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| **Date:** | December 13, 2022 |
| **To:** | ERCOT Board of Directors |
| **From:** | Clif Lange, Technical Advisory Committee (TAC) Chair |
| **Subject:** | Unopposed Revision Requests Recommended by TAC for Approval |

## Issue for the ERCOT Board of Directors

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| **ERCOT Board of Directors Meeting Date:** December 20, 2022  **Item No.:** 3.1 |

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| **Issue:**Consideration of the following Revision Requests: Nodal Protocol Revision Requests (NPRRs), Nodal Operating Guide Revision Request (NOGRR), Other Binding Document Revision Request (OBDRR), Resource Registration Glossary Revision Request (RRGRR), and System Change Request (SCR) recommended for approval by TAC (with no opposing votes recorded):  * NPRR1128, Allow FFR Procurement up to FFR Limit Without Proration; * NPRR1132, Communicate Operating Limitations during Cold and Hot Weather Conditions; * NPRR1138, Communication of Capability and Status of Online IRRs at 0 MW Output – URGENT, and the revised Impact Analysis; * NPRR1148, Language Cleanup Related to ERCOT Contingency Reserve Service (ECRS); * NPRR1152, Remove Requirements to Submit Emergency Operations Plans, Weatherization Plans, and Declarations of Summer/Winter Weather Preparedness – URGENT; * NPRR1154, Include Alternate Resource in the Availability Plan for the Firm Fuel Supply Service – URGENT; * NOGRR226, Addition of Supplemental UFLS Stages; * OBDRR043, Related to NPRR1148, Language Cleanup Related to ERCOT Contingency Reserve Service (ECRS); * RRGRR032, Related to NPRR1132, Communicate Operating Limitations during Cold and Hot Weather Conditions; and * SCR821, Voltage Set Point Target Information for Distribution Generation Resource (DGR) or Distribution Energy Storage Resource (DESR). |
| **Background/History:** **Unless otherwise noted: (i) all Market Segments participated in each vote; (ii) For NPRRs, ERCOT Credit Staff and the Credit Work Group (Credit WG) have reviewed the NPRR and do not believe it requires changes to credit monitoring activity or the calculation of liability; and (iii) ERCOT supports the revision request.**   * ***NPRR1128, Allow FFR Procurement up to FFR Limit Without Proration***   **Submitter:** Hunt Energy Network  **Proposed Effective Date:** Upon system implementation – Priority 2023; Rank 3760  **ERCOT Impact Analysis:** Between $30K and $50K; no impacts to ERCOT staffing; impacts to Market Operations Systems, Data Management & Analytic Systems, Channel Management Systems, and Content Delivery Systems; no impacts to ERCOT business processes; no impacts to ERCOT grid operations and practices.  **Revision Description:** This NPRR sets a -$0.01 per MW lower Ancillary Service Offer floor for Fast Frequency Response (FFR) Responsive Reserve (RRS) rather than for other RRS categories during certain Operating Hours, thereby allowing, depending on relative Ancillary Service Offers, FFR procurement up to the current FFR limit without proration with other RRS categories in the Ancillary Service procurement process. This NPRR also requires ERCOT to, at least on annual basis, specify the Operating Hours where prioritizing procurement of FFR up to the maximum FFR amount is beneficial in improving reliability. Beyond this, ERCOT may add more hours where FFR prioritization is in effect closer to Real-Time if it believes that these additional hours are vulnerable to low system inertia.  **TAC Decision:** On 10/26/22, TAC voted unanimously to recommend approval of NPRR1128 as recommended by PRS in the 10/13/22 PRS Report.On 12/5/22,TAC voted to endorse the 10/31/22 ERCOT comments for NPRR1128. There was one abstention from the Independent Retail Electric Provider (IREP) (Reliant) Market Segment.  **ERCOT Market Impact Statement:** ERCOT Staff has reviewed NPRR1128 and believes the market impact for NPRR1128 provides reliability benefits by implementing a preference for FFR procurement specifically during certain times of year when low levels of inertia on the ERCOT System are more common.  **Independent Market Monitor (IMM) Opinion:** The IMM supports approval of NPRR1128. Though it is an imperfect solution to the issue, it is superior to the status quo. The IMM recommends that in the long term, ERCOT consider explicitly pricing in Ancillary Services constraints – see State of the Market recommendation 2019-2.   * ***NPRR1132, Communicate Operating Limitations during Cold and Hot Weather Conditions***   **Submitter:** ERCOT  **Proposed Effective Date:** February 1, 2023 (manual solution) and upon system implementation – Priority 2023; Rank 340 (automated solution)  **ERCOT Impact Analysis:** Between $65K and $95K; no impacts to ERCOT staffing; impacts to Resource Integration and Ongoing Operations (RIOO), Grid Decision Support Systems, and Data Management & Analytic Systems; ERCOT business processes will be updated; ERCOT grid operations and practices will be updated.  **Revision Description:** This NPRR specifies that during local cold weather conditions, each Qualified Scheduling Entity (QSE) must update its Generation Resources’ and Energy Storage Resources’ (ESRs’) Current Operating Plan (COP), Real-Time telemetry, and Outage and derate reporting to reflect any cold-weather limitations. This NPRR also requires each Resource Entity to provide Resource-specific cold weather minimum temperature limits, hot weather maximum temperature limits, and alternate fuel capability information in its Resource Registration data submitted pursuant to Planning Guide Section 6.8.2, Resource Registration Process, and update this information as necessary.  **TAC Decision:** On 12/5/22, TAC voted to recommend approval of NPRR1132 as recommended by PRS in the 11/11/22 PRS Report as amended by the 12/2/22 ERCOT comments. There was one abstention from the IREP (Reliant) Market Segment.  **ERCOT Market Impact Statement:** ERCOT Staff has reviewed NPRR1132 and believes the market impact for NPRR1132 fulfills North American Electric Reliability Corporation (NERC) Reliability Standards IRO-010-4, Reliability Coordinator Data Specification and Collection, and TOP-003-5, Operational Reliability Data, for cold weather conditions, which will become effective April 1, 2023, and further supplements data specifications to include hot weather maximum temperature and information concerning fuel capabilities.  **IMM Opinion:** No Opinion   * ***NPRR1138, Communication of Capability and Status of Online IRRs at 0 MW Output – URGENT***   **Submitter:** ERCOT  **Proposed Effective Date:** February 1, 2023  **ERCOT Impact Analysis:** No budgetary impact; no impacts to ERCOT staffing; no impacts to ERCOT computer systems; no impacts to ERCOT business processes; no impacts to ERCOT grid operations and practices.  **Revision Description:** This NPRR requires each Resource Entity to ensure the reactive capability curve for any Intermittent Renewable Resource (IRR) accurately reflects the IRR’s reactive capability when it is not providing real power or is operating at lower levels of real power output.  **TAC Decision:** On 12/5/22, TAC voted to recommend approval of NPRR1138 as recommended by PRS in the 11/11/22 PRS Report as amended by the 11/30/22 ERCOT comments. There was one abstention from the IREP (Reliant) Market Segment.  **ERCOT Market Impact Statement:** ERCOT Staff has reviewed NPRR1138 and believes it provides a positive reliability impact toward current real time operational issues by requiring each Resource Entity to ensure that the reactive capability curve, Automatic Voltage Regulator (AVR) status, and unit status for any IRR accurately reflect the IRR’s reactive capability when it is not providing real power or is operating at lower levels of real power output.  **IMM Opinion:** No Opinion   * ***NPRR1148, Language Cleanup Related to ERCOT Contingency Reserve Service (ECRS)***   **Submitter:** ERCOT  **Proposed Effective Date:** Upon system implementation of NPRR863, Creation of ERCOT Contingency Reserve Service and Revisions to Responsive Reserve  **ERCOT Impact Analysis:** No budgetary impact; no impacts to ERCOT staffing; no impacts to ERCOT computer systems; no impacts to ERCOT business processes; no impacts to ERCOT grid operations and practices. (There are no additional impacts to this NPRR beyond what was captured in the Impact Analysis for NPRR863.)  **Revision Description:** This NPRR addresses Protocol gaps found during the creation of the ERCOT Contingency Reserve Service (ECRS) system change requirements.  **TAC Decision:** On 10/26/22, TAC voted unanimously to recommend approval of NPRR1148 as recommended by PRS in the 10/13/22 PRS Report.  **ERCOT Market Impact Statement:** ERCOT Staff has reviewed NPRR1148 and believes the market impact for NPRR1148 properly reconciles Protocol language with the upcoming system implementation of ECRS.  **IMM Opinion:** IMM supports approval of NPRR1148.   * ***NPRR1152, Remove Requirements to Submit Emergency Operations Plans, Weatherization Plans, and Declarations of Summer/Winter Weather Preparedness – URGENT [ERCOT]***   **Submitter:** ERCOT  **Proposed Effective Date:** January 20, 2023  **ERCOT Impact Analysis:** No budgetary impact; no impacts to ERCOT staffing; no impacts to ERCOT computer systems; ERCOT business processes will be updated; no impacts to ERCOT grid operations and practices.  **Revision Description:** This NPRR removes the Protocol requirements to submit emergency operations plans (“EOPs”), weatherization plans, and declarations of Summer/Winter weather preparedness in light of recent Public Utility Commission of Texas (PUCT) rules requiring submission of such information to ERCOT; revises procedures for submitting to ERCOT declarations of natural gas pipeline coordination for Resource Entities with natural gas Generation Resources; revises the list of items considered Protected Information in Section 1.3.1.1, Items Considered Protected Information, to remove references to weatherization plans and add protections for information relating to weatherization activities submitted to or obtained by ERCOT in connection with 16 Texas Administrative Code (TAC) § 25.55; and revises the list of ERCOT Critical Energy Infrastructure Information (ECEII) to clarify language concerning EOPs and add protections for information relating to weatherization activities submitted to or obtained by ERCOT in connection with PUCT rules and NERC Reliability Standards.  **TAC Decision:** On 12/5/22, TAC voted to recommend approval of NPRR1152 as recommended by PRS in the 11/11/22 PRS Report with a proposed effective date of January 20, 2023. There was one abstention from the IREP (Reliant) Market Segment.  **ERCOT Market Impact Statement:** ERCOT Staff has reviewed NPRR1152 and believes the market impact for NPRR1152 properly aligns the Protocols with applicable PUCT Substantive Rules concerning emergency operation plans, weatherization plans, declarations of Summer/Winter weather preparedness, and declarations of natural gas pipeline coordination.  **IMM Opinion:** No Opinion   * ***NPRR1154, Include Alternate Resource in the Availability Plan for the Firm Fuel Supply Service – URGENT***   **Submitter:** LCRA  **Proposed Effective Date:** Upon system implementation – Priority 2023; Rank 3770  **ERCOT Impact Analysis:** Between $40K and $70K; no impacts to ERCOT staffing; impacts to Settlements & Billing Systems and Data Management & Analytic Systems; no impacts to ERCOT business processes; no impacts to ERCOT grid operations and practices.  **Revision Description:** This NPRR updates language to allow for a qualified alternate Resource to be considered in the calculation of the availability reduction factor for the Firm Fuel Supply Service Resource (FFSSR). Additionally, this NPRR provides a new Settlement billing determinant that will provide the Firm Fuel Supply Service Award Amount per QSE per FFSSR by hour.  **TAC Decision:** On 12/5/22, TAC voted to recommend approval of NPRR1154 as recommended by PRS in the 11/11/22 PRS Report and the 11/29/22 Impact Analysis with a recommended priority of 2023 and rank of 3770. There was one abstention from the IREP (Reliant) Market Segment.  **ERCOT Market Impact Statement:** ERCOT Staff has reviewed NPRR1154 and believes the market impact for NPRR1154 provides additional flexibility to FFSSRs without compromising the quality of the Firm Fuel Supply Service (FFSS) provided.  **IMM Opinion:** No Opinion   * ***NOGRR226, Addition of Supplemental UFLS Stages***   **Submitter:** LCRA  **Proposed Effective Date:** January 20, 2023; Upon system implementation – Priority 2023; Rank 3900 (grey-boxed language)  **ERCOT Impact Analysis:** Between $40K and $60K; no impacts to ERCOT staffing; impacts to Energy Management Systems and Grid Distribution Systems; ERCOT business processes will be update; ERCOT grid operations and practices will be updated.  **Revision Description:** This NOGRR adds provisions for Transmission Operator (TO) “anti-stall” automatic firm Load shedding at 59.5 Hz in order to improve reliability by mitigating the risk of a total system-wide Blackout.  **TAC Decision:** On 12/5/22, TAC voted to recommend approval of NOGRR226 as recommended by ROS in the 11/7/22 ROS Report as amended by the 11/30/22 ERCOT comments as revised by TAC; with a proposed effective date of January 20, 2023. There was one abstention from the IREP (Reliant) Market Segment.  **ERCOT Market Impact Statement:** ERCOT Staff has reviewed NOGRR226 and believes that the addition of supplemental anti-stall Under-Frequency Load Shed stages that are set to operate whenever frequency drops below 59.5 Hz with a certain time delay provides a positive market impact that will, in the event of a slow frequency decline, address the mismatch issue between generator under-frequency protection that occurs at 59.4 Hz and standard Under-Frequency Load Shed (UFLS) that triggers at 59.3 Hz.  **IMM Opinion:** No Opinion   * ***OBDRR043,* Related to NPRR1148, Language Cleanup Related to ERCOT Contingency Reserve Service (ECRS)**   **Submitter:** ERCOT  **Proposed Effective Date:** Upon system implementation of NPRR1148  **ERCOT Impact Analysis:** No budgetary impact; no impacts to ERCOT staffing; no impact to ERCOT computer systems; no impacts to ERCOT business processes; no impacts to ERCOT grid operations and practices. (There are no additional impacts to this RRGRR beyond what was captured in the Impact Analysis for NPRR1148.)  **Revision Description:** This OBDRR aligns the Operating Reserve Demand Curve (ORDC) methodology with NPRR1148.  **TAC Decision:** On 10/26/22, TAC voted unanimously to recommend approval of OBDRR043 as submitted and the 8/30/22 Impact Analysis. On 12/5/22, TAC voted to endorse the 11/23/22 ERCOT comments for OBDRR043. There was one abstention from the IREP (Reliant) Market Segment.  **ERCOT Market Impact Statement:** ERCOT Staff has reviewed OBDRR043 and believes the market impact for OBDRR043 properly reconciles Other Binding Document language with the upcoming system implementation of ECRS.  **IMM Opinion:** IMM supports approval of OBDRR043.   * ***RRGRR032, Related to NPRR1132, Communicate Operating Limitations during Cold and Hot Weather Conditions***   **Submitter:**  ERCOT  **Proposed Effective Date:** Upon implementation of NPRR1132  **ERCOT Impact Analysis:** No budgetary impact; no impacts to ERCOT staffing; no impact to ERCOT computer systems; no impacts to ERCOT business processes; no impacts to ERCOT grid operations and practices. (There are no additional impacts to this RRGRR beyond what was captured in the Impact Analysis for NPRR1132.)  **Revision Description:** This RRGRR adds data required to be shared with the ERCOT as the Reliability Coordinator, Balancing Authority, and Transmission Operator for use in considering cold weather limitations in its Operational Planning Analysis, Real-Time monitoring, Real-Time assessments, and other analysis functions. ERCOT is also requiring this information for hot weather limitations. Finally, ERCOT is requiring Distribution Generation Resources (DGRs) and Distribution Energy Storage Resources (DESRs) to provide this information. ERCOT is also listing alternate fuel supply information to aid in the same analysis described above.  **TAC Decision:** On 12/5/22, TAC voted to recommend approval of RRGRR032 as recommended by ROS in the 11/7/22 ROS Report as amended by the 12/2/22 ERCOT comments. There was one abstention from the IREP (Reliant) Market Segment.  **ERCOT Market Impact Statement:** ERCOT Staff has reviewed RRGRR032 and believes the market impact for RRGRR032 fulfills NERC Reliability Standards IRO-010-4, Reliability Coordinator Data Specification and Collection, and TOP-003-5, Operational Reliability Data, for cold weather conditions, which will become effective April 1, 2023, and further supplements data specifications to include hot weather maximum temperature and information concerning fuel capabilities.  **IMM Opinion:** No Opinion   * ***SCR821, Voltage Set Point Target Information for Distribution Generation Resource (DGR) or Distribution Energy Storage Resource (DESR) [AEP]***   **Submitter:** AEP  **Proposed Effective Date:** Upon system implementation – Priority 2024; Rank 4000  **ERCOT Impact Analysis:** Between $25K and $50K; no impacts to ERCOT staffing; impacts to Energy Management Systems; no impacts to ERCOT business processes; no impacts to ERCOT grid operations and practices.  **Revision Description:** This SCR allows, at the option of the Transmission and/or Distribution Service Provider (TDSP), Voltage Set Point target information to be provided to a DGR or a DESR installation.  **TAC Decision:** On 12/5/22, TAC voted to recommend approval of SCR821 as recommended by PRS in the 11/11/22 PRS Report. There were three abstentions from the Investor Owner Utility (IOU) (Oncor, TNMP, CNP) Market Segment.  **ERCOT Market Impact Statement:** ERCOT Staff has reviewed SCR821 and believes the market impact for SCR821 will allow TDSPs the option to provide automated, uniform Voltage Set Point target information to DGRs and DESRs.  **IMM Opinion:** No Opinion  The TAC Reports and Impact Analyses for these Revision Requests are included in the [ERCOT Board meeting materials](https://www.ercot.com/calendar/12202022-Board-of-Directors-Meeting).  In addition, these Revision Requests ([NPRRs](https://www.ercot.com/mktrules/issues/nprr), [NOGRR](https://www.ercot.com/mktrules/issues/nogrr), [OBDRR](https://www.ercot.com/mktrules/issues/obdrr), [RRGRR](https://www.ercot.com/mktrules/issues/rrgrr) and [SCR](https://www.ercot.com/mktrules/issues/scr)) and supporting materials are posted on the ERCOT website. |
| **Key Factors Influencing Issue:** The PRS met, discussed the issues, and submitted reports to TAC regarding NPRRs 1128, 1132, 1138, 1148, 1152, and 1154; and SCR821.  The ROS met, discussed the issues, and submitted reports to TAC regarding NOGRR226 and RRGRR032.  The TAC met, discussed the issues, and took action on OBDRR043. |
| **Conclusion/Recommendation:** As more specifically described above, TAC recommends that the ERCOT Board recommend approval of NPRRs 1128, 1132, 1138, 1148, 1152, and 1154; NOGRR226; OBDRR043; RRGRR032; and SCR821. |

**ELECTRIC RELIABILITY COUNCIL OF TEXAS, INC.**

**BOARD OF DIRECTORS RESOLUTION**

WHEREAS, after due consideration of the alternatives, the Board of Directors (Board) of Electric Reliability Council of Texas, Inc. (ERCOT) deems it desirable and in the best interest of ERCOT to recommend approval of the following Nodal Protocol Revision Requests (NPRRs), Nodal Operating Guide Revision Request (NOGRR), Other Binding Document Revision Request (OBDRR), Resource Registration Glossary Revision Request (RRGRR), and System Change Request (SCR) recommended for approval by TAC:

* NPRR1128, Allow FFR Procurement up to FFR Limit Without Proration;
* NPRR1132, Communicate Operating Limitations during Cold and Hot Weather Conditions;
* NPRR1138, Communication of Capability and Status of Online IRRs at 0 MW Output – URGENT, and the revised Impact Analysis;
* NPRR1148, Language Cleanup Related to ERCOT Contingency Reserve Service (ECRS);
* NPRR1152, Remove Requirements to Submit Emergency Operations Plans, Weatherization Plans, and Declarations of Summer/Winter Weather Preparedness – URGENT;
* NPRR1154, Include Alternate Resource in the Availability Plan for the Firm Fuel Supply Service – URGENT;
* NOGRR226, Addition of Supplemental UFLS Stages;
* OBDRR043, Related to NPRR1148, Language Cleanup Related to ERCOT Contingency Reserve Service (ECRS);
* RRGRR032, Related to NPRR1132, Communicate Operating Limitations during Cold and Hot Weather Conditions; and
* SCR821, Voltage Set Point Target Information for Distribution Generation Resource (DGR) or Distribution Energy Storage Resource (DESR).

THEREFORE, BE IT RESOLVED, that the Board hereby recommends approval of NPRRs 1128, 1132, 1138, 1148, 1152, and 1154; NOGRR226; OBDRR043; RRGRR032; and SCR821.

**CORPORATE SECRETARY’S CERTIFICATE**

I, Jonathan M. Levine, Assistant Corporate Secretary of ERCOT, do hereby certify that, at its December 20, 2022 meeting, the Board passed a motion approving the above Resolution by \_\_\_\_\_\_.

IN WITNESS WHEREOF, I have hereunto set my hand this \_\_\_ day of December, 2022.

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Jonathan M. Levine

Assistant Corporate Secretary