and Ancillary Service capabilities are updated and reflect all Resource delays and limitations; and |

(ii) Suspend any ongoing ERCOT required Resource performance testing.

|  |
| --- |
| ***[NPRR995 and NPRR1002: Insert applicable portions of paragraph (iii) below upon system implementation:]***  (iii) Ensure that each of its ESRs and SOESSs suspends charging until the EEA is recalled, except under the following circumstances:  (A) The ESR has a current SCED Base Point Instruction, Load Frequency Control Dispatch Instruction, or manual Dispatch Instruction to charge the ESR;  (B) The ESR or SOESS is actively providing Primary Frequency Response; or  (C) The ESR or SOESS is co-located behind a POI with onsite generation that is incapable of exporting additional power to the ERCOT System, in which case the ESR may continue to charge as long as maximum output to the ERCOT System is maintained. |

(2) ERCOT may declare an EEA Level 2 when the clock-minute average system frequency falls below 59.91 Hz for 15 consecutive minutes. ERCOT will declare an EEA Level 2 when PRC falls below 1,750 MW and is not projected to be recovered above 1,750 MW within 30 minutes without the use of the following actions that are prescribed for EEA Level 2:

(a) In addition to the measures associated with EEA Level 1, ERCOT shall take the following steps to maintain steady state system frequency at a minimum of 59.91 Hz and maintain PRC above 1,430 MW:

(i) Instruct TSPs and DSPs or their agents to reduce Customer Load by using distribution voltage reduction measures, if deemed beneficial by the TSP, DSP, or their agents.

(ii) Instruct TSPs and DSPs to implement any available Load management plans to reduce Customer Load.

(iii) Instruct QSEs to deploy available contracted ERS-10 Resources, undeployed ERS-30 and/or deploy RRS supplied from Load Resources (controlled by high-set under-frequency relays). ERCOT may deploy ERS-10, ERS-30, or RRS simultaneously or separately, and in any order. ERCOT shall issue such Dispatch Instructions in accordance with the deployment methodologies described in paragraphs (iv) and (v) below and, if deploying ERS-30, the methodologies described in paragraph (1)(a)(iv) above.

|  |
| --- |
| ***[NPRR863: Replace item (iii) above with the following upon system implementation:]***  (iii) Instruct QSEs to deploy available contracted ERS-10 Resources, undeployed ERS-30, and/or deploy ECRS or RRS (controlled by high-set under-frequency relays) supplied from Load Resources. ERCOT may deploy ERS-10, ERS-30, ECRS, or RRS simultaneously or separately, and in any order. ERCOT shall issue such Dispatch Instructions in accordance with the deployment methodologies described in paragraphs (iv) and (v) below and, if deploying ERS-30, the methodologies described in paragraph (1)(a)(iv) above. |

(iv) ERCOT shall deploy ERS-10 via an XML message followed by a VDI to the all-QSE Hotline. ERCOT shall post a message electronically to the ERCOT website that ERS-10 has been deployed. The ERS-10 ramp period shall begin at the completion of the VDI.

(A) If less than 500 MW of ERS-10 is available for deployment, ERCOT shall deploy all ERS-10 Resources as a single block.

(B) If the amount of ERS-10 available for deployment equals or exceeds 500 MW, ERCOT, at its discretion, may deploy ERS-10 Resources as a single block or by group designation. ERCOT shall develop a random selection methodology for determining how to place ERS-10 Resources into groups, and shall describe the methodology in a document posted to the ERCOT website. Prior to the start of an ERS-10 Contract Period, ERCOT shall notify QSEs representing ERS-10 Resources of their ERS-10 Resources’ group assignments.

(C) ERS-10 may be deployed at any time in a Settlement Interval.

(D) Upon deployment, QSEs shall instruct ERS-10 Resources to perform at contracted levels consistent with the criteria described in Section 8.1.3.1.4 until ERCOT releases the ERS-10 deployment or the ERS-10 Resources have reached their maximum deployment times.

(E) ERCOT shall notify QSEs of the release of ERS-10 via an XML message followed by VDI to the all-QSE Hotline. ERCOT shall post a message electronically to the ERCOT website that ERS-10 has been recalled. The VDI shall represent the official notice of ERS-10 release. ERCOT may release ERS-10 as a block or by group designation.

(F) Upon release, an ERS-10 Resource shall return to a condition such that it is capable of meeting its ERS performance requirements as soon as practical, but no later than ten hours following the release.

(v) ERCOT shall deploy RRS capacity supplied by Load Resources (controlled by high-set under-frequency relays) in accordance with the following:

|  |
| --- |
| ***[NPRR863: Replace paragraph (v) above with the following upon system implementation:]***  (v) Load Resources providing ECRS that are not controlled by high set under-frequency relays shall be deployed prior to Group 1 deployment. ERCOT shall deploy ECRS and RRS capacity supplied by Load Resources (controlled by high set under-frequency relays) in accordance with the following: |

(A) Instruct QSEs to deploy half of the RRS that is supplied from Load Resources (controlled by high-set under-frequency relays) by instructing the QSE representing the specific Load Resource to interrupt Group 1 Load Resources providing RRS. QSEs shall deploy Load Resources according to the group designation and will be given some discretion to deploy additional Load Resources from Group 2 if Load Resource operational considerations require such. ERCOT shall issue notification of the deployment via XML message. ERCOT shall follow this XML notification with a Hotline VDI, which shall initiate the ten-minute deployment period;

|  |
| --- |
| ***[NPRR863 and NPRR939: Replace applicable portions of paragraph (A) above with the following upon system implementation:]***  (A) Instruct QSEs to deploy RRS with a Group 1 designation and all of the ECRS that is supplied from Load Resources (controlled by high-set under-frequency relays) by instructing the QSE representing the specific Load Resources to interrupt Group 1 Load Resources providing ECRS and RRS. QSEs shall deploy Load Resources according to the group designation and will be given some discretion to deploy additional Load Resources from any of the groups not designated for deployment if Load Resource operational considerations require such. ERCOT shall issue notification of the deployment via XML message. ERCOT shall follow this XML notification with a Hotline VDI, which shall initiate the ten-minute deployment period; |

(B) At the discretion of the ERCOT Operator, instruct QSEs to deploy the remaining RRS that is supplied from Load Resources (controlled by high-set under-frequency relays) by instructing the QSE representing the specific Load Resource to interrupt Group 2 Load Resources providing RRS. ERCOT shall issue notification of the deployment via XML message. ERCOT shall follow this XML notification with a Hotline VDI, which shall initiate the ten-minute deployment period;

|  |
| --- |
| ***[NPRR939: Replace paragraph (B) above with the following upon system implementation:]***  (B) At the discretion of the ERCOT Operator, instruct QSEs to deploy RRS that is supplied from Load Resources (controlled by high-set under-frequency relays) by instructing the QSE representing the specific Load Resource to interrupt additional Load Resources providing RRS based on their group designation. ERCOT shall issue notification of the deployment via XML message. ERCOT shall follow this XML notification with a Hotline VDI, which shall initiate the ten-minute deployment period; |

(C) The ERCOT Operator may deploy both of the groups of Load Resources providing RRS at the same time. ERCOT shall issue notification of the deployment via XML message. ERCOT shall follow this XML notification with a Hotline VDI, which shall initiate the ten-minute deployment period; and

|  |
| --- |
| ***[NPRR863 and NPRR939: Replace applicable portions of paragraph (C) above with the following upon system implementation:]***  (C) The ERCOT Operator may deploy Load Resources providing only ECRS (not controlled by high-set under-frequency relays) and all groups of Load Resources providing RRS and ECRS at the same time. ERCOT shall issue notification of the deployment via XML message. ERCOT shall follow this XML notification with a Hotline VDI, which shall initiate the ten-minute deployment period; and |

(D) ERCOT shall post a list of Load Resources on the MIS Certified Area immediately following the DRUC for each QSE with a Load Resource obligation which may be deployed to interrupt under paragraph (A), Group 1 and paragraph (B), Group 2. ERCOT shall develop a process for determining which individual Load Resource to place in Group 1 and which to place in Group 2. ERCOT procedures shall select Group 1 and Group 2 based on a random sampling of individual Load Resources. At ERCOT’s discretion, ERCOT may deploy all Load Resources at any given time during EEA Level 2.

|  |
| --- |
| ***[NPRR939 and NPRR1010: Replace applicable portions of paragraph (D) above with the following upon system implementation for NPRR939; and upon system implementation of the Real-Time Co-Optimization (RTC) project for NPRR1010:]***  (D) ERCOT shall post a list of Load Resources on the MIS Certified Area immediately following the DRUC for each QSE with a Load Resource RRS or ECRS award, which may be deployed to interrupt under paragraph (A) and paragraph (B). ERCOT shall develop a process for determining which individual Load Resource to place in each group based on a random sampling of individual Load Resources. At ERCOT’s discretion, ERCOT may deploy all Load Resources at any given time during EEA Level 2. |

(vi) Unless a media appeal is already in effect, ERCOT shall issue an appeal through the public news media for voluntary energy conservation; and

(vii) With the approval of the affected non-ERCOT Control Area, TSPs, DSPs, or their agents may implement transmission voltage level BLTs, which transfer Load from the ERCOT Control Area to non-ERCOT Control Areas in accordance with BLTs as defined in the Operating Guides.

(b) Confidentiality requirements regarding transmission operations and system capacity information will be lifted, as needed to restore reliability.

(3) ERCOT may declare an EEA Level 3 when the clock-minute average system frequency falls below 59.91 Hz for 20 consecutive minutes. ERCOT will declare an EEA Level 3 when PRC cannot be maintained above 1,430 MW or when the clock-minute average system frequency falls below 59.91 Hz for 25 consecutive minutes. Upon declaration of an EEA Level 3, ERCOT will implement any measures associated with EEA Levels 1 and 2 that have not already been implemented.

|  |
| --- |
| ***[NPRR995 and NPRR1002: Insert applicable portions of paragraph (a) below upon system implementation and renumber accordingly:]***  (a) ERCOT shall instruct ESRs and SOESSs to suspend charging. For ESRs, ERCOT shall issue the instruction via a SCED Base Point, or, if otherwise necessary, via a manual Dispatch instruction. An ESR or SOESS shall suspend charging unless providing Primary Frequency Response or LFC issues a charging instruction to an ESR that is carrying Reg-Down. However, an ESR or SOESS co-located behind a POI with onsite generation that is incapable of exporting additional power to the ERCOT System may continue to charge as long as maximum output to the ERCOT System is maintained. |

(a) When PRC falls below 1,000 MW and is not projected to be recovered above 1,000 MW within 30 minutes, or when the clock-minute average frequency falls below 59.91 Hz for 25 consecutive minutes, ERCOT shall direct all TOs to shed firm Load, in 100 MW blocks, distributed as documented in the Operating Guides in order to maintain a steady state system frequency at a minimum of 59.91 Hz and to recover 1,000 MW of PRC within 30 minutes.

(b) TOs and TDSPs may shed Load connected to under-frequency relays pursuant to an ERCOT Load shed directive issued during EEA Level 3 so long as each affected TO continues to comply with its Under-Frequency Load Shed (UFLS) obligation as described in Nodal Operating Guide Section 2.6.1, Automatic Firm Load Shedding, and its Load shed obligation as described in Nodal Operating Guide Section 4.5.3.4, Load Shed Obligation.