Filing Receipt

Received - 2023-01-06 11:02:20 AM
Control Number - 54445
ItemNumber - 2

PROJECT NO. 54445

CY 2023 REVIEW OF RULES ADOPTED BY THE INDEPENDENT ORGANIZATION	**§ § §**	**PUBLIC UTILITY COMMISSION OF TEXAS**

NOTICE OF RECOMMENDED APPROVAL OF REVISION REQUESTS BY ERCOT TECHNICAL ADVISORY COMMITTEE AND BOARD OF DIRECTORS

Effective June 8, 2021, rules adopted by Electric Reliability Council of Texas, Inc. (ERCOT) under delegated authority from the Public Utility Commission of Texas (Commission) are subject to Commission oversight and review and may not take effect before receiving Commission approval.

At its meeting on December 5, 2022, the ERCOT Technical Advisory Committee (TAC) recommended Commission approval of Nodal Operating Guide Revision Request (NOGRR) 243, Implementation of Seasonal Load Shed Tables. Pursuant to the relevant rules, NOGRR243 does not need a recommendation of Commission approval from the ERCOT Board of Directors (Board).

At its meeting on December 20, 2022, the Board recommended Commission approval of the following proposed revisions to the ERCOT rules (Revision Requests) (Nodal Protocol Revision Requests (NPRRs), NOGRR, Other Binding Document Revision Request (OBDRR), Resource Registration Glossary Guide Revision Request (RRGRR), and System Change Request (SCR)):

- NPRR1128, Allow FFR Procurement up to FFR Limit Without Proration;
- NPRR1132, Communicate Operating Limitations during Cold and Hot Weather Condition;
- NPRR1138, Communication of Capability and Status of Online IRRs at 0 MW Output;
- 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;
- NPRR1154, Include Alternate Resource in the Availability Plan for the Firm Fuel Supply Service;
- 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).

Included for Commission review are the TAC and Board Reports, as applicable—each of which includes an ERCOT Market Impact Statement—and ERCOT Impact Analyses for these Revision Requests.

Dated: January 6, 2023

Respectfully submitted,

/s/ Jonathan Levine

Chad V. Seely
Senior Vice President and General Counsel
Texas Bar No. 24037466
(512) 225-7035 (Phone)
(512) 225-7079 (Fax)
chad.seely@ercot.com

Jonathan Levine
Assistant General Counsel
Texas Bar No. 24067323
(512) 225-7017 (Phone)
(512) 225-7079 (Fax)
jonathan.levine@ercot.com

ERCOT
8000 Metropolis Drive (Building E), Suite 100
Austin, Texas 78744

ATTORNEYS FOR ELECTRIC RELIABILITY COUNCIL OF TEXAS, INC.

TAC Report

NOGRR Number	243	NOGRR Title	Implementation of Seasonal Load Shed Tables
Date of Decision		December 5, 2022	
Action		Recommended Approval	
Timeline		Urgent – to allow NOGRR243 implementation prior to the 2022/2023 winter Season, thereby enabling Seasonal obligations to be reflected in Transmission Operator (TO)/Distribution Service Provider (DSP) winter 2022/2023 Load shed instructions from ERCOT	
Proposed Effective Date		Upon system implementation	
Priority and Rank Assigned		Not applicable	
Nodal Operating Guide Sections Requiring Revision		4.5.3.4, Load Shed Obligation	
Related Documents Requiring Revision/Related Revision Requests		None	
Revision Description		This Nodal Operating Guide Revision Request (NOGRR) modifies the Load shed table to include separate Load shed obligations for the winter and summer Seasons to align with Senate Bill 3 directives.	
Reason for Revision		[X] Addresses current operational issues [ ] Meets Strategic goals (tied to the ERCOT Strategic Plan or directed by the ERCOT Board). [ ] Market efficiencies or enhancements [ ] Administrative [X] Regulatory requirements [ ] Other: (explain) *(please select all that apply)*	
Business Case		This NOGRR aligns the ERCOT Load shed obligation tables with the requirements established within Senate Bill 3 which directs ERCOT to modify the Load shed obligations to include winter and summer	

TAC Report

	Seasons. The modifications proposed in this NOGRR adds a second Load shed table for the purposes of reflecting Seasonal differences and as a means to accommodate the intent of requirements associated with Senate Bill 3 for a Seasonal Load shed process. Seasonal differences in Load allocation percentages can result in disproportionate Load shedding for a ERCOT Energy Emergency Alert (EEA) Level 3 Load shed event. The amount of Load each TO/DSP is obligated to shed is identified in the Load shed table of Section 4.5.3.4 by entity based on peak Loads.
ROS Decision	On 11/7/22, ROS voted unanimously to grant NOGRR243 Urgent status; to recommend approval of NOGRR243 as amended by the 11/2/22 Joint TOs comments; and to forward NOGRR243 to TAC. All Market Segments participated in the vote.
Summary of ROS Discussion	On 11/7/22, ROS reviewed the 11/2/22 Joint TOs comments, 11/2/22 Golden Spread comments, and 11/7/22 PUCT Staff comments. Participants expressed concern that without advanced notice of which Seasonal Load shed table applies to the Load shed event, systems may not be able to respond as quickly.
TAC Decision	On 12/5/22, TAC voted to recommend approval of NOGRR243 as recommended by ROS in the 11/7/22 ROS Report as revised by TAC and the 11/22/22 Impact Analysis. There was one abstention from the Independent Retail Electric Provider (IREP) (Reliant) Market Segment. All Market Segments participated in the vote.
Summary of TAC Discussion	On 12/5/22, TAC reviewed the ERCOT Opinion, ERCOT Market Impact Statement, and Independent Market Monitor (IMM) Opinion for NOGRR243. Participants discussed additional edits to address concerns regarding the timing of when TOs are notified which Load shed table applies to a Load shed event and the effect this may have on system response times and the reliability implications. Participants also commented that a broader discussion on considering Real-Time conditions in the process needs to take place at ROS.

Opinions	
Credit Work Group Review	Not applicable
Independent Market Monitor Opinion	IMM has no opinion on NOGRR243.

TAC Report

ERCOT Opinion	ERCOT supports approval of NOGRR243.
ERCOT Market Impact Statement	ERCOT Staff has reviewed NOGRR243 and believes the market impact for NOGRR243 aligns the ERCOT Load shed obligation tables with the requirements established in Senate Bill 3.

Sponsor	
Name	Eric Easton; Dennis Kunkel; Chris Gerety
E-mail Address	eric.easton@centerpointenergy.com; dkkunkel@aep.com; christopher.gerety@tnmp.com
Company	"Joint TOs": CenterPoint Energy Houston Electric (CEHE); AEP Service Corporation (AEPSC); Texas-New Mexico Power (TNMP)
Phone Number	713-207-2840; 361-813-4140; 505-280-3310
Cell Number	N/A
Market Segment	Investor Owned Utilities (IOUs)

Market Rules Staff Contact	
Name	Erin Wasik-Gutierrez
E-Mail Address	Erin.Wasik-Gutierrez@ERCOT.com
Phone Number	413-886-2474

Comments Received	
Comment Author	**Comment Summary**
Joint TOs 110222	Deleted references to removing transmission connected industrial Load from TO Load shed obligation calculations, clarified how ERCOT will calculate Seasonal Load shed obligation percentage values, aligned with Public Utility Commission of Texas (PUCT) defined winter Season months, and added timeline requirements for ERCOT to update anticipated revisions to the Seasonal Load shed obligation percentages
Golden Spread 110222	Supported two Load shed tables without excluding transmission Load from the calculation or Load shed obligation
PUCT Staff 110722	Expressed support of limiting the issues to be addressed as contemplated in the 11/2/22 Joint TOs comments; and of aligning the Nodal Operating Guide with Senate Bill 3 Seasonal Load shed obligation directive

Proposed Guide Language Revision

4.5.3.4 Load Shed Obligation

(1) Each TO shall take and direct actions to ensure that ERCOT Load shed instructions are effectuated. Each DSP shall comply with any reasonable instruction given by its TO to effectuate Load shed obligations.

(2) ~~Percentages~~Load shed obligation percentages for ERCOT ~~Energy Emergency Alert (~~EEA~~)~~ Level 3 Load shedding will be determined by calculating each TO's Load ~~total distribution connected Load as designated by the DSP excluding any transmission connected industrial Load, based on the previous year's TSP~~summer or winter TO Load at the time of the ~~ERCOT seasonal peak Loads, as reported~~as a percentage of the ~~total distribution served~~ ERCOT System ~~seasonal peak Load~~summer and winter peak 15 minute Demand interval. For the purposes of this paragraph, TO Load will be the amount of Load being served by all of the Transmission and/or Distribution Service Providers (TDSPs) that the TO represents. The calculations for summer and winter Load shed obligation percentage are as follows:

(a) The calculated Load shed obligation percentage for the summer ~~s~~Season will be based on the single highest coincident ~~hourly~~ ERCOT System peak 15 minute Demand interval ~~of~~for the summer months of June through September as reflected in the 4-Coincident Peak (4-CP) data submitted by ERCOT to the Public Utility Commission of Texas (PUCT) for that year. Anticipated revisions to the summer Load shed table shall be posted as described in paragraph (4) below no later than March 31st of each year based on data from the previous calendar year~~and applicable during a hot weather Load shed event, as determined by ERCOT~~.

(b) The calculated Load shed obligation percentage for the winter ~~s~~Season will be based on the single highest coincident ~~hourly~~ ERCOT System peak 15 minute Demand interval ~~of~~for the winter months of December through ~~March~~February as reflected at the time that ERCOT extracts the Load data for the winter Season from its settlement system. Anticipated revisions to the winter Load shed table shall be posted as described in paragraph (4) below no later than August 31st of each year based on data from December of the previous calendar year and January through February of the current year~~and applicable during a cold weather Load shed event, as determined by ERCOT~~.

(3) The summer Load shed table will be used during a hot weather Load shed event and the winter Load shed table will be used during a cold weather Load shed event. ~~However,~~ ERCOT ~~has~~will determine, in its sole ~~the~~ discretion, ~~to ERCOT, and~~whether an EEA event will be treated as a hot weather or cold weather Load shed event based on the weather conditions. The summer and winter Load shed time periods will be published annually with the updated obligation tables in paragraph (2) above. In addition, if ERCOT issues an Operating Condition Notice (OCN), it will notify Market Participants which Load shed table would apply to the potential Load shed event. When ERCOT directs TOs to shed

Load, it will specify which ~~Seasonal~~ Load shed table applies for the Load shed event. ~~utilize the appropriate seasonal Load Shed Table based on Real-Time weather conditions during an EEA event.~~ ERCOT shall use the same Load shed table for the duration of a Load shed event.

(4) ERCOT shall maintain the Seasonal Load shed tables reflecting each TO's total Load shed obligation on the ERCOT website. The Load shed obligation percentages will be reviewed by ERCOT and revised ~~annually or as otherwise appropriate~~as described above, or as otherwise deemed appropriate by ERCOT, ~~to~~~~and will~~to reflect any new or changed ~~TO~~TO ~~DSP's~~ designation by a DSP~~, of their desired TO~~. ~~ERCOT shall maintain a~~ ~~the seasonal Load Shed Table~~Tables ~~posted on the ERCOT website that reflects each TO's total Load shed obligation.~~ Adjustments to the Load shed obligations due to changes in TO designations will be performed using the same Load data upon which the table was based. Following ERCOT's Seasonal peak Load reviews or ERCOT's receipt of any new or changed TO designation, ERCOT shall post any anticipated revisions to the Load shed tables on the ERCOT website. ERCOT shall issue a Market Notice announcing the posting of the revisions at least ten days prior to the effective date of the revisions or as soon as practicable if ERCOT determines there is a need to correct the Market Notice less than ten days before the effective date.

~~$$TOLSO_{to,sea} = (TODLDSP_{to,sea} / EPSDL_{sea}) * 100$$~~

~~The above variables are defined as follows:~~

~~Variable~~	~~Unit~~	~~Definition~~
~~$TOLSO_{to,sea}$~~	~~%~~	~~*Transmission Operator Load Shed Obligation* - The percent of each TO's Load shed obligation at the time of the ERCOT coincident peak during either the summer or winter seasons.~~
~~$TODLDSP_{to,sea}$~~	~~MW~~	~~*Transmission Operator Distribution Load during Seasonal Peak* - TO total DSP designated distribution served Load excluding any transmission connected industrial Load, as reported to ERCOT, at the time of the previous year's ERCOT summer or winter peak.~~
~~$EPSDL_{sea}$~~	~~MW~~	~~*ERCOT Peak Seasonal Distribution Load* - The total peak distribution served ERCOT Load during either the summer or winter seasons.~~
~~*to*~~	~~None~~	~~A Transmission Operator~~
~~*sea*~~	~~None~~	~~summer or winter season~~

~~(3)~~ ~~Following ERCOT's annual seasonal peak Load review or ERCOT's receipt of any new or changed TO designation, ERCOT shall post any anticipated revisions to the Load Shed Tables on the ERCOT website. ERCOT shall issue a Market Notice announcing the posting of the revisions at least ten days prior to the effective date of the revisions or as soon as practicable if ERCOT determines there is a need to correct the Market Notice less than ten days before the effective date.~~

Revised ERCOT Impact Analysis Report

NOGRR Number	243	NOGRR Title	Implementation of Seasonal Load Shed Tables
Impact Analysis Date		December 13, 2022	
Estimated Cost/Budgetary Impact		Less than $10k, which will be absorbed by the Operations & Maintenance (O&M) budgets of affected department. See Comments.	
Estimated Time Requirements		No project required. This Nodal Operating Guide Revision Request (NOGRR) can take effect within 1-2 weeks following Public Utility Commission of Texas (PUCT) approval.	
ERCOT Staffing Impacts (across all areas)		Implementation Labor: 100% ERCOT; 0% Vendor Ongoing Requirements: No impacts to ERCOT staffing.	
ERCOT Computer System Impacts		The following ERCOT systems would be impacted: • ERCOT Website and MIS Systems 33% • Channel Management Systems 33% • Content Delivery Systems 33%	
ERCOT Business Function Impacts		No impacts to ERCOT business functions.	
Grid Operations & Practices Impacts		ERCOT will update grid operations and practices to implement this NOGRR.	

Evaluation of Interim Solutions or Alternatives for a More Efficient Implementation
None offered.

Comments
This NOGRR will require a desk procedure updates and operator training.

Board Report

NPRR Number	1128	NPRR Title	Allow FFR Procurement up to FFR Limit Without Proration
Date of Decision		December 20, 2022	
Action		Recommended Approval	
Timeline		Normal	
Proposed Effective Date		Upon system implementation	
Priority and Rank Assigned		Priority – 2023; Rank – 3760	
Nodal Protocol Sections Requiring Revision		3.16, Standards for Determining Ancillary Service Quantities 4.4.7.2.1, Ancillary Service Offer Criteria 4.4.7.2.3, Ancillary Service Only Offer Criteria	
Related Documents Requiring Revision/Related Revision Requests		None	
Revision Description		This Nodal Protocol Revision Request (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.	
Reason for Revision		☐ Addresses current operational issues. ☐ Meets Strategic goals (tied to the ERCOT Strategic Plan or directed by the ERCOT Board). ☒ Market efficiencies or enhancements ☐ Administrative ☐ Regulatory requirements ☐ Other: (explain) *(please select all that apply)*	

Business Case	The Public Utility Commission of Texas (PUCT) has prioritized FFR advancement in their Phase I implementation. Additionally, ERCOT in their "Feb 2021 Winter Event" presentation to the Performance, Disturbance, Compliance Working Group (PDCWG) on August 11, 2021, state the benefit of FFR-RRS over other categories of FFR as follows: 1. Early response from FFR aids in preserving Load Resource providing RRS for more severe events; 2. Short restoration time for resources providing FFR will limit ERCOT's exposure (i.e. inability to respond) to next event of similar magnitude; and 3. FFR can help mitigate critical inertia and facilitate further increased penetration levels of Inverter-Based Resources (IBRs) in ERCOT. ERCOT has advocated for FFR since 2015 as part of the Future Ancillary Service (FAS) design for the reliability benefits described above. ERCOT inertia analysis presented to PDCWG on March 16, 2022, concludes that: • All other factors being constant, inertia would decline in proportion to installed capacity of inverter-based generation; • In 2021, a variety of factors may have affected thermal unit availability; there was an overall decline in inertia from combined cycle units and relatively lower inertia compared to past years. Given the significant amount of wind and solar under development and thermal Resource response potentially being too slow to timely arrest frequency under lower inertia conditions, the critical importance of FFR for system reliability during certain times of the year and Operating Hours when it is more common to see lower levels of inertia is obvious. However, due to the current implementation of the Ancillary Service procurement process for various categories of RRS, Energy Storage Resources (ESRs) are economically disincented to provide FFR-RRS instead of Primary Frequency Response-RRS. The changes in this NPRR allow, depending on relative Ancillary Service Offers, during certain specific Operating Hours, FFR procurement up to the current FFR limit without proration with other RRS categories in the Ancillary Service procurement process.

Board Report

PRS Decision	On 4/14/22, PRS voted unanimously to table NPRR1128 and refer the issue to ROS and WMS. All Market Segments participated in the vote. On 8/11/22, PRS voted to recommend approval of NPRR1128 as amended by the 7/15/22 ERCOT comments. There was one opposing vote from the Consumer (Occidental) Market Segment. All Market Segments participated in the vote. On 9/15/22, PRS voted unanimously to table NPRR1128. All Market Segments participated in the vote. On 10/13/22, PRS voted to endorse and forward to TAC the 9/15/22 PRS Report and 10/11/22 Impact Analysis for NPRR1128 with a recommended priority of 2023 and rank of 3760. There was one abstention from the Consumer (Occidental) Market Segment. All Market Segments participated in the vote.
Summary of PRS Discussion	On 4/14/22, the sponsor provided an overview of NPRR1128. On 8/11/22, opponents stated that, while the 7/15/22 ERCOT comments improved the language of NPRR1128, they could not support approval of NPRR1128 absent a clearly demonstrated reliability need for such preferential treatment. On 9/15/22, participants noted the 9/8/22 ERCOT comments requesting PRS table NPRR1128 to allow additional time to develop the Impact Analysis. On 10/13/22, participants reviewed the 10/11/22 Impact Analysis and discussed the appropriate priority and rank for NPRR1128.
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. All Market Segments participated in the vote.
Summary of TAC Discussion	On 10/26/22, TAC reviewed the ERCOT Opinion, ERCOT Market Impact Statement, and Independent Market Monitor (IMM) Opinion for NPRR1128.
ERCOT Board Decision	On 12/20/22, the ERCOT Board voted unanimously to recommend approval of NPRR1128 as recommended by TAC in the 10/26/22 TAC Report as amended by the 11/23/22 ERCOT comments.

Opinions	
Credit Work Group Review	ERCOT Credit Staff and the Credit Work Group (Credit WG) have reviewed NPRR1128 and do not believe that it requires changes to credit monitoring activity or the calculation of liability.

Board Report

Independent Market Monitor (IMM) Opinion	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.
ERCOT Opinion	ERCOT supports approval of NPRR1128.
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.

Sponsor	
Name	Shams Siddiqi
E-mail Address	shams@crescentpower.net
Company	Hunt Energy Network
Phone Number	512-619-3532
Cell Number	512-619-3532
Market Segment	Independent Power Marketer (IPM)

Market Rules Staff Contact	
Name	Cory Phillips
E-Mail Address	cory.phillips@ercot.com
Phone Number	512-248-6464

Comments Received	
Comment Author	**Comment Summary**
TIEC 042922	Opposed NPRR1128
ROS 051022	Requested PRS continue to table NPRR1128 for further review by the PDCWG
WMS 051022	Requested PRS continue to table NPRR1128 for further review by the Wholesale Market Working Group (WMWG)

ERCOT 052722	Provided issues for stakeholder discussions on NPRR1128
ERCOT 071522	Proposed additional edits to limit the preferential procurement of FFR to certain hours only
WMS 080522	Endorsed NPRR1128 as amended by the 7/15/22 ERCOT comments
ROS 081122	Endorsed NPRR1128 as amended by the 7/15/22 ERCOT comments
ERCOT 090822	Requested PRS table NPRR1128 to allow for additional time for development of the Impact Analysis
ERCOT 103122	Carried down redlines into grey-boxed language to maintain NPRR1128's revisions through the implementation of Real-Time Co-optimization (RTC)
TAC 120622	Endorsed the 10/31/22 ERCOT comments for NPRR1128

Market Rules Notes

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

- NPRR1093, Load Resource Participation in Non-Spinning Reserve (unboxed 5/27/22)
  - Section 4.4.7.2.1

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

- NPRR1148, Language Cleanup Related to ERCOT Contingency Reserve Service (ECRS)
  - Section 4.4.7.2.1

Proposed Protocol Language Revision

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:

[NPRR863: Insert item (a) below upon system implementation and renumber accordingly:]

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

(a) 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;

(b) 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

(c) 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 (b) and (c) above upon system implementation of the Real-Time Co-Optimization (RTC) project and renumber accordingly.]

(d) 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 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, the Operating Hours where prioritizing procurement of FFR up to the maximum FFR amount is beneficial in improving reliability, and the maximum amount of Reg-Up and Reg-Down that can be provided by Resources providing FRRS-Up and FRRS-Down.

[NPRR1007: Replace paragraph (3) above with the following upon system implementation of the Real-Time Co-Optimization (RTC) project:]

(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 minimum capacity required from Resources providing Primary Frequency Response to provide RRS, ~~and~~ 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. 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 RRS from Load Resources and Resources capable of providing FFR above the percentage limit established by ERCOT for sale of RRS to other Market Participants. The total amount of RRS Service using the Load Resource (excluding Controllable Load Resources) or Resources providing FFR 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.

[NPRR863: Replace paragraph (7) above with the following upon system implementation:]

(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.

[NPRR863: Insert paragraphs (8)-(10) below upon system implementation and renumber accordingly:]

(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.

(8) 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.

(9) 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.

(10) 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 (8)-(10) above upon system implementation of the Real-Time Co-Optimization (RTC) project.]

4.4.7.2.1[CP1] ***Ancillary Service Offer Criteria***

(1) Each Ancillary Service Offer must be submitted by a QSE and must include the following information:

(a) The selling QSE;

(b) The Resource represented by the QSE from which the offer would be supplied;

(c) The quantity in MW and Ancillary Service type from that Resource for this specific offer and the specific quantity in MW and Ancillary Service type of any other Ancillary Service offered from this same capacity;

(d) An Ancillary Service Offer linked to a Three-Part Supply Offer from a Resource designated to be Off-Line for the offer period in its COP may only be struck if the Three-Part Supply Offer is struck. The total capacity struck must be within limits as defined in item (4)(c)(iii) of Section 4.5.1, DAM Clearing Process;

(e) An Ancillary Service Offer linked to other Ancillary Service Offers or an Energy Offer Curve from a Resource designated to be On-Line for the offer period in its COP may only be struck if the total capacity struck is within limits as defined in item (4)(c)(iii) of Section 4.5.1;

(f) The first and last hour of the offer;

(g) A fixed quantity block, or variable quantity block indicator for the offer:

(i) If a fixed quantity block, not to exceed 150 MW, which may only be offered by a Load Resource that is not a Controllable Load Resource and that is offering to provide RRS or Non-Spin, and which may clear at a Market Clearing Price for Capacity (MCPC) below the Ancillary Service Offer price for that block, the single price (in $/MW) and single quantity (in MW) for all hours offered in that block; or

(ii) If a variable quantity block, which may be offered by a Generation Resource or a Load Resource, the single price (in $/MW) and single "up to" quantity (in MW) contingent on the purchase of all hours offered in that block; and

(h) The expiration time and date of the offer.

(2) A valid Ancillary Service Offer in the DAM must be received before 1000 for the effective DAM. A valid Ancillary Service Offer in an SASM must be received before the applicable deadline for that SASM.

(3) No Ancillary Service Offer price may exceed the System-Wide Offer Cap (SWCAP) (in $/MW). During the Operating Hours in which prioritizing the procurement of Fast Frequency Response (FFR) up to the maximum FFR amount is in effect, an ~~Fast Frequency Response (FFR)~~ Ancillary Service Offer price ~~during the Operating Hours where prioritizing procurement of FFR up to the maximum FFR amount is acceptable~~ may not be less than -$0.01 per MW. FFR Ancillary Service Offer prices at all other times and ~~N~~no ~~other~~ any other Ancillary Service Offer price~~s for remaining Ancillary Services~~ may not be less than $0 per MW.

(4) The minimum amount per Resource for each Ancillary Service product that may be offered is one-tenth (0.1) MW.

(5) A Resource may offer more than one Ancillary Service.

(6) A Load Resource that is not a Controllable Load Resource, may simultaneously offer RRS and Non-Spin in a DAM or SASM and be awarded RRS and Non-Spin for the same Operating Hour but will not be allowed to provide RRS and Non-Spin on the same Load Resource simultaneously in Real-Time.

(7) Offers for Load Resources may be adjusted to reflect Distribution Losses in accordance with Section 8.1.1.2, General Capacity Testing Requirements.

(8) A Load Resource that is qualified to perform as a Controllable Load Resource may not offer to provide Ancillary Services as a Controllable Load Resource and a Load Resource controlled by high-set under-frequency relay simultaneously behind a common breaker.

[NPRR863, NPRR1008, and NPRR1014: Replace applicable portions of Section 4.4.7.2.1 above with the following upon system implementation for NPRR863 or NPRR1014; or upon system implementation of the Real-Time Co-Optimization (RTC) project for NPRR1008:]

4.4.7.2.1 Resource-Specific Ancillary Service Offer Criteria

(1) Each Resource-Specific Ancillary Service Offer must be submitted by a QSE and must include the following information:

(a) The selling QSE;

(b) The Resource represented by the QSE from which the offer would be supplied;

(c) The quantity in MW and Ancillary Service type from that Resource for this specific offer and the specific quantity in MW and Ancillary Service type of any other Ancillary Service offered from this same capacity;

(d) A Resource-Specific Ancillary Service Offer linked to a Three-Part Supply Offer from a Resource designated to be Off-Line for the offer period in its COP may only be struck if the Three-Part Supply Offer is struck. The total capacity struck must be within limits as defined in item (4)(c)(iii) of Section 4.5.1, DAM Clearing Process;

(e) A Resource-Specific Ancillary Service Offer linked to other Resource-Specific Ancillary Service Offers or an Energy Offer Curve or Energy Bid/Offer Curve from a Resource designated to be On-Line for the offer period in its COP may only be struck if the total capacity struck is within limits as defined in item (4)(c)(iii) of Section 4.5.1;

(f) The first and last hour of the offer;

(g) A fixed quantity block or variable quantity block indicator for the offer:

(i) If a fixed quantity block, not to exceed 150 MW, which may only be offered by a Load Resource that is not a Controllable Load Resource and that is offering to provide RRS, ECRS, or Non-Spin, and which may clear at a Market Clearing Price for Capacity (MCPC) below the Resource-Specific Ancillary Service Offer price for that block, the single price (in $/MW) and single quantity (in MW) for all hours offered in that block. This fixed quantity block indicator will only be considered in the DAM and will be ignored for awarding of Ancillary Services in the Real-Time Market (RTM); or

(ii) If a variable quantity block, which may be offered by a Generation Resource, an ESR, or a Load Resource, the single price (in $/MW) and single "up to" quantity (in MW) contingent on the purchase of all hours offered in that block. This variable quantity block indicator will only be considered in the DAM and will be ignored for awarding of Ancillary Services in the RTM; and

(h) The expiration time and date of the offer.

(2) A valid Resource-Specific Ancillary Service Offer in the DAM must be received before 1000 for the effective DAM.

(3) No Resource-Specific Ancillary Service Offer received before 1000 in the Day-Ahead may contain a price exceeding the Day-Ahead System-Wide Offer Cap (DASWCAP) (in $/MW). No Resource-Specific Ancillary Service Offer received after 1430 in the Day-Ahead may contain a price exceeding the Real-Time System-Wide Offer Cap (RTSWCAP) (in $/MW). During the Operating Hours in which prioritizing the procurement of Fast Frequency Response (FFR) up to the maximum FFR amount is in effect, an ~~Fast Frequency Response (~~FFR~~)~~ Ancillary Service Offer price ~~during the Operating Hours where prioritizing procurement of FFR up to the maximum FFR amount is acceptable~~ may not be less than -$0.01 per MW. FFR Ancillary Service Offer prices at all other times and ~~N~~no ~~other~~any other Ancillary Service Offer prices ~~for remaining Ancillary Services~~ may not be less than $0 per MW.

(4) The minimum amount per Resource for each Ancillary Service product that may be offered is one-tenth (0.1) MW.

(5) A Resource may offer more than one Ancillary Service.

(6) A Load Resource, that is not a Controllable Load Resource, may simultaneously offer RRS, ECRS, and Non-Spin in a DAM and be awarded RRS, ECRS, and Non-Spin for

the same Operating Hour in the DAM, but will not be awarded Non-Spin and RRS on the same Load Resource simultaneously in Real-Time.

(7) Offers for Load Resources may be adjusted to reflect Distribution Losses in accordance with Section 8.1.1.2, General Capacity Testing Requirements.

(8) A Load Resource that is qualified to perform as a Controllable Load Resource may not offer to provide Ancillary Services as a Controllable Load Resource and a Load Resource controlled by high-set under-frequency relay simultaneously behind a common breaker.

[NPRR1008: Insert Section 4.4.7.2.3 below upon system implementation of the Real-Time Co-Optimization (RTC) project:]

4.4.7.2.3 Ancillary Service Only Offer Criteria

(1) Each Ancillary Service Only Offer must be submitted by a QSE and must include the following information:

(a) The selling QSE;

(b) The quantity in MW and Ancillary Service type;

(c) The first and last Operating Hour of the offer;

(2) A valid Ancillary Service Only Offer in the DAM must be received before 1000 in the Day-Ahead.

(3) No Ancillary Service Only Offer price may exceed the DASWCAP (in $/MW). During the Operating Hours in which prioritizing the procurement of Fast Frequency Response (FFR) up to the maximum FFR amount is in effect, an FFR Ancillary Service Offer price ~~during the Operating Hours where prioritizing procurement of FFR up to the maximum FFR amount is acceptable~~ may not be less than -$0.01 per MW. FFR Ancillary Service Offer price at all other times and ~~N~~no ~~other~~any other Ancillary Service Only Offer prices ~~for remaining Ancillary Services~~ may not be less than $0 per MW.

(4) The minimum amount that may be offered is one-tenth (0.1) MW.

ERCOT Impact Analysis Report

NPRR Number	1128	NPRR Title	Allow FFR Procurement up to FFR Limit Without Proration
Impact Analysis Date		October 11, 2022	
Estimated Cost/Budgetary Impact		Between $30k and $50k	
Estimated Time Requirements		The timeline for implementing this Nodal Protocol Revision Request (NPRR) is dependent upon Public Utility Commission of Texas (PUCT) prioritization and approval. Estimated project duration: 3 to 5 months	
ERCOT Staffing Impacts (across all areas)		Implementation Labor: 100% ERCOT; 0% Vendor Ongoing Requirements: No impacts to ERCOT staffing.	
ERCOT Computer System Impacts		The following ERCOT systems would be impacted: • Market Operation Systems 64% • Data Management & Analytic Systems 32% • Channel Management Systems 2% • Content Delivery Systems 2%	
ERCOT Business Function Impacts		No impacts to ERCOT business functions.	
Grid Operations & Practices Impacts		No impacts to ERCOT grid operations and practices.	

Evaluation of Interim Solutions or Alternatives for a More Efficient Implementation
None offered.

Comments
None.

Board Report

NPRR NUMBER	1132	NPRR Title	Communicate Operating Limitations during Cold and Hot Weather Conditions
Date of Decision		December 20, 2022	
Action		Recommended Approval	
Timeline		Normal	
Proposed Effective Date		February 1, 2023	
Priority and Rank Assigned		Priority – 2023; Rank – 340	
Nodal Protocol Sections Requiring Revision		3.9, Current Operating Plan (COP) 3.10.6, QSE and Resource Entity Responsibilities 6.5.9.3.2, Advisory	
Related Documents Requiring Revision/Related Revision Requests		Resource Registration Glossary Revision Request (RRGRR) 032, Related to NPRR1132, Communicate Operating Limitations during Cold and Hot Weather Conditions	
Revision Description		This Nodal Protocol Revision Request (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.	
Reason for Revision		☐ Addresses current operational issues. ☐ Meets Strategic goals (tied to the ERCOT Strategic Plan or directed by the ERCOT Board). ☐ Market efficiencies or enhancements ☐ Administrative ☒ Regulatory requirements ☐ Other: (explain)	

	(please select all that apply)
Business Case	North American Electric Reliability Corporation (NERC) Reliability Standards IRO-010-4, Reliability Coordinator Data Specification and Collection, and TOP-003-5, Operational Reliability Data, will become effective April 1, 2023. These NERC Reliability Standards will require responsible Entities to communicate generating unit operating limitations during forecasted cold weather conditions to ERCOT (the Reliability Coordinator, Balancing Authority, and a Transmission Operator (TO) for the ERCOT interconnection) for use in its operational planning analysis, Real-Time monitoring, Real-Time assessments, and other analysis functions. These NERC Reliability Standards will also require responsible Entities to provide ERCOT each generating unit's minimum design temperature, minimum historical operating temperature, or minimum operating temperature determined by an engineering analysis. ERCOT is including these requirements in the ERCOT Protocols, which are part of ERCOT's documented data specification. ERCOT is requiring that the minimum historical operating temperature be provided for every Generation Resource or ESR that has operated at least one complete winter. ERCOT is also requiring that each Resource Entity provide at least one of the other two minimum temperatures — design temperature or ambient temperature limit determined by an engineering analysis — for each Generation Resource or ESR. This will help support additional ERCOT analysis of risks of Resource unavailability due to the cold weather. Given the impact of this information on ERCOT's situational awareness, it is important that Resource Entities ensure this information is as accurate as possible. Beyond the cold-weather operating information required by NERC Reliability Standards IRO-010-4 and TOP-003-5, ERCOT is also supplementing its documented data specification to include hot weather maximum temperatures and information concerning alternate fuel capabilities. The proposed dates for annual review and updates are meant to allow time for this information to potentially inform ERCOT's seasonal studies and assessments. Before this NPRR is implemented, ERCOT intends to issue a request for information (RFI) to Resource Entities to obtain this information for purpose of assessing vulnerabilities ahead of winter 2022-23.

Board Report

PRS Decision	On 5/11/22, PRS voted unanimously to table NPRR1132 and refer the issue to ROS and WMS. All Market Segments participated in the vote. On 10/13/22, PRS voted to recommend approval of NPRR1132 as amended by the 10/11/22 Luminant comments. There was one abstention from the Consumer (Occidental) Market Segment. All Market Segments participated in the vote. On 11/11/22, PRS voted unanimously to endorse and forward to TAC the 10/13/22 PRS Report as amended by the 10/14/22 ERCOT comments and 11/1/22 Revised Impact Analysis for NPRR1132 with a recommended priority of 2023 and rank of 340. All Market Segments participated in the vote.
Summary of PRS Discussion	On 5/11/22 participants debated the usefulness of historical temperature limits, particularly outside of other factors such as humidity and wind direction. On 10/13/22, participants discussed the 10/10/22 LCRA comments and the 10/11/22 Luminant comments. On 11/11/22, participants reviewed the 10/14/22 ERCOT comments and the 11/1/22 Revised Impact Analysis.
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 Independent Retail Electric Provider (IREP) Market Segment. All Market Segments participated in the vote.
Summary of TAC Discussion	On 12/5/22, TAC reviewed the ERCOT Opinion, ERCOT Market Impact Statement, and Independent Market Monitor (IMM) Opinion for NPRR1132; and the 12/2/22 ERCOT comments.
Board Decision	On 12/20/22, the ERCOT Board voted unanimously to recommend approval of NPRR1132 as recommended by TAC in the 12/5/22 TAC Report.

Opinions	
Credit Work Group Review	ERCOT Credit Staff and the Credit Work Group (Credit WG) have reviewed NPRR1132 and do not believe that it requires changes to credit monitoring activity or the calculation of liability.
Independent Market	IMM has no opinion on NPRR1132.

Board Report

Monitor Opinion	
ERCOT Opinion	ERCOT supports approval of NPRR1132.
ERCOT Market Impact Statement	ERCOT Staff has reviewed NPRR1132 and believes the market impact for NPRR1132 fulfills NERC Reliability Standards IRO-010-4 and TOP-003-5 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.

Sponsor	
Name	Nitika Mago / Stephen Solis
E-mail Address	Nitika.Mago@ercot.com / Stephen.Solis@ercot.com
Company	ERCOT
Phone Number	512-248-6601 / 512-248-6772
Cell Number	
Market Segment	Not Applicable

Market Rules Staff Contact	
Name	Brittney Albracht
E-Mail Address	Brittney.Albracht@ercot.com
Phone Number	512-225-7027

Comments Received	
Comment Author	**Comment Summary**
WMS 060622	Requested PRS continue to table NPRR1132 for further review by the Wholesale Market Working Group (WMWG)
ROS 060622	Requested PRS continue to table NPRR1132 for further review by the Operations Working Group (OWG)
ERCOT 090922	Incorporated feedback from recent requests for information to limit historical ambient temperatures to a finite period of time; added language to include “hot” weather temperature limits; separated the minimum and maximum ambient temperatures to include one maximum/minimum temperature without a Forced Outage or failure to start and a second maximum/minimum temperature without a

	Forced Derate greater than 10 MW and 5% of the summer/winter Seasonal net max sustainable rating
ERCOT 092322	Addressed various consistency and language errors in the 9/9/22 ERCOT comments
ROS 100422	Endorsed NPRR1132 as amended by the 9/23/22 ERCOT comments as revised by ROS
LCRA 101022	Proposed language clarifying that QSEs shall perform an update when ERCOT issues an Advisory due to forecasted or actual cold or hot weather, and that QSEs update the impact due to relevant weather conditions
Luminant 101122	Proposed language to address concerns for the costs associated with engineering analyses requirements beyond the NERC requirement; suggested moving new paragraph (9) in Section 3.9 to Section 6.5.9.3.2
WMS 101222	Endorsed NPRR1132 as amended by the 10/11/22 Luminant comments
ERCOT 101422	Proposed language to afford that if a temperature determined by an engineering analysis was never provided, and only a design temperature was provided, the design temperature must be reviewed at least once every seven years; proposed new paragraph (9) remain in Section 3.9
ERCOT 120222	Clarified the periodicity of review of the hot and cold weather temperature limits in paragraph (3) of Section 3.10.6; also clarified that any updates to Resource Registration data based on these reviews must be provided within 30 days of identifying any change in the data, rather than by a specified date each year

Market Rules Notes

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

- NPRR1120, Create Firm Fuel Supply Service
  - Section 3.9 (incorporated 10/14/22)

Proposed Protocol Language Revision

3.9 Current Operating Plan (COP)

(1) Each Qualified Scheduling Entity (QSE) that represents a Resource must submit a Current Operating Plan (COP) under this Section.

(2) ERCOT shall use the information provided in the COP to calculate the High Ancillary Service Limit (HASL) and Low Ancillary Service Limit (LASL) for each Resource for the Reliability Unit Commitment (RUC) processes.

[NPRR1007: Replace paragraph (2) above with the following upon system implementation of the Real-Time Co-Optimization (RTC) project:]

(2) ERCOT shall use the information provided in the COP to calculate operating limits and Ancillary Service capabilities for each Resource for the Reliability Unit Commitment (RUC) processes.

(3) ERCOT shall monitor the accuracy of each QSE's COP as outlined in Section 8, Performance Monitoring.

(4) A QSE must notify ERCOT that it plans to have a Resource On-Line by means of the COP using the Resource Status codes listed in paragraph (5)(b)(i) of Section 3.9.1, Current Operating Plan (COP) Criteria. The QSE must show the Resource as On-Line with a Resource Status of ONRUC, indicating a RUC process committed the Resource for all RUC-Committed Intervals. A QSE may only use a RUC-committed Resource during that Resource's RUC-Committed Interval to meet the QSE's Ancillary Service Supply Responsibility if the Resource has been committed by the RUC process to provide Ancillary Service.

(5) To reflect changes to a Resource's capability, each QSE shall report by exception, changes to the COP for all hours after the Operating Period through the rest of the Operating Day.

(6) When a QSE updates its COP to show changes in Resource Status, the QSE shall update for each On-Line Resource, either an Energy Offer Curve under Section 4.4.9, Energy Offers and Bids, or Output Schedule under Section 6.4.2, Output Schedules.

(7) Each QSE, including QSEs representing Reliability Must-Run (RMR) Units, Firm Fuel Supply Service Resources (FFSSRs), or Black Start Resources, shall submit a revised COP reflecting changes in Resource availability as soon as reasonably practicable, but in no event later than 60 minutes after the event that caused the change.

(8) Each QSE representing a Qualifying Facility (QF) must submit a Low Sustained Limit (LSL) that represents the minimum energy available, in MW, from the unit for economic dispatch based on the minimum stable steam delivery to the thermal host plus a justifiable reliability margin that accounts for changes in ambient conditions.

~~(9) During local forecasted and actual When ERCOT issues an Advisory due to forecasted or actual cold and or hot weather, each QSE shall update the COP, Real-Time telemetry, and reporting of any Outages and derates for each Generation Resource and Energy Storage Resource (ESR) under the QSE's represents control as necessary to reflect any Resource-specific operating limitations based on capability and availability; fuel supply and inventory concerns, including fuel switching capabilities; and environmental constraints and the impact due to relevant weather conditions. QSEs shall provide Tthese updates shall be carried out in accordance with Sections 3.1.4, Communications Regarding Resource and Transmission Facility Outages;, 3.10.7.5, Telemetry Requirements;, 3.9, Current Operating Plan (COP);, 3.9.1, Current Operating Plan (COP) Criteria;, and Nodal Operating Guide Section 7.3, Telemetry.~~

(9) When ERCOT issues a communication in the form of an Operating Condition Notice (OCN), Advisory, Watch, or Emergency Notice due to forecasted or actual cold or hot weather, for each Generation Resource and Energy Storage Resource (ESR) a QSE represents, the QSE shall update the COP, Real-Time telemetry, and Outage or derate reporting to reflect any Resource-specific operating limitations based on: (i) capability and availability; (ii) fuel supply or inventory concerns, including fuel switching capabilities; or (iii) environmental constraints and the impact on the Generation Resource or ESR due to the weather conditions. QSEs shall provide these updates in accordance with Sections 3.1.4, Communications Regarding Resource and Transmission Facility Outages; 3.10.7.5, Telemetry Requirements; 3.9, Current Operating Plan (COP); 3.9.1, Current Operating Plan (COP) Criteria; and Nodal Operating Guide Section 7.3, Telemetry.

3.10.6 QSE and Resource Entity Responsibilities

(1) Resource Entities shall provide Resource Registration data pursuant to Planning Guide Section 6.8.2, Resource Registration Process, to ERCOT and to TSPs upon request. The Resource Registration data will contain information describing each Generation Resource, SOG, and Load Resource that it represents under Section 3.10.7.2, Modeling of Resources and Transmission Loads.

[NPRR995: Replace paragraph (1) above with the following upon system implementation:]

(1) Resource Entities shall provide Resource Registration data pursuant to Planning Guide Section 6.8.2, Resource Registration Process, to ERCOT and to TSPs upon request. The Resource Registration data will contain information describing each Generation Resource, SOG, SOESS, and Load Resource that it represents under Section 3.10.7.2, Modeling of Resources and Transmission Loads.

(2) QSEs shall ensure availability of telemetry to generation and transmission equipment its Resource Entity owns at ERCOT's request to maintain observability and redundancy requirements as specified herein, and under Section 3.10.7.5, Telemetry Requirements.

ERCOT shall request such additions when a lack of data telemetry has caused, or can be demonstrated to result in, inaccuracies between Real-Time measurements and modeling outcomes that could result in incorrect LMP prices or potential reliability problems.

(3) ~~Resource Entities shall annually review and provide to ERCOT the following cold weather and hot weather temperature information for each Generation Resource and Energy Storage Resource (ESR).~~For each Generation Resource and Energy Storage Resource (ESR), Resource Entities shall provide ERCOT the following temperature data: ~~review cCold weather temperature limits listed below information shall be annually reviewed by Resource Entities and, if necessary, updated those limits no later than October 1 each year for each Generation Resource and Energy Storage Resource (ESR). For each Generation Resource and ESR, Resource Entities shall review hHot weather temperature limits listed below information shall be annually reviewed by Resource Entities and, if necessary, updated those limits no later than April 1 each year for each Generation Resource and ESR.~~

(a) Cold weather temperature limits:

(i) Minimum historical ambient dry bulb temperature in degrees Fahrenheit at which the Resource has operated without ~~experiencing~~ a Forced Outage or~~,~~ Startup Loading Failure~~, or Forced Derate~~ due to cold weather after at least one complete winter Peak Load Season following the Resource's Initial Synchronization date ~~Commercial Operations Date~~ based on the previous five calendar years of historical data; and

(ii) Minimum historical ambient dry bulb temperature in degrees Fahrenheit at which the Resource has operated without experiencing a Forced Derate greater than 10 MW and 5% of its winter Seasonal net maximum rating due to cold weather after at least one complete winter Peak Load Season following the Resource's Initial Synchronization date based on the previous five calendar years of historical data; and

(iii) At least one of the following:

(A) Minimum ambient dry bulb temperature in degrees Fahrenheit at which the Resource was designed to operate without a Forced Derate greater than 10 MW and 5% of its winter~~summer~~ Seasonal net maximum sustainable rating; or

(B) Minimum ambient dry bulb temperature in degrees Fahrenheit at which the Resource can operate without a Forced Derate greater than 10 MW and 5% of its winter~~summer~~ Seasonal net maximum sustainable rating determined by an engineering analysis; and

(~~i~~iv) At least one of the following:

(A) Minimum ambient dry bulb temperature in degrees Fahrenheit at which the Resource was designed to operate without a Forced Outage or Startup Loading Failure; or

(B) Minimum ambient dry bulb temperature in degrees Fahrenheit at which the Resource can operate without a Forced Outage or Startup Loading Failure~~, as~~ determined by an engineering analysis.

(b) Hot weather temperature limits:

(i) Maximum historical ambient dry bulb temperature in degrees Fahrenheit at which the Resource has operated without experiencing a Forced Outage or~~,~~ Startup Loading Failure~~, or Forced Derate~~ due to hot weather after at least one complete summer Peak Load Season following the Resource's Initial Synchronization date ~~Commercial Operations Date~~ based on the previous five years of historical data; and

(ii) Maximum historical ambient dry bulb temperature in degrees Fahrenheit at which the Resource has operated without experiencing a Forced Derate greater than 10 MW and 5% of its summer Seasonal net maximum sustainable rating due to hot weather after at least one complete summer Peak Load Season following the Resource's Initial Synchronization date based on the previous five calendar years of historical data; and

(iii) At least one of the following:

(A) Maximum ambient dry bulb temperature in degrees Fahrenheit at which the Resource was designed to operate without a Forced Derate greater than 10 MW and 5% of its summer Seasonal net maximum sustainable rating; or

(B) Maximum ambient dry bulb temperature in degrees Fahrenheit at which the Resource can operate without a Forced Derate greater than 10 MW and 5% of its summer Seasonal net maximum sustainable rating, determined by an engineering analysis; and

(iv) At least one of the following:

(A) Maximum ambient dry bulb temperature in degrees Fahrenheit at which the Resource was designed to operate without a Forced Outage or Startup Loading Failure; or

(B) Maximum ambient dry bulb temperature in degrees Fahrenheit at which the Resource can operate without a Forced Outage or Startup Loading Failure~~, as~~ determined by an engineering analysis.

(4) Each Resource Entity shall review at least annually the temperatures described in paragraphs (3)(a)(i), (3)(a)(ii), (3)(b)(i), and (3)(b)(ii) above and shall update each

Resource's Registration data within 30 days of identifying any change in these temperatures.

(5) Each Resource Entity shall review at least once every ~~five~~seven years the ~~perform an engineering analysis for each of its Generation Resources and ESRs to determine the minimum and maximum ambient dry bulb~~ temperatures ~~at which the Resource can operate, as~~ described in paragraphs (3)(a)(iii)~~(B)~~, (3)(a)(iv)~~(B)~~, ~~and~~ (3)(b)(iii)~~(B)~~, and (3)(b)(iv)~~(B)~~ ~~above~~ and ~~shall~~shall update ~~the~~each Resource's Registration data ~~as necessary~~~~accordingly if necessary~~within 30 days of identifying any change in these temperatures.

(6) Resource Entities shall update each Generation Resource's alternate fuel information within 30 ~~calendar~~ days of any changes to the alternate fuel information.

6.5.9.3.2 Advisory

(1) An Advisory is the second of three levels of communication issued by ERCOT in anticipation of a possible Emergency Condition.

(2) ERCOT shall issue an Advisory for reasons such as, but not limited to, the following:

(a) When it recognizes that conditions are developing or have changed and more Ancillary Services will be needed to maintain current or near-term operating reliability;

(b) When weather or ERCOT System conditions require more lead-time than the normal DAM allows;

(c) When communications or other controls are significantly limited; or

(d) When ERCOT Transmission Grid conditions are such that operations within security criteria as defined in the Operating Guides are not likely or possible because of Forced Outages or other conditions unless a Constraint Management Plan (CMP) exists.

(3) The Advisory must communicate existing constraints. ERCOT shall notify TSPs and QSEs of the Advisory, and QSEs shall notify appropriate Resources and Load Serving Entities (LSEs). ERCOT shall communicate with TSPs as needed to confirm their understanding of the condition and to determine the availability of Transmission Facilities. For the purposes of verifying submitted information, ERCOT may communicate with QSEs.

[NPRR857: Replace paragraph (3) above with the following upon system implementation and satisfying the following conditions: (1) Southern Cross provides ERCOT with funds to cover the entire estimated cost of the project; and (2) Southern Cross has signed an interconnection agreement with a TSP and the TSP gives ERCOT written notice that Southern Cross has

provided it with: (a) Notice to proceed with the construction of the interconnection; and (b) The financial security required to fund the interconnection facilities:]

(3) The Advisory must communicate existing constraints. ERCOT shall notify TSPs, DCTOs, and QSEs of the Advisory, and QSEs shall notify appropriate Resources and Load Serving Entities (LSEs). ERCOT shall communicate with TSPs and DCTOs as needed to confirm their understanding of the condition and to determine the availability of Transmission Facilities. For the purposes of verifying submitted information, ERCOT may communicate with QSEs.

(4) Although an Advisory is for information purposes, ERCOT may exercise its authority, in such circumstances, to increase Ancillary Service requirements above the quantities originally specified in the Day-Ahead in accordance with procedures. ERCOT may require information from QSEs representing Resources regarding the Resources' fuel capabilities. Requests for this type of information shall be for a time period of no more than seven days from the date of the request. The specific information that may be requested shall be defined in the Operating Guide. QSEs representing Resources shall provide the requested information in a timely manner, as defined by ERCOT at the time of the request.

(5) When an Advisory is issued for PRC below 3,000 MW and ERCOT expects system conditions to deteriorate to the extent that an EEA Level 2 or 3 may be experienced, ERCOT shall evaluate constraints active in SCED and determine which constraints have the potential to limit generation output.

(a) Upon identification of such constraints, ERCOT shall coordinate with the TSPs that own or operate the overloaded Transmission Facilities associated with those constraints, as well as the Resource Entities whose generation output may be limited, to determine whether:

[NPRR857: Replace paragraph (a) above with the following upon system implementation and satisfying the following conditions: (1) Southern Cross provides ERCOT with funds to cover the entire estimated cost of the project; and (2) Southern Cross has signed an interconnection agreement with a TSP and the TSP gives ERCOT written notice that Southern Cross has provided it with: (a) Notice to proceed with the construction of the interconnection; and (b) The financial security required to fund the interconnection facilities:]

(a) Upon identification of such constraints, ERCOT shall coordinate with the TSPs and DCTOs that own or operate the overloaded Transmission Facilities associated with those constraints, as well as the Resource Entities whose generation output may be limited, to determine whether:

(i) A 15-Minute Rating is available to allow for additional transmission capacity for use in congestion management, if an EEA Level 2 or 3 is

declared, and post-contingency actions can be taken within 15 minutes to return the flow to within the Emergency Rating. Such actions may include, but are not limited to, reducing the generation that increased output as a result of enforcing the 15-Minute Rating rather than the Emergency Rating;

(ii) Post-contingency loading of the Transmission Facilities is expected to be at or below Normal Rating within two hours; or

(iii) Additional transmission capacity could allow for additional output from a limited Generation Resource by taking one of the following actions:

(A) Restoring Transmission Elements that are out of service;

(B) Reconfiguring the transmission system; or

(C) Making adjustments to phase angle regulator tap positions.

If ERCOT determines that one of the above-mentioned actions allows for additional output from a limited Generation Resource, ERCOT may instruct the TSPs to take the action(s) during the Advisory to allow for additional output from the limited Generation Resource.

(b) ERCOT shall also coordinate with TSPs who own and operate the Transmission Facilities associated with the double-circuit contingencies for the constraints identified above to determine whether the double-circuit failures are at a high risk of occurring due to system conditions, which may include: severe weather conditions forecasted by ERCOT in the vicinity of the double circuit, weather conditions that indicate a high risk of insulator flashover on the double circuit, repeated Forced Outages of the individual circuits that are part of the double circuit in the preceding 48 hours, or fire in progress in the right of way of the double circuit.

(c) The actions detailed in this Section shall be supplemental to the development and maintenance of CMPs as otherwise directed by the Protocols or Operating Guides.

~~(6) When ERCOT issues an Advisory due to forecasted or actual cold or hot weather, each QSE shall update the COP, Real-Time telemetry, and reporting of any Outages and derates for each Generation Resource and Energy Storage Resource (ESR) the QSE represents to reflect any Resource-specific operating limitations based on capability and availability; fuel supply and inventory concerns, including fuel switching capabilities; and environmental constraints and the impact due to relevant weather conditions. QSEs shall provide these updates in accordance with Sections 3.1.4, Communications Regarding Resource and Transmission Facility Outages; 3.10.7.5, Telemetry Requirements; 3.9, Current Operating Plan (COP); 3.9.1, Current Operating Plan (COP) Criteria; and Nodal Operating Guide Section 7.3, Telemetry.~~

Revised ERCOT Impact Analysis Report

NPRR Number	1132	NPRR Title	Communicate Operating Limitations during Cold and Hot Weather Conditions
Impact Analysis Date		November 1, 2022	
Estimated Cost/Budgetary Impact		Between $65k and $95k	
Estimated Time Requirements		Phase 1: Manual No project required. This Nodal Protocol Revision Request (NPRR) can be implemented using manual business processes and can take effect following PUCT approval. Phase 2: Automation The timeline for automating this NPRR is dependent upon Public Utility Commission of Texas (PUCT) prioritization and approval. Estimated project duration: 4 to 6 months See Comments	
ERCOT Staffing Impacts (across all areas)		Implementation Labor: 100% ERCOT; 0% Vendor Ongoing Requirements: No impacts to ERCOT staffing.	
ERCOT Computer System Impacts		The following ERCOT systems would be impacted: • Resource Integration and Ongoing Operations (RIOO) 49% • Grid Decision Support Systems 43% • Data Management & Analytic Systems 8%	
ERCOT Business Function Impacts		ERCOT will update its business processes to implement this NPRR.	
Grid Operations & Practices Impacts		ERCOT will update grid operations and practices to implement this NPRR.	

Evaluation of Interim Solutions or Alternatives for a More Efficient Implementation
None offered.

Comments
To achieve compliance with North American Electric Reliability Corporation (NERC) Reliability Standards IRO-010-4 and TOP-003-5 that has an effective date of April 1, 2023, a manual process will support the requirements of NPRR1132 for ERCOT staff by manually collecting Resource data for use in its Operational Planning Analysis, Real-Time monitoring, Real-Time assessments, and other analysis functions until system changes are complete.

Revised ERCOT Impact Analysis Report

Board Report

NPRR Number	1138	NPRR Title	Communication of Capability and Status of Online IRRs at 0 MW Output
Date of Decision		December 20, 2022	
Action		Recommended Approval	
Timeline		Urgent	
Proposed Effective Date		February 1, 2023	
Priority and Rank Assigned		Not Applicable	
Nodal Protocol Sections Requiring Revision		3.15.3, Generation Resource Requirements Related to Voltage Support 6.5.5.1, Changes in Resource Status	
Related Documents Requiring Revision/Related Revision Requests		None	
Revision Description		This Nodal Protocol Revision Request (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.	
Reason for Revision		[X] Addresses current operational issues. [ ] Meets Strategic goals (tied to the ERCOT Strategic Plan or directed by the ERCOT Board). [ ] Market efficiencies or enhancements [ ] Administrative [ ] Regulatory requirements [ ] Other: (explain) *(please select all that apply)*	
Business Case		This NPRR introduces requirements to improve consistency in the reporting of IRR reactive capabilities. ERCOT has observed Market Participants reporting reactive capabilities at low levels of output and at no real power output in a variety of inconsistent ways. For	

	example, Resource Entities for some IRRs have reported no reactive capability below 10% of nameplate capacity. While not required to have reactive capability at that level of real power output, IRRs generally have *some* capability below that level and ERCOT needs an accurate understanding of IRR capability for operations and planning purposes. ERCOT also needs to know an IRR's Reactive Power capability when it is producing no real power. If an IRR can produce Reactive Power when not producing real power and it remains synchronized to the ERCOT System, ERCOT must coordinate that Reactive Power capability with other actions of the Transmission Service Provider (TSP) for Real-Time voltage control in Real-Time operations. If an IRR cannot produce Reactive Power when not producing real power, ERCOT must know that fact so it does not inadvertently depend on the IRR for Reactive Power for system balance. If an IRR cannot provide Reactive Power when not producing real power and the IRR is contributing to a voltage or stability event, the IRR may be disconnected consistent with paragraph (4)(e) of Section 3.15, Voltage Support. This NPRR requires each Resource Entity to ensure the reactive capability curves for its IRRs accurately reflect reactive capability at the lowest output level. This NPRR also standardizes IRR practices for setting Low Sustained Limit (LSL) values and providing telemetry of Automatic Voltage Regulator (AVR) status when IRR real power output is zero. Some IRRs demonstrate oscillations with unstable Reactive Power control at very low output levels due to equipment limitations, requiring the LSL be set at a slightly higher level to avoid the oscillations. These oscillations have been observed primarily on solar IRRs during mornings, evenings, and when being constrained close to 0 MW when the PhotoVoltaic (PV) array supplies very low Direct Current (DC) power levels. In some cases, Resource Entities initially set the LSL values too high. Resource Entities representing IRRs must minimize equipment limitations to allow them to set the LSL as close to 0 MW as possible, including coordinating with the Original Equipment Manufacturer, if necessary. The standardization of these practices will help ensure ERCOT studies accurately identify voltage and stability issues and will provide greater clarity to ERCOT's expectations for IRRs in the interconnection process. While this NPRR does not modify reactive capability requirements for IRRs, it requires that an IRR must utilize its reactive capability to maintain voltage at the Point of Interconnection Bus (POIB) even if the IRR is producing no real power when it remains synchronized to

	the ERCOT System. IRRs capable of providing reactive capability when producing no real power that are not synchronized to the ERCOT System would not have any requirements to maintain voltage at the POIB.
PRS Decision	On 6/9/22, PRS voted unanimously to table NPRR1138 and refer the issue to WMS and ROS. All Market Segments participated in the vote. On 11/11/22, PRS voted unanimously to grant NPRR1138 Urgent status; to recommend approval of NPRR1138 as amended by the 11/7/22 Luminant comments; and to forward to TAC NPRR1138 and the 5/25/22 Impact Analysis. All Market Segments participated in the vote.
Summary of PRS Discussion	On 6/9/22, participants requested that PRS table and refer NPRR1138 to WMS and ROS for further discussions regarding NPRR1138's proposed requirements. On 11/11/22, participants reviewed the 11/7/22 Luminant comments; the 11/10/22 ERCOT comments and the request for urgency; and ROS's endorsement of NPRR1138 as amended by the 11/7/22 Luminant comments at the November 7, 2022 ROS meeting.
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 Independent Retail Electric Provider (IREP) (Reliant) Market Segment. All Market Segments participated in the vote.
Summary of TAC Discussion	On 12/5/22, participants reviewed the ERCOT Opinion, ERCOT Market Impact Statement, Independent Market Monitor (IMM) Opinion, and 11/30/22 ERCOT comments for NPRR1138.
Board Decision	On 12/20/22, the ERCOT Board voted unanimously to recommend approval of NPRR1138 as recommended by TAC in the 12/5/22 TAC Report and the 12/13/22 Revised Impact Analysis.

Opinions	
Credit Work Group Review	ERCOT Credit Staff and the Credit Work Group (Credit WG) have reviewed NPRR1138 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 NPRR1138.

Board Report

ERCOT Opinion	ERCOT supports approval of NPRR1138.
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, 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.

Sponsor	
Name	Stephen Solis
E-mail Address	Stephen.solis@ercot.com
Company	ERCOT
Phone Number	512-248-6772
Cell Number	512-426-4721
Market Segment	Not Applicable

Market Rules Staff Contact	
Name	Jordan Troublefield
E-Mail Address	Jordan.Troublefield@ercot.com
Phone Number	512-248-6521

Comments Received	
Comment Author	**Comment Summary**
WMS 080522	Requested PRS continue to table NPRR1138 for further discussion by the Wholesale Market Working Group (WMWG) after discussion by the ROS
ROS 081122	Requested PRS continue to table NPRR1138 for further discussion by the Operations Working Group (OWG) and the Inverter-Based Resource Task Force (IBRTF)
AEP 101122	Proposed additional clarification language to Section 3.15.3 regarding Reactive Power and control expectations
ERCOT 101322	Clarified that NPRR1138's requirements only apply when the IRR is synchronized to the ERCOT System; that the second-lowest MW point on a reactive curve for IRRs that do not have the capability to provide Reactive Power at 0 MWs should be set at LSL when LSL is

	not 0 MW; and provided additional clarifying edits regarding LSL differences between operating conditions where an IRR does and does not have fuel
Luminant 101822	Proposed allowing Inverter-Based Resources (IBRs) to open their virtual or pseudo breakers and provided additional party-specific guidelines
EDFR 102022	Proposed changes in order to clarify NPRR1138's requirements and goals
Luminant 110722	Proposed alternative language for Section 3.15.3 allowing an IRR to physically desynchronize its inverters from the grid when it is unwilling or temporarily incapable of providing reactive capability when it is not producing real power without fully disconnecting the IRR site, including high and medium voltage equipment that has to remain in service
ERCOT 111022	Requested that PRS grant urgency to NPRR1138 in order to be considered at the January 19, 2023 Public Utility Commission of Texas (PUCT) meeting
ERCOT 113022	Removed the unnecessary phrase, "but is unwilling or temporarily incapable of providing any reactive capability" in paragraph (11) of Section 3.15.3 and paragraph (12) in the corresponding greybox

Market Rules Notes

Administrative changes to the language were made and authored as "ERCOT Market Rules."

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

- NPRR1085, Ensuring Continuous Validity of Physical Responsive Capability (PRC) and Dispatch through Timely Changes to Resource Telemetry and Current Operating Plans (COPs) (incorporated 10/1/22)
  - Section 6.5.5.1
- NPRR1100, Allow Generation Resources and Energy Storage Resources to Serve Customer Load When the Customer and the Resource are Disconnected from the ERCOT System (incorporated 7/15/22)
  - Section 6.5.5.1

Proposed Protocol Language Revision

3.15.3 Generation Resource Requirements Related to Voltage Support

(1) Generation Resources required to provide VSS shall have and maintain Reactive Power capability at least equal to the Reactive Power capability requirements specified in these Protocols and the ERCOT Operating Guides.

(2) Generation Resources providing VSS shall be compliant with the ERCOT Operating Guides for response to transient voltage disturbance.

(3) Generation Resources providing VSS must meet technical requirements specified in Section 8.1.1.1, Ancillary Service Qualification and Testing, and the performance standards specified in Section 8.1.1, QSE Ancillary Service Performance Standards.

(4) Each Generation Resource providing VSS shall operate with the unit's Automatic Voltage Regulator (AVR) in the automatic voltage control mode unless specifically directed to operate in manual mode by ERCOT, or when the unit is telemetering its Resource Status as STARTUP, SHUTDOWN, or ONTEST, or the QSE determines a need to operate in manual mode due to an undue threat to safety, undue risk of bodily harm, or undue damage to equipment at the generating plant.

(5) Each Generation Resource providing VSS shall maintain the Voltage Set Point established by ERCOT, the interconnecting TSP, or the TSP's agent, subject to the Generation Resource's operating characteristic limits, voltage limits, and within tolerances identified in paragraph (4) of Nodal Operating Guide Section 2.7.3.5, Resource Entity Responsibilities and Generation Resource Requirements.

(6) The reactive capability required must be maintained at all times that the Generation Resource is On-Line.

(7) Each QSE shall send to ERCOT, via telemetry, the AVR and Power System Stabilizer (PSS) status for each of its Generation Resources providing VSS. For AVRs, an "On" status will indicate the AVR is on and set to regulate the Resource's terminal voltage in the voltage control mode, and an "Off" status will indicate the AVR is off or in a manual mode. For PSS, an "On" status will indicate the service is enabled and ready for service, and an "Off" status will indicate it is off or out of service. Each QSE shall monitor the status of its Generation Resources' regulators and stabilizers, and shall report status changes to ERCOT.

(8) Each Resource Entity shall provide information related to the tuning parameters, local or inter-area, of any PSS installed at a Generation Resource.

(9) The Resource Entity ~~For~~for ~~each~~an IRR synchronized to the ERCOT System ~~that is not equipped with the capability to~~that is ~~and~~ not capable of providing~~e~~ Reactive Power when ~~it is~~ not producing real power~~, each Resource Entity~~ shall:

(a) When capable of providing real power, set ~~Ensure~~ the IRR's ~~its~~ Low Sustained Limit (LSL) ~~is set~~ to 0 MW, or ~~at~~ the lowest MW level, not to exceed 1 MW, at

which the IRR can provide stable Reactive Power ~~output,~~ after appropriate tuning of settings;

(b) Ensure ~~its~~the lowest MW point on ~~its~~ the submitted reactive capability curve reflects 0 MVAr leading and lagging reactive capability at 0 MW;

(c) Ensure ~~it sets~~ the second-lowest MW point on the ~~its~~ submitted reactive capability curve ~~is set to~~ accurately reflects the IRR's ~~its~~ leading and lagging reactive capability at its LSL when the LSL is not 0 MW; and

(d) Send to ERCOT, via telemetry, an AVR status of "~~On~~Off" when the IRR~~it~~ is synchronized to the ERCOT System and not producing ~~real~~Reactive ~~p~~Power.

(10) The Resource Entity ~~For~~for ~~each~~an IRR synchronized to the ERCOT System ~~and that is equipped with the capability~~ that is capable ~~to~~of providing~~e~~ any net Reactive Power when ~~it is~~ not producing real power~~, each Resource Entity~~ shall:

(a) ~~Ensure it can P~~provide stable Reactive Power output at all MW levels at which the IRR has Reactive Power capability;

(b) When capable of providing real power, s~~S~~et the IRR~~its~~ LSL to 0 MW or the lowest MW level, not to exceed 1 MW, at which the IRR can provide stable Reactive Power after appropriate tuning of settings;

(c) Ensure the ~~its~~ lowest MW point on ~~its~~ the submitted reactive capability curve accurately reflects the IRR'~~its~~ MVAr leading and lagging reactive capability when ~~it is~~ not producing real power;

(d) Ensure the second-lowest MW point on the submitted reactive capability curve accurately reflects the IRR's leading and lagging reactive capability at its LSL when the LSL is not 0 MW;

(~~cd~~) Send to ERCOT, via telemetry, an AVR status of "On" when the IRR~~it~~ is synchronized to the ERCOT System, ~~and~~ not producing real power, and reactive control is working properly; and

(~~fe~~) Meet the requirements ~~identified~~ in paragraphs (2), (4), (5), and (7) above when ~~it~~ the IRR is synchronized to the ERCOT System and not producing real power.

(11) The Resource Entity for an IRR that is capable of providing any net Reactive Power when not producing real power~~, but is unwilling or temporarily incapable of providing any reactive capability~~ may physically desynchronize its inverters from the ERCOT System instead of providing Reactive Power when not producing real power.

[NPRR989 and NPRR1026: Replace applicable portions of Section 3.15.3 above with the

following upon system implementation:]

3.15.3 Generation Resource and Energy Storage Resource Requirements Related to Voltage Support

(1) Generation Resources and ESRs required to provide VSS shall have and maintain Reactive Power capability at least equal to the Reactive Power capability requirements specified in these Protocols and the ERCOT Operating Guides.

(2) Generation Resources and ESRs providing VSS shall be compliant with the ERCOT Operating Guides for response to transient voltage disturbance.

(3) Generation Resources and ESRs providing VSS must meet technical requirements specified in Section 8.1.1.1, Ancillary Service Qualification and Testing, and the performance standards specified in Section 8.1.1, QSE Ancillary Service Performance Standards.

(4) Each Generation Resource and ESR providing VSS shall operate with the unit's Automatic Voltage Regulator (AVR) in the automatic voltage control mode unless specifically directed to operate in manual mode by ERCOT, or when the unit is telemetering its Resource Status as STARTUP, SHUTDOWN, or ONTEST, or the QSE determines a need to operate in manual mode due to an undue threat to safety, undue risk of bodily harm, or undue damage to equipment at the generating plant.

(5) Each Generation Resource and ESR providing VSS shall maintain the Voltage Set Point established by ERCOT, the interconnecting TSP, or the TSP's agent, subject to the Generation Resource's or ESR's operating characteristic limits, voltage limits, and within tolerances identified in paragraph (4) of Nodal Operating Guide Section 2.7.3.5, Resource Entity Responsibilities and Generation Resource Requirements.

(6) The reactive capability required must be maintained at all times that the Generation Resource or ESR is On-Line.

(7) Each QSE shall send to ERCOT, via telemetry, the AVR and Power System Stabilizer (PSS) status for each of its Generation Resources providing VSS. Each QSE shall send to ERCOT via telemetry the AVR status for each of its ESRs providing VSS. For AVRs, an "On" status will indicate the AVR is on and set to regulate the Resource's terminal voltage in the voltage control mode, and an "Off" status will indicate the AVR is off or in a manual mode. For PSS, an "On" status will indicate the service is enabled and ready for service, and an "Off" status will indicate it is off or out of service. Each QSE shall monitor the status of its Generation Resources' and ESRs' regulators and stabilizers, and shall report status changes to ERCOT.

(8) Each Resource Entity shall provide information related to the tuning parameters, local or inter-area, of any PSS installed at a Generation Resource.

(9) If any individual Resource within a Self-Limiting Facility is incapable of meeting its Reactive Power requirement at the POI, the QSE must bring On-Line additional

Resource(s) within the Self-Limiting Facility to provide VSS as specified in paragraph (4) of Section 3.15, Voltage Support, while respecting the limit on MW Injection.

(10) The Resource Entity ~~For~~for ~~each~~an IRR synchronized to the ERCOT System ~~and~~that is ~~that is~~ not ~~equipped with the capability~~capable ~~to~~of providing~~e~~ Reactive Power when ~~it is~~ not producing real power~~, each Resource Entity~~ shall:

(a) When capable of providing real power, set ~~Ensure its~~the IRR's Low Sustained Limit (LSL) ~~is set~~ to 0 MW, or ~~at~~ the lowest MW level, not to exceed 1 MW, at which the IRR can provide stable Reactive Power ~~output,~~ after appropriate tuning of settings;

(b) Ensure ~~its~~the lowest MW point on ~~its~~ the submitted reactive capability curve reflects 0 MVAr capability leading and lagging at 0 MW;

(c) Ensure ~~it sets~~ the second-lowest MW point on ~~its~~ the submitted reactive capability curve ~~is set to~~ accurately reflects the IRR's ~~its~~ leading and lagging reactive capability at its LSL when the LSL is not 0 MW; and

(d) Send to ERCOT, via telemetry, an AVR status of "~~On~~Off" when the IRR~~it~~ is synchronized to the ERCOT System and not producing ~~real~~Reactive ~~p~~Power.

(11) The Resource Entity ~~For~~for ~~each~~an IRR synchronized to the ERCOT System ~~and that is equipped with the capability~~that is capable ~~to~~of providing~~e~~ any net Reactive Power when ~~it is~~ not producing real power~~, each Resource Entity~~ shall:

(a) ~~Ensure it can P~~provide stable Reactive Power output at all MW levels at which the IRR has Reactive Power capability~~and set its LSL to 0 MW~~;

(b) When capable of providing real power, set the IRR LSL to 0 MW~~;~~, or the lowest MW level, not to exceed 1 MW, at which the IRR can provide stable Reactive Power after appropriate tuning of settings;

(c) Ensure ~~its~~ the lowest MW point on ~~its~~ the submitted reactive capability curve accurately reflects ~~its~~ the IRR's MVAr leading and lagging reactive capability when ~~it is~~ not producing real power;

(d) Ensure the second-lowest MW point on the submitted reactive capability curve accurately reflects the IRR's leading and lagging reactive capability at its LSL when the LSL is not 0 MW;

(~~cd~~e) Send to ERCOT, via telemetry, an AVR status of "On" when the IRR~~it~~ is synchronized to the ERCOT System, ~~and~~ not producing real power, and reactive control is working properly; and

(~~de~~f) Meet the requirements ~~identified~~ in paragraphs (2), (4), (5), and (7) above when the IRR is synchronized to the ERCOT System and not producing real power.

(12) The Resource Entity for an IRR that is capable of providing any net Reactive Power when not producing real power~~, but is unwilling or temporarily incapable of providing any reactive capability~~ may physically desynchronize its inverters from the ERCOT System instead of providing Reactive Power when not producing real power.

6.5.5.1 Changes in Resource Status

(1) Each QSE shall notify ERCOT of a change in Resource Status via telemetry and through changes in the Current Operating Plan (COP) as soon as practicable following the change.

[NPRR1085: Replace paragraph (1) above with the following upon system implementation:]

(1) Each QSE shall notify ERCOT via telemetry of a change in Resource Status that is not related to a Forced Outage as soon as practicable but no longer than 15 minutes after the change in status occurs and through changes in the Current Operating Plan (COP) as soon as practicable but no longer than 60 minutes after the change in status of the Resource occurs.

[NPRR1085: Insert paragraph (2) below upon system implementation and renumber accordingly:]

(2) When an On-Line Resource is experiencing an event that may affect its availability and/or capability and that requires further actions to stabilize the Resource and/or determine the impact of the event, the QSE may change the Resource Status to ONHOLD within 15 minutes of experiencing an event. Following this Resource Status change, the telemetered HSL and any other applicable telemetry of the Resource as specified in paragraph (2) of Section 6.5.5.2, Operational Data Requirements, shall be updated as soon as practicable but no longer than 15 minutes after the change in Resource Status to ONHOLD. After the QSE has determined the impact of the event, the QSE shall change the Resource Status to its updated status as soon as practicable but no longer than 60 consecutive minutes of being in the ONHOLD status.

(2) Each QSE shall promptly inform ERCOT when the operating mode of its Generation Resource's Automatic Voltage Regulator (AVR) or Power System Stabilizer (PSS) is changed while the Resource is On-Line. The QSE shall also provide the Resource's AVR or PSS status logs to ERCOT upon request.

(3) Each QSE shall immediately report to ERCOT and the TSP any inability of the QSE's Generation Resource required to meet its reactive capability requirements in these Protocols.

[NPRR1085: Insert paragraph (5) below upon system implementation and renumber accordingly:]

(5) Each QSE shall timely update the telemetered Resource Status unless in the reasonable judgment of the QSE, such compliance would create an undue threat to safety, undue risk of bodily harm, or undue damage to equipment. The QSE is excused from updating the telemetered Resource Status only for so long as the undue threat to safety, undue risk of bodily harm, or undue damage to equipment exists. The time for updating the telemetered Resource Status begins once the undue threat to safety, undue risk of bodily harm, or undue damage to equipment no longer exists.

(4) A QSE or Resource Entity may use a Generation Resource or ESR to serve Customer Load as part of a Private Microgrid Island (PMI) in any circumstance in which the Customer Load and the Resource are both disconnected from the ERCOT System due to an Outage of the transmission and/or distribution system, provided that the configuration complies with the requirements of paragraph (7) of Section 10.3.2.3, Generation Netting for ERCOT-Polled Settlement Meters, and provided that the QSE or Resource Entity has notified the Transmission and/or Distribution Service Provider (TDSP) of the establishment of a PMI configuration. The QSE shall ensure that the Load served by the Resource in the PMI configuration is de-energized at the time it is reconnected to the ERCOT System following the PMI configuration. All operations in a PMI configuration and any reconnection of Load following a PMI configuration shall be coordinated with the TDSP.

(5) A TDSP shall not intentionally disconnect, or direct another TDSP to disconnect, a Generation Resource or ESR included in a PMI configuration from the ERCOT System except in the following circumstances:

(a) An approved or accepted Planned or Maintenance Outage of a Transmission Facility reasonably requires, or would otherwise result in, the disconnection of the Resource from the ERCOT System;

(b) The Resource is a Distribution Generation Resource or Distribution Energy Storage Resource (DESR), and disconnection of the Resource is required for Distribution System maintenance;

(c) The TDSP's disconnection of the Resource is necessary to maintain the security of the TDSP's system or the ERCOT System;

(d) The TDSP's disconnection of the Resource is necessary to protect the public from a safety risk attributable to the operation of the Resource; or

(e) ERCOT directs the disconnection of the Resource.

(46) ~~Each Resource Entity and QSE shall, f~~For each Intermittent Renewable Resource (IRR) synchronized to the ERCOT System and ~~that is~~ not capable of providing real power due to a lack of ~~a renewable~~ fuel ~~source and that remains synchronized to the ERCOT System~~, the Resource Entity and QSE shall send ~~to~~ ERCOT, via telemetry, a Real-Time On-Line status and ~~an~~ HSL and LSL of 0.

Revised ERCOT Impact Analysis Report

NPRR Number	1138	NPRR Title	Communication of Capability and Status of Online IRRs at 0 MW Output
Impact Analysis Date		December 13, 2022	
Estimated Cost/Budgetary Impact		Less than $25k, which will be absorbed by the Operations & Maintenance (O&M) budgets of affected department. See Comments.	
Estimated Time Requirements		No project required. This Nodal Protocol Revision Request (NPRR) can take effect following Public Utility Commission of Texas (PUCT) approval.	
ERCOT Staffing Impacts (across all areas)		Ongoing Requirements: No impacts to ERCOT staffing.	
ERCOT Computer System Impacts		No impacts to ERCOT computer systems.	
ERCOT Business Function Impacts		No impacts to ERCOT business functions.	
Grid Operations & Practices Impacts		No impacts to ERCOT grid operations and practices.	

Evaluation of Interim Solutions or Alternatives for a More Efficient Implementation
None offered.

Comments
If approved, there will be a temporary increase in O&M labor to process updates to reactive capability curves using the normal model processing timeline.

Board Report

NPRR Number	1148	NPRR Title	Language Cleanup Related to ERCOT Contingency Reserve Service (ECRS)
Date of Decision		December 20, 2022	
Action		Recommended Approval	
Timeline		Normal	
Proposed Effective Date		Upon system implementation of Nodal Protocol Revision Request (NPRR) 863, Creation of ERCOT Contingency Reserve Service and Revisions to Responsive Reserve	
Priority and Rank Assigned		Not applicable	
Nodal Protocol Sections Requiring Revision		4.4.7.2.1, Ancillary Service Offer Criteria 6.5.7.3.1, Determination of Real-Time On-Line Reliability Deployment Price Adder 6.5.7.6.2.4, Deployment and Recall of ERCOT Contingency Reserve Service	
Related Documents Requiring Revision/Related Revision Requests		Other Binding Document Revision Request (OBDRR) 043, Related to NPRR1148, Language Cleanup Related to ERCOT Contingency Reserve Service (ECRS)	
Revision Description		This NPRR addresses Protocol gaps found during the creation of the ECRS system change requirements. Specific changes include: • Language was added to Section 4.4.7.2.1 to align NPRR863 implementation to a pre-Real-Time Co-Optimization (RTC) system design. Clarification was added about simultaneous awarding and Real-Time provision of Responsive Reserve (RRS), ECRS, and Non-Spinning Reserve (Non-Spin) by Load Resources that are not Controllable Load Resources; • Language was added to paragraph (1) of Section 6.5.7.6.2.4 to clarify that ECRS will also be deployed to provide energy upon detection of insufficient available capacity for net load ramps. (Such use is in addition to the uses already included in the Protocols: use for frequency restoration, energy during an Energy Emergency Alert (EEA), or as a backup to Regulation Up Service (Reg-Up)); and • Language was added to paragraph (2)(e) of Section 6.5.7.3.1 to clarify that ECRS deployments from Load Resources that are not Controllable Load Resources will be considered at a ten-minute linear ramp for the calculation of the Real-Time On-Line Reliability Deployment Price Adder. This is similar to the	

	approach taken with RRS deployments from Load Resources that are not Controllable Load Resources.
Reason for Revision	☐ Addresses current operational issues. ☐ Meets Strategic goals (tied to the ERCOT Strategic Plan or directed by the ERCOT Board). ☒ Market efficiencies or enhancements ☐ Administrative ☐ Regulatory requirements ☐ Other: (explain) *(please select all that apply)*
Business Case	These revisions are needed to reconcile Protocol language with the expected system implementation. These revisions do not add any additional scope to the ECRS effort.
PRS Decision	On 9/15/22, PRS voted unanimously to recommend approval of NPRR1148 as submitted. All Market Segments participated in the vote. On 10/13/22, PRS voted to endorse and forward to TAC the 9/15/22 PRS Report and 8/30/22 Impact Analysis for NPRR1148. There was one abstention from the Consumer (Occidental) Market Segment. All Market Segments participated in the vote.
Summary of PRS Discussion	On 9/15/22, the sponsor provided an overview of NPRR1148. On 10/13/22, there was no discussion.
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. All Market Segments participated in the vote.
Summary of TAC Discussion	On 10/26/22, TAC reviewed the ERCOT Opinion, ERCOT Market Impact Statement, and Independent Market Monitor (IMM) Opinion for NPRR1148.
ERCOT Board Decision	On 12/20/22, the ERCOT Board voted unanimously to recommend approval of NPRR1148 as recommended by TAC in the 10/26/22 TAC Report.

Opinions

Board Report

Credit Work Group Review	ERCOT Credit Staff and the Credit Work Group (Credit WG) have reviewed NPRR1148 and do not believe that it requires changes to credit monitoring activity or the calculation of liability.
Independent Market Monitor (IMM) Opinion	IMM supports approval of NPRR1148.
ERCOT Opinion	ERCOT supports approval of NPRR1148.
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.

Sponsor	
Name	Blake Holt
E-mail Address	Blake.Holt@ercot.com
Company	ERCOT
Phone Number	512-248-4277
Cell Number	
Market Segment	Not applicable

Market Rules Staff Contact	
Name	Cory Phillips
E-Mail Address	Cory.Phillips@ercot.com
Phone Number	512-248-6464

Comments Received	
Comment Author	**Comment Summary**
None	

Market Rules Notes

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

- NPRR1128, Allow FFR Procurement up to FFR Limit Without Proration
  - Section 4.4.7.2.1

Proposed Protocol Language Revision

4.4.7.2.1[CP1] ***Ancillary Service Offer Criteria***

(1) Each Ancillary Service Offer must be submitted by a QSE and must include the following information:

(a) The selling QSE;

(b) The Resource represented by the QSE from which the offer would be supplied;

(c) The quantity in MW and Ancillary Service type from that Resource for this specific offer and the specific quantity in MW and Ancillary Service type of any other Ancillary Service offered from this same capacity;

(d) An Ancillary Service Offer linked to a Three-Part Supply Offer from a Resource designated to be Off-Line for the offer period in its COP may only be struck if the Three-Part Supply Offer is struck. The total capacity struck must be within limits as defined in item (4)(c)(iii) of Section 4.5.1, DAM Clearing Process;

(e) An Ancillary Service Offer linked to other Ancillary Service Offers or an Energy Offer Curve from a Resource designated to be On-Line for the offer period in its COP may only be struck if the total capacity struck is within limits as defined in item (4)(c)(iii) of Section 4.5.1;

(f) The first and last hour of the offer;

(g) A fixed quantity block, or variable quantity block indicator for the offer:

(i) If a fixed quantity block, not to exceed 150 MW, which may only be offered by a Load Resource that is not a Controllable Load Resource and that is offering to provide RRS, ECRS, or Non-Spin, and which may clear at a Market Clearing Price for Capacity (MCPC) below the Ancillary Service Offer price for that block, the single price (in $/MW) and single quantity (in MW) for all hours offered in that block; or

(ii) If a variable quantity block, which may be offered by a Generation Resource or a Load Resource, the single price (in $/MW) and single "up to" quantity (in MW) contingent on the purchase of all hours offered in that block; and

(h) The expiration time and date of the offer.

(2) A valid Ancillary Service Offer in the DAM must be received before 1000 for the effective DAM. A valid Ancillary Service Offer in an SASM must be received before the applicable deadline for that SASM.

(3) No Ancillary Service Offer price may exceed the System-Wide Offer Cap (SWCAP) (in $/MW). No Ancillary Service Offer price may be less than $0 per MW.

(4) The minimum amount per Resource for each Ancillary Service product that may be offered is one-tenth (0.1) MW.

(5) A Resource may offer more than one Ancillary Service.

(6) A Load Resource that is not a Controllable Load Resource, may simultaneously offer RRS, ECRS and Non-Spin in a DAM or SASM and be awarded RRS, ECRS, and Non-Spin for the same Operating Hour but will not be allowed to provide RRS and Non-Spin or ECRS and Non-Spin on the same Load Resource simultaneously in Real-Time.

(7) Offers for Load Resources may be adjusted to reflect Distribution Losses in accordance with Section 8.1.1.2, General Capacity Testing Requirements.

(8) A Load Resource that is qualified to perform as a Controllable Load Resource may not offer to provide Ancillary Services as a Controllable Load Resource and a Load Resource controlled by high-set under-frequency relay simultaneously behind a common breaker.

[~~NPRR863,~~ NPRR1008~~,~~ and NPRR1014: Replace applicable portions of Section 4.4.7.2.1 above with the following upon system implementation for ~~NPRR863 or~~ NPRR1014; or upon system implementation of the Real-Time Co-Optimization (RTC) project for NPRR1008:]

4.4.7.2.1 Resource-Specific Ancillary Service Offer Criteria

(1) Each Resource-Specific Ancillary Service Offer must be submitted by a QSE and must include the following information:

(a) The selling QSE;

(b) The Resource represented by the QSE from which the offer would be supplied;

(c) The quantity in MW and Ancillary Service type from that Resource for this specific offer and the specific quantity in MW and Ancillary Service type of any other Ancillary Service offered from this same capacity;

(d) A Resource-Specific Ancillary Service Offer linked to a Three-Part Supply Offer from a Resource designated to be Off-Line for the offer period in its COP may only be struck if the Three-Part Supply Offer is struck. The total capacity struck must be within limits as defined in item (4)(c)(iii) of Section 4.5.1, DAM Clearing Process;

(e) A Resource-Specific Ancillary Service Offer linked to other Resource-Specific Ancillary Service Offers or an Energy Offer Curve or Energy Bid/Offer Curve from a Resource designated to be On-Line for the offer period in its COP may

only be struck if the total capacity struck is within limits as defined in item (4)(c)(iii) of Section 4.5.1;

(f) The first and last hour of the offer;

(g) A fixed quantity block or variable quantity block indicator for the offer:

(i) If a fixed quantity block, not to exceed 150 MW, which may only be offered by a Load Resource that is not a Controllable Load Resource and that is offering to provide RRS, ECRS, or Non-Spin, and which may clear at a Market Clearing Price for Capacity (MCPC) below the Resource-Specific Ancillary Service Offer price for that block, the single price (in $/MW) and single quantity (in MW) for all hours offered in that block. This fixed quantity block indicator will only be considered in the DAM and will be ignored for awarding of Ancillary Services in the Real-Time Market (RTM); or

(ii) If a variable quantity block, which may be offered by a Generation Resource, an ESR, or a Load Resource, the single price (in $/MW) and single "up to" quantity (in MW) contingent on the purchase of all hours offered in that block. This variable quantity block indicator will only be considered in the DAM and will be ignored for awarding of Ancillary Services in the RTM; and

(h) The expiration time and date of the offer.

(2) A valid Resource-Specific Ancillary Service Offer in the DAM must be received before 1000 for the effective DAM.

(3) No Resource-Specific Ancillary Service Offer received before 1000 in the Day-Ahead may contain a price exceeding the Day-Ahead System-Wide Offer Cap (DASWCAP) (in $/MW). No Resource-Specific Ancillary Service Offer received after 1430 in the Day-Ahead may contain a price exceeding the Real-Time System-Wide Offer Cap (RTSWCAP) (in $/MW). No Ancillary Service Offer price may be less than $0 per MW.

(4) The minimum amount per Resource for each Ancillary Service product that may be offered is one-tenth (0.1) MW.

(5) A Resource may offer more than one Ancillary Service.

(6) A Load Resource, that is not a Controllable Load Resource, may simultaneously offer RRS, ECRS, and Non-Spin in a DAM and be awarded RRS, ECRS, and Non-Spin for the same Operating Hour in the DAM, but will not be awarded Non-Spin and RRS or Non-Spin and ECRS on the same Load Resource simultaneously in Real-Time.

(7) Offers for Load Resources may be adjusted to reflect Distribution Losses in accordance with Section 8.1.1.2, General Capacity Testing Requirements.

(8) A Load Resource that is qualified to perform as a Controllable Load Resource may not offer to provide Ancillary Services as a Controllable Load Resource and a Load Resource controlled by high-set under-frequency relay simultaneously behind a common breaker.

6.5.7.3.1 Determination of Real-Time On-Line Reliability Deployment Price Adder

(1) The following categories of reliability deployments are considered in the determination of the Real-Time On-Line Reliability Deployment Price Adder:

(a) RUC-committed Resources, except for those whose QSEs have opted out of RUC Settlement in accordance with paragraph (14) of Section 5.5.2, Reliability Unit Commitment (RUC) Process;

(b) RMR Resources that are On-Line, including capacity secured to prevent an Emergency Condition pursuant to paragraph (4) of Section 6.5.1.1, ERCOT Control Area Authority;

(c) Deployed Load Resources other than Controllable Load Resources;

(d) Deployed ERS;

(e) Real-Time DC Tie imports during an EEA where the total adjustment shall not exceed 1,250 MW in a single interval;

(f) Real-Time DC Tie exports to address emergency conditions in the receiving electric grid;

(g) Energy delivered to ERCOT through registered Block Load Transfers (BLTs) during an EEA;

(h) Energy delivered from ERCOT to another power pool through registered BLTs during emergency conditions in the receiving electric grid; and

(i) ERCOT-directed firm Load shed during EEA Level 3, as described in paragraph (3) of Section 6.5.9.4.2, EEA Levels.

(2) The Real-Time On-Line Reliability Deployment Price Adder is an estimation of the impact to energy prices due to the above categories of reliability deployments. For intervals where there are reliability deployments as described in paragraph (1) above, after the two-step SCED process and also after the Real-Time On-Line Reserve Price Adder and Real-Time Off-Line Reserve Price Adder have been determined, the Real-Time On-Line Reliability Deployment Price Adder is determined as follows:

(a) For RUC-committed Resources with a telemetered Resource Status of ONRUC and for RMR Resources that are On-Line, set the LSL, LASL, and LDL to zero.

(b) Notwithstanding item (a) above, for RUC-committed Combined Cycle Generation Resources with a telemetered Resource Status of ONRUC that were instructed by ERCOT to transition to a different configuration to provide additional capacity, set the LSL, LASL, and LDL equal to the minimum of their current value and the COP HSL of the QSE-committed configuration for the RUC hour at the snapshot time of the RUC instruction.

(c) For all other Generation Resources excluding ones with a telemetered status of ONRUC, ONTEST, STARTUP, SHUTDOWN, and also excluding RMR Resources that are On-Line and excluding Generation Resources with a telemetered output less than 95% of LSL:

(i) Set LDL to the greater of Aggregated Resource Output - (60 minutes * SCED Down Ramp Rate), or LASL; and

(ii) Set HDL to the lesser of Aggregated Resource Output + (60 minutes*SCED Up Ramp Rate), or HASL.

(d) For all Controllable Load Resources excluding ones with a telemetered status of OUTL:

(i) Set LDL to the greater of Aggregated Resource Output - (60 minutes * SCED Up Ramp Rate), or LASL; and

(ii) Set HDL to the lesser of Aggregated Resource Output + (60 minutes*SCED Down Ramp Rate), or HASL.

(e) Add the deployed MW from Load Resources that are not Controllable Load Resources and that are providing RRS or ECRS to GTBD linearly ramped over the ten-minute ramp period and add the deployed MW from Load Resources that are not Controllable Load Resources providing Non-Spin to GTBD linearly ramped over the 30-minute ramp period. The amount of deployed MW is calculated from the Resource telemetry and from applicable deployment instructions in Extensible Markup Language (XML) messages. ERCOT shall generate a linear bid curve defined by a price/quantity pair of $300/MWh for the first MW of Load Resources deployed and a price/quantity pair of $700/MWh for the last MW of Load Resources deployed in each SCED execution. After recall instruction, the restoration period length and amount of MW added to GTBD during the restoration period will be determined by validated telemetry and the type of Ancillary Service deployed from the Resource. The TAC shall review the validity of the prices for the bid curve at least annually.

(f) Add the deployed MW from ERS to GTBD. The amount of deployed MW is determined from the XML messages and ERS contracted capacities for the ERS Time Periods when ERS is deployed. After recall, an approximation of the

amount of un-restored ERS shall be used. After ERCOT recalls each group, GTBD shall be adjusted to reflect restoration on a linear curve over the assumed restoration period ("RHours").

The above parameter is defined as follows:

Parameter	Unit	Current Value*
RHours	Hours	4.5
* Changes to the current value of the parameter(s) referenced in this table above may be recommended by TAC and approved by the ERCOT Board. ERCOT shall update parameter values on the first day of the month following ERCOT Board approval unless otherwise directed by the ERCOT Board. ERCOT shall provide a Market Notice prior to implementation of a revised parameter value.		

(g) Add the MW from Real-Time DC Tie imports during an EEA to GTBD. The amount of MW is determined from the Dispatch Instruction and should continue over the duration of time specified by the ERCOT Operator.

(h) Subtract the MW from Real-Time DC Tie exports to address emergency conditions in the receiving electric grid from GTBD. The amount of MW is determined from the Dispatch Instruction and should continue over the duration of time specified by the receiving grid operator.

(i) Add the MW from energy delivered to ERCOT through registered BLTs during an EEA to GTBD. The amount of MW is determined from the Dispatch Instruction and should continue over the duration of time specified by the ERCOT Operator.

(j) Subtract the MW from energy delivered from ERCOT to another power pool through registered BLTs during emergency conditions in the receiving electric grid from GTBD. The amount of MW is determined from the Dispatch Instruction and should continue over the duration of time specified by the receiving grid operator.

(k) Perform a SCED with changes to the inputs in items (a) through (j) above, considering only Competitive Constraints and the non-mitigated Energy Offer Curves.

(l) Perform mitigation on the submitted Energy Offer Curves using the LMPs from the previous step as the reference LMP.

(m) Perform a SCED with the changes to the inputs in items (a) through (j) above, considering both Competitive and Non-Competitive Constraints and the mitigated Energy offer Curves.

(n) Determine the positive difference between the System Lambda from item (m) above and the System Lambda of the second step in the two-step SCED process

described in paragraph (10)(b) of Section 6.5.7.3, Security Constrained Economic Dispatch.

(o) Determine the amount given by the Value of Lost Load (VOLL) minus the sum of the System Lambda of the second step in the two step SCED process described in paragraph (10)(b) of Section 6.5.7.3 and the Real-Time On-Line Reserve Price Adder.

(p) The Real-Time On-Line Reliability Deployment Price Adder is the minimum of items (n) and (o) above except when ERCOT is directing firm Load shed during EEA Level 3. When ERCOT is directing firm Load shed during EEA Level 3 to either maintain sufficient PRC or stabilize grid frequency, as described in paragraph (3) of Section 6.5.9.4.2, the Real-Time On-Line Reliability Deployment Price Adder is the VOLL minus the sum of the System Lambda of the second step in the two-step SCED process described in paragraph (10)(b) of Section 6.5.7.3 and the Real-Time On-Line Reserve Price Adder. Once ERCOT is no longer directing firm Load shed, as described above, the Real-Time On-Line Reliability Deployment Price Adder will again be set as the minimum of items (n) and (o) above.

[NPRR904, NPRR1006, NPRR1010, NPRR1014, NPRR1091, and NPRR1105: Replace applicable portions of Section 6.5.7.3.1 above with the following upon system implementation for NPRR904, NPRR1006, NPRR1014, NPRR1091, or NPRR1105; or upon system implementation of the Real-Time Co-Optimization (RTC) project for NPRR1010:]

6.5.7.3.1 Determination of Real-Time Reliability Deployment Price Adder

(1) The following categories of reliability deployments are considered in the determination of the Real-Time Reliability Deployment Price Adder for Energy, and the Real-Time Reliability Deployment Price Adders for Ancillary Services:

(a) RUC-committed Resources, except for those whose QSEs have opted out of RUC Settlement in accordance with paragraph (142) of Section 5.5.2, Reliability Unit Commitment (RUC) Process;

(b) RMR Resources that are On-Line, including capacity secured to prevent an Emergency Condition pursuant to paragraph (4) of Section 6.5.1.1, ERCOT Control Area Authority;

(c) Deployed Load Resources other than Controllable Load Resources;

(d) Deployed ERS;

(e) ERCOT-directed DC Tie imports during an EEA or transmission emergency where the total adjustment shall not exceed 1,250 MW in a single interval;

(f) ERCOT-directed curtailment of DC Tie imports below the higher of DC Tie advisory import limit as of 0600 in the Day-Ahead or subsequent advisory import limit to address local transmission system limitations where the total adjustment shall not exceed 1,250 MW in a single interval;

(g) ERCOT-directed curtailment of DC Tie imports below the higher of DC Tie advisory import limit as of 0600 in the Day-Ahead or subsequent advisory import limit due to an emergency action by a neighboring system operator during an emergency that is accommodated by ERCOT where the total adjustment shall not exceed 1,250 MW in a single interval;

(h) ERCOT-directed DC Tie exports to address emergency conditions in the receiving electric grid where the total adjustment shall not exceed 1,250 MW in a single interval;

(i) ERCOT-directed curtailment of DC Tie exports below the DC Tie advisory export limit as of 0600 in the Day-Ahead or subsequent advisory export limit during EEA, a transmission emergency, or to address local transmission system limitations where the total adjustment shall not exceed 1,250 MW in a single interval;

(j) Energy delivered to ERCOT through registered Block Load Transfers (BLTs) during an EEA;

(k) Energy delivered from ERCOT to another power pool through registered BLTs during emergency conditions in the receiving electric grid;

(l) ERCOT-directed deployment of Transmission and/or Distribution Service Provider (TDSP) standard offer Load management programs;

(m) ERCOT-directed deployment of distribution voltage reduction measures; and

(n) ERCOT-directed deployment of Off-Line Non-Spin.

(2) The Real-Time Reliability Deployment Price Adder for Energy, and Real-Time Reliability Deployment Price Adders for Ancillary Services are estimations of the impact to energy prices and Real-Time MCPCs due to the above categories of reliability deployments. For intervals where there are reliability deployments as described in paragraph (1) above, the Real-Time Reliability Deployment Price Adder for Energy and Real-Time Reliability Deployment Price Adders for Ancillary Services are determined as follows:

(a) For Off-Line Non-Spin Resources that are brought On-Line by ERCOT deployment instruction, RUC-committed Resources with a telemetered Resource Status of ONRUC and for RMR Resources that are On-Line:

(i) Set the LSL and LDL to zero;

(ii) Remove all Ancillary Service Offers; and

(iii) For the first step of SCED, administratively set the Energy Offer Curve for the Resource at a value equal to the power balance penalty price for all capacity between 0 MW and the HSL of the Resource.

(b) Notwithstanding item (a) above, for RUC-committed Combined Cycle Generation Resources with a telemetered Resource Status of ONRUC that were instructed by ERCOT to transition to a different configuration to provide additional capacity:

(i) Set the LSL and LDL equal to the minimum of their current value and the COP HSL of the QSE-committed configuration for the RUC hour at the snapshot time of the RUC instruction;

(ii) Set the maximum Ancillary Service capabilities of the Resource equal to the minimum of their current value and COP Ancillary Service capabilities of the QSE-committed configuration for the RUC hour at the snapshot time of the RUC instruction; and

(iii) For the first step of SCED, administratively set the Energy Offer Curve for the Resource at a value equal to the power balance penalty price for the additional capacity of the Resource, defined as the positive difference between the Resource's current telemetered HSL and the COP HSL of the QSE-committed configuration for the RUC hour at the snapshot time of the RUC instruction.

(c) For all other Generation Resources excluding ones with a telemetered status of ONRUC, ONTEST, STARTUP, SHUTDOWN, and also excluding RMR Resources that are On-Line and excluding Generation Resources with a telemetered output less than 95% of LSL:

(i) If the Generation Resource SCED Base Point is not at LDL, set LDL to the greater of Aggregated Resource Output - (60 minutes * Normal Ramp Rate down), or LSL; and

(ii) If the Generation Resource SCED Base Point is not at HDL, set HDL to the lesser of Aggregated Resource Output + (60 minutes * Normal Ramp Rate up), or HSL.

(d) For all On-Line ESRs:

(i) If the ESR SCED Base Point is not at LDL, set LDL to the greater of Aggregated Resource Output - (60 minutes * Normal Ramp Rate down), or LSL; and

(ii) If the ESR SCED Base Point is not at HDL, set HDL to the lesser of Aggregated Resource Output + (60 minutes * Normal Ramp Rate up), or HSL.

(e) For all Controllable Load Resources excluding ones with a telemetered status of OUTL:

(i) If the Controllable Load Resource SCED Base Point is not at LDL, set LDL to the greater of Aggregated Resource Output - (60 minutes * Normal Ramp Rate down), or LSL; and

(ii) If the Controllable Load Resource SCED Base Point is not at HDL, set HDL to the lesser of Aggregated Resource Output + (60 minutes * Normal Ramp Rate up), or HSL.

(f) Add the deployed MW from Load Resources that are not Controllable Load Resources and that are providing RRS or ECRS to GTBD linearly ramped over the ten-minute ramp period and add the deployed MW from Load Resources that are not Controllable Load Resources providing Non-Spin to GTBD linearly ramped over the 30-minute ramp period. The amount of deployed MW is calculated from the Resource telemetry and from applicable deployment instructions in Extensible Markup Language (XML) messages. ERCOT shall generate a linear bid curve defined by a price/quantity pair of $300/MWh for the first MW of Load Resources deployed and a price/quantity pair of $700/MWh for the last MW of Load Resources deployed in each SCED execution. After recall instruction, the restoration period length and amount of MW added to GTBD during the restoration period will be determined by validated telemetry and the type of Ancillary Service deployed from the Resource. The TAC shall review the validity of the prices for the bid curve at least annually.

(g) Add the deployed MW from ERS to GTBD. The amount of deployed MW is determined from the XML messages and ERS contracted capacities for the ERS Time Periods when ERS is deployed. After recall, an approximation of the amount of un-restored ERS shall be used. After ERCOT recalls each group, GTBD shall be adjusted to reflect restoration on a linear curve over the assumed restoration period ("RHours").

The above parameter is defined as follows:

Parameter	Unit	Current Value*
RHours	Hours	4.5

* Changes to the current value of the parameter(s) referenced in this table above may be recommended by TAC and approved by the ERCOT Board. ERCOT shall update parameter values on the first day of the month following ERCOT Board approval unless otherwise directed by the ERCOT Board. ERCOT shall provide a Market Notice prior to implementation of a revised parameter value.

(h) Add the MW from DC Tie imports during an EEA or transmission emergency, to address local transmission system limitations, or due to an emergency action by a neighboring system operator during an emergency that is accommodated by ERCOT to GTBD. The amount of MW is determined from the Dispatch Instruction and should continue over the duration of time specified by the ERCOT Operator.

(i) Add the MW from DC Tie export curtailments during an EEA or transmission emergency, to address local transmission system limitations, or due to an emergency action by a neighboring system operator during an emergency that is accommodated by ERCOT to GTBD. The amount of MW is determined from the Dispatch Instruction and should continue over the duration of time specified by the ERCOT Operator. The MW added to GTBD associated with any individual DC Tie shall not exceed the higher of DC Tie advisory limit for exports on that tie as of 0600 in the Day-Ahead or subsequent advisory export limit minus the aggregate export on the DC Tie that remained scheduled following the Dispatch Instruction from the ERCOT Operator.

(j) Subtract the MW from DC Tie exports to address emergency conditions in the receiving electric grid from GTBD. The amount of MW is determined from the Dispatch Instruction and should continue over the duration of time specified by the receiving grid operator.

(k) Subtract the MW from DC Tie import curtailments to address local transmission system limitations or emergency conditions in the receiving electric grid from GTBD. The amount of MW is determined from the Dispatch Instruction and should continue over the duration of time specified by the receiving grid operator. The MW subtracted from GTBD associated with any individual DC Tie shall not exceed the higher of DC Tie advisory limit for imports on that tie as of 0600 in the Day-Ahead or subsequent advisory import limit minus the aggregate import on the DC Tie that remained scheduled following the Dispatch Instruction from the ERCOT Operator.

(l) Add the MW from energy delivered to ERCOT through registered BLTs during an EEA to GTBD. The amount of MW is determined from the Dispatch Instruction and should continue over the duration of time specified by the ERCOT Operator.

(m) Subtract the MW from energy delivered from ERCOT to another power pool through registered BLTs during emergency conditions in the receiving electric grid from GTBD. The amount of MW is determined from the Dispatch

Instruction and should continue over the duration of time specified by the receiving grid operator.

(n) Add the deployed MWs from TDSP standard offer Load management programs to GTBD, if ERCOT instructs TDSPs to deploy their standard offer Load management programs. The amount of deployed MW is the value ERCOT provided for all TDSP standard offer Load management programs in the most current May Report on Capacity, Demand and Reserves in the ERCOT Region, unless modified as specified in this paragraph. If ERCOT is informed that all or a portion of a TDSP's standard offer Load management program has been fully exhausted, or has been expanded as the result of a Public Utility Commission of Texas (PUCT) proceeding, ERCOT will remove the associated MW value of any exhausted capacity from the amount of deployed MW or, in the case of an expansion, ERCOT will request an updated MW value from the relevant TDSPs to use in place of the May Report on Capacity, Demand and Reserves in the ERCOT Region value for that year. The initial value ERCOT will use for deployed MW under this paragraph for each calendar year, as well as any subsequent changes to this value, will be communicated to Market Participants in a Market Notice. After recall, an approximation of the amount of un-restored TDSP standard offer Load management programs shall be used. GTBD shall be adjusted to reflect restoration on a linear curve over the assumed restoration period ("RHours") defined by item (g) above.

(o) Perform a SCED with changes to the inputs in items (a) through (m) above, considering only Competitive Constraints and the non-mitigated Energy Offer Curves.

(p) Perform mitigation on the submitted Energy Offer Curves using the LMPs from the previous step as the reference LMP.

(q) Perform a SCED with the changes to the inputs in items (a) through (m) above, considering both Competitive and Non-Competitive Constraints and the mitigated Energy Offer Curves.

(r) The Real-Time Reliability Deployment Price Adder for Energy is equal to the positive difference between the System Lambda from item (q) above and the System Lambda of the second step in the two-step SCED process described in paragraph (10)(b) of Section 6.5.7.3, Security Constrained Economic Dispatch.

(s) For each individual Ancillary Service, the Real-Time Reliability Deployment Price Adder for Ancillary Service is equal to the positive difference between the MCPC for that Ancillary Service from item (q) above and the MCPC for that Ancillary Service.

[NPRR863 and NPRR1010: Insert applicable portions of Section 6.5.7.6.2.4 below upon system implementation for NPRR863; or upon system implementation of the Real-Time Co-Optimization (RTC) project for NPRR1010:]

6.5.7.6.2.4 Deployment and Recall of ERCOT Contingency Reserve Service

(1) ECRS is intended to:

(a) Help restore the frequency to 60 Hz within ten minutes of a significant frequency deviation;

(b) Provide energy to avoid or during the implementation of an EEA; ~~and~~

(c) Provide backup to Reg-Up~~.~~; and

(d) Provide energy upon detection of insufficient available capacity for net load ramps.

(2) ERCOT shall deploy ECRS to meet NERC Standards and other performance criteria as specified in these Protocols and the Operating Guides, by one or more of the following:

(a) ERCOT shall issue ECRS deployment Dispatch Instructions, specifying the required MW output, over ICCP for Resources awarded ECRS with a Resource Status of ONSC.

(b) Dispatch Instruction for deployment of Load Resources energy via electronic Messaging System.

(3) Energy from Resources providing ECRS may also be manually deployed by ERCOT pursuant to Section 6.5.9, Emergency Operations.

(4) ERCOT shall use SCED and Non-Spin as soon as practicable to recover ECRS reserves.

(5) Following a manual ECRS deployment to Load Resources, excluding Controllable Load Resources, or Resources telemetering a Resource Status of ONSC, the QSE's obligation to deliver ECRS remains in effect until ERCOT issues a recall instruction.

(6) For Generation Resources and Controllable Load Resources providing ECRS, Base Points include ECRS energy as well as any other energy dispatched by SCED. A Resource must be able to be fully dispatched by SCED to its ECRS Ancillary Service award within the ten-minute time frame according to its telemetered ramp rate that reflects the Resource's capability of providing ECRS.

(7) Each Resource providing ECRS shall meet the deployment performance requirements specified in Section 8.1.1.4.2, Responsive Reserve Energy Deployment Criteria.

(8) ERCOT shall issue deployment instructions for Load Resources providing ECRS via XML. Such instructions shall contain the MW requested.

(9) To the extent that ERCOT deploys a Load Resource that is not a Controllable Load Resource and that has chosen a block deployment option, ERCOT shall either deploy the entire Ancillary Service award or, if only partial deployment is possible, skip the Load Resource with the block deployment option and proceed to deploy the next available Resource.

(10) ERCOT shall recall deployed ECRS capacity provided from Resource telemetering Resource Status of ONSC once system frequency recovers above 59.98 Hz.

(11) ERCOT shall recall ECRS deployment provided from Load Resource that is not a Controllable Load Resource once PRC is above a pre-defined threshold, as described in the Operating Guides.

ERCOT Impact Analysis Report

NPRR Number	1148	NPRR Title	Language Cleanup Related to ERCOT Contingency Reserve Service (ECRS)
Impact Analysis Date		August 30, 2022	
Estimated Cost/Budgetary Impact		None.	
Estimated Time Requirements		No project required. This Nodal Protocol Revision Request (NPRR) can take effect upon implementation of NPRR863, Creation of ERCOT Contingency Reserve Service and Revisions to Responsive Reserve.	
ERCOT Staffing Impacts (across all areas)		Ongoing Requirements: No impacts to ERCOT staffing.	
ERCOT Computer System Impacts		No impacts to ERCOT computer systems.	
ERCOT Business Function Impacts		No impacts to ERCOT business functions.	
Grid Operations & Practices Impacts		No impacts to ERCOT grid operations and practices.	

Evaluation of Interim Solutions or Alternatives for a More Efficient Implementation
None offered.

Comments
There are no additional impacts to this NPRR beyond what was captured in the Impact Analysis for NPRR863.

Board Report

NPRR Number	1152	NPRR Title	Remove Requirements to Submit Emergency Operations Plans, Weatherization Plans, and Declarations of Summer/Winter Weather Preparedness
Date of Decision		December 20, 2022	
Action		Recommended Approval	
Timeline		Urgent – to align the Protocols with 16 Texas Administrative Code (TAC) § 25.55 as quickly as possible.	
Proposed Effective Date		January 27, 2023	
Priority and Rank Assigned		Not applicable	
Nodal Protocol Sections Requiring Revision		1.3.1.1, Items Considered Protected Information 1.3.2.1, Items Considered ERCOT Critical Energy Infrastructure Information 3.21, Submission of Emergency Operations Plans, Weatherization Plans, and Declarations of Summer and Winter Weather Preparedness 3.21.1, Natural Gas Pipeline Coordination Requirements for Resource Entities with Natural Gas Generation Resources for Summer Preparedness and Summer Peak Load Season Section 22, Attachment K: Declaration of Completion of Generation Resource Summer Weatherization Preparations and Natural Gas Pipeline Coordination for Resource Entities with Natural Gas Generation Resources Section 22, Attachment O: Declaration of Completion of Generation Resource Winter Weatherization Preparations (delete)	
Related Documents Requiring Revision/Related Revision Requests		None	
Revision Description		In light of the implementation of 16 TAC §§ 25.53 and 25.55, this Nodal Protocol Revision Request (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 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 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 North American Electric Reliability Corporation (NERC) Reliability Standards.
Reason for Revision	☐ Addresses current operational issues. ☐ Meets Strategic goals (tied to the ERCOT Strategic Plan or directed by the ERCOT Board). ☐ Market efficiencies or enhancements ☒ Administrative ☐ Regulatory requirements ☐ Other: (explain) *(please select all that apply)*
Business Case	This NPRR reduces the administrative burden of submitting the weatherization declarations required by Section 3.21, which have been superseded by the more comprehensive declarations required by 16 TAC § 25.55. At the open meeting on September 29, 2022, the PUCT Commissioners agreed ERCOT Market Participants need not submit Section 3.21 declarations in light of the approval of revised 16 TAC § 25.55. This NPRR implements that decision. This NPRR retains the requirement to submit the declaration of natural gas pipeline coordination in Section 22, Attachment K, but now requires this declaration be submitted as part of the summer weather preparedness declaration required by 16 TAC § 25.55(c)(3)(B). 16 TAC § 25.55(c)(3)(B)(iv) authorizes ERCOT to specify additional information for inclusion in declarations, and consolidating the pipeline coordination declaration into the weatherization declaration required by PUCT rules will reduce the administrative burden on Market Participants and ERCOT. This NPRR also removes requirements in Section 3.21 to submit EOPs and either designate weatherization-specific portions of the EOP or provide a standalone weatherization plan. The PUCT recently amended 16 TAC § 25.53 to create more specific content requirements for EOPs, including requiring a "weather emergency

	annex," and require EOPs be submitted to ERCOT. Maintaining a separate Protocol-level requirement to submit EOPs would be duplicative. Because 16 TAC § 25.55 now regulates weatherization practices, ERCOT no longer needs to require Market Participants to designate weatherization-specific portions of an EOP or submit a standalone weatherization plan. Finally, the revisions to Sections 1.3.1.1 and 1.3.1.2 provide clarity regarding the confidentiality of EOPs and weatherization-related information, consistent with the requirements of 16 TAC § 25.53(c)(1)(C) and (c)(3)(d); 16 TAC § 25.55(c)(6) and (f)(6); and NERC Reliability Standards. Market Participants should note: (1) some information relating to weatherization activities may also come within the definition of ERCOT Critical Energy Infrastructure Information (ECEII); (2) Resource Entities concluding that certain information submitted to ERCOT pursuant to P.U.C. SUBST. R. 25.55, Weather Emergency Preparedness, constitutes ECEII may wish to designate the information as ECEII pursuant to paragraph (1)(i) of Section 1.3.2.1; and (3) this NPRR does *not* change the requirement to submit Operating Plans to mitigate operating emergencies required by NERC Reliability Standard EOP-011, Emergency Operations (contained in paragraph (6) of Nodal Operating Guide Section 3.7, Transmission Operators).
PRS Decision	On 11/11/22, PRS voted unanimously to grant NPRR1152 Urgent status; to recommend approval of NPRR1152 as submitted; and to forward to TAC NPRR1152 and the 10/20/22 Impact Analysis. All Market Segments participated in the vote.
Summary of PRS Discussion	On 11/11/22, ERCOT Staff provided an overview of NPRR1152.
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 Independent Retail Electric Provider (IREP) (Reliant) Market Segment. All Market Segments participated in the vote.
Summary of TAC Discussion	On 12/5/22, TAC reviewed the ERCOT Opinion, ERCOT Market Impact Statement, and Independent Market Monitor (IMM) Opinion for NPRR1152.
ERCOT Board Decision	On 12/20/22, the ERCOT Board voted unanimously to recommend approval of NPRR1152 as recommended by TAC in the 12/5/22 TAC Report with a proposed effective date of January 27, 2023.

Board Report

Opinions	
Credit Work Group Review	ERCOT Credit Staff and the Credit Work Group (Credit WG) have reviewed NPRR1152 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 NPRR1152.
ERCOT Opinion	ERCOT supports approval of NPRR1152.
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 EOPs, weatherization plans, declarations of summer/winter weather preparedness, and declarations of natural gas pipeline coordination.

Sponsor	
Name	Andrew Gallo / David Kezell
E-mail Address	andrew.gallo@ercot.com / david.kezell@ercot.com
Company	ERCOT
Phone Number	512-225-7010 / 512-248-6670
Cell Number	512-689-7270 / 813-482-6138
Market Segment	Not applicable

Market Rules Staff Contact	
Name	Cory Phillips
E-Mail Address	cory.phillips@ercot.com
Phone Number	512-248-6464

Comments Received	
Comment Author	**Comment Summary**
None	

Market Rules Notes

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

- NPRR1097, Create Resource Forced Outage Report (unboxed 12/9/22)
  - Section 1.3.1.1

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

- NPRR1067, Market Entry Qualifications, Continued Participation Requirements, and Credit Risk Assessment
  - Section 1.3.1.1

Please note administrative revisions, authored as "ERCOT Market Rules," have been made to the language below to correct a reference to Section 3.21.1 which should now reference 3.21.

Proposed Protocol Language Revision

1.3.1.1 [CP1] **Items Considered Protected Information**

(1) Subject to the exclusions set out in Section 1.3.1.2, Items Not Considered Protected Information, and in Section 3.2.5, Publication of Resource and Load Information, "Protected Information" is information containing or revealing any of the following:

(a) Base Points, as calculated by ERCOT. The Protected Information status of this information shall expire 60 days after the applicable Operating Day;

(b) Bids, offers, or pricing information identifiable to a specific Qualified Scheduling Entity (QSE) or Resource. The Protected Information status of part of this information shall expire 60 days after the applicable Operating Day, as follows:

(i) Ancillary Service Offers by Operating Hour for each Resource for all Ancillary Services submitted for the Day-Ahead Market (DAM) or any Supplemental Ancillary Services Market (SASM);

(ii) The quantity of Ancillary Service offered by Operating Hour for each Resource for all Ancillary Service submitted for the DAM or any SASM; and

(iii) Energy Offer Curve prices and quantities for each Settlement Interval by Resource. The Protected Information status of this information shall expire within seven days after the applicable Operating Day if required to be posted as part of paragraph (5) of Section 3.2.5 and within two days after the applicable Operating Day if required to be posted as part of paragraph (7) of Section 3.2.5;

[NPRR1013: Replace paragraph (b) above with the following upon system implementation of the Real-Time Co-Optimization (RTC) project:]

(b) Bids, offers, or pricing information identifiable to a specific Qualified Scheduling Entity (QSE) or Resource. The Protected Information status of part

of this information shall expire 60 days after the applicable Operating Day, as follows:

(i) Ancillary Service Offers by Operating Hour or Security-Constrained Economic Dispatch (SCED) interval for each Resource for all Ancillary Services submitted for the Day-Ahead Market (DAM) or Real-Time Market (RTM);

(ii) The quantity of Ancillary Service offered by Operating Hour or SCED interval for each Resource for all Ancillary Service submitted for the DAM or RTM; and

(iii) A Resource's Energy Offer Curve prices and quantities by Operating Hour or SCED interval. The Protected Information status of this information shall expire within seven days after the applicable Operating Day if required to be posted as part of paragraph (5) of Section 3.2.5 and within two days after the applicable Operating Day if required to be posted as part of paragraph (7) of Section 3.2.5;

(c) Status of Resources, including Outages, limitations, or scheduled or metered Resource data. The Protected Information status of this information shall expire as follows:

(i) For each Forced Outage, Maintenance Outage, or Forced Derate of a Generation Resource or Energy Storage Resource (ESR) that occurs during or extends into an Operating Day, the Protected Information status of the following information shall expire three days after the applicable Operating Day:

(A) The name and unit code of the Resource affected;

(B) The Resource's fuel type;

(C) The type of Outage or derate;

(D) The start date/time and the planned and actual end date/time;

(E) The Resource's applicable Seasonal net maximum sustainable rating;

(F) The available and outaged MW during the Outage or derate; and

(G) The entry in the "nature of work" field in the Outage Scheduler and any other information concerning the cause of the Outage or derate;

(ii) For each Resource Outage or Forced Derate that occurs during, or that extends into, any time period in which ERCOT has declared an Energy Emergency Alert (EEA), ERCOT may immediately disclose the information identified in paragraph (i) above to a state Governmental Authority, the office of the Governor of Texas, the office of the Lieutenant Governor of Texas, or any member of the Texas Legislature, if requested; and

(iii) For all other information, the Protected Information status shall expire 60 days after the applicable Operating Day;

(d) Current Operating Plans (COPs). The Protected Information status of this information shall expire 60 days after the applicable Operating Day;

(e) Ancillary Service Trades, Energy Trades, and Capacity Trades identifiable to a specific QSE or Resource. The Protected Information status of this information shall expire 180 days after the applicable Operating Day;

(f) Ancillary Service Schedules identifiable to a specific QSE or Resource. The Protected Information status of this information shall expire 60 days after the applicable Operating Day;

[NPRR1013: Replace paragraph (f) above with the following upon system implementation of the Real-Time Co-Optimization (RTC) project:]

(f) Ancillary Service awards identifiable to a specific QSE or Resource. The Protected Information status of this information shall expire 60 days after the applicable Operating Day;

(g) Dispatch Instructions identifiable to a specific QSE or Resource, except for Reliability Unit Commitment (RUC) commitments and decommitments as provided in Section 5.5.3, Communication of RUC Commitments and Decommitments. The Protected Information status of this information shall expire 180 days after the applicable Operating Day;

(h) Raw and Adjusted Metered Load (AML) data (demand and energy) identifiable to:

(i) A specific QSE or Load Serving Entity (LSE). The Protected Information status of this information shall expire 180 days after the applicable Operating Day; or

(ii) A specific Customer or Electric Service Identifier (ESI ID);

(i) Wholesale Storage Load (WSL) data identifiable to a specific QSE. The Protected Information status of this information shall expire 60 days after the applicable Operating Day;

(j) Settlement Statements and Invoices identifiable to a specific QSE. The Protected Information status of this information shall expire 180 days after the applicable Operating Day;

(k) Number of ESI IDs identifiable to a specific LSE. The Protected Information status of this information shall expire 365 days after the applicable Operating Day;

(l) Information related to generation interconnection requests, to the extent such information is not otherwise publicly available. The Protected Information status of certain generation interconnection request information expires as provided in Section 1.3.1.4, Expiration of Protected Information Status;

(m) Resource-specific costs, design and engineering data, including such data submitted in connection with a verifiable cost appeal;

(n) Congestion Revenue Right (CRR) credit limits, the identity of bidders in a CRR Auction, or other bidding information identifiable to a specific CRR Account Holder. The Protected Information status of this information shall expire as follows:

(i) The Protected Information status of the identities of CRR bidders that become CRR Owners and the number and type of CRRs that they each own shall expire at the end of the CRR Auction in which the CRRs were first sold; and

(ii) The Protected Information status of all other CRR information identified above in item (n) shall expire six months after the end of the year in which the CRR was effective.

(o) Renewable Energy Credit (REC) account balances. The Protected Information status of this information shall expire three years after the REC Settlement period ends;

(p) Credit limits identifiable to a specific QSE;

(q) Any information that is designated as Protected Information in writing by Disclosing Party at the time the information is provided to Receiving Party except for information that is expressly designated not to be Protected Information by Section 1.3.1.2 or that, pursuant to Section 1.3.1.4, is no longer confidential;

(r) Any information compiled by a Market Participant on a Customer that in the normal course of a Market Participant's business that makes possible the identification of any individual Customer by matching such information with the Customer's name, address, account number, type of classification service, historical electricity usage, expected patterns of use, types of facilities used in providing service, individual contract terms and conditions, price, current charges, billing record, or any other information that a Customer has expressly requested

not be disclosed ("Proprietary Customer Information") unless the Customer has authorized the release for public disclosure of that information in a manner approved by the Public Utility Commission of Texas (PUCT). Information that is redacted or organized in such a way as to make it impossible to identify the Customer to whom the information relates does not constitute Proprietary Customer Information;

(s) Any software, products of software, or other vendor information that ERCOT is required to keep confidential under its agreements;

(t) QSE, Transmission Service Provider (TSP), and Distribution Service Provider (DSP) backup plans collected by ERCOT under the Protocols or Other Binding Documents;

[NPRR857: Replace item (t) above with the following upon system implementation and satisfying the following conditions: (1) Southern Cross provides ERCOT with funds to cover the entire estimated cost of the project; and (2) Southern Cross has signed an interconnection agreement with a TSP and the TSP gives ERCOT written notice that Southern Cross has provided it with: (a) Notice to proceed with the construction of the interconnection; and (b) The financial security required to fund the interconnection facilities:]

(t) QSE, Transmission Service Provider (TSP), Direct Current Tie Operator (DCTO), and Distribution Service Provider (DSP) backup plans collected by ERCOT under the Protocols or Other Binding Documents;

(u) Direct Current Tie (DC Tie) Schedule information. The Protected Information status of this information shall expire 60 days after the applicable Operating Day;

(v) Any Texas Standard Electronic Transaction (TX SET) transaction submitted by an LSE to ERCOT or received by an LSE from ERCOT. This paragraph does not apply to ERCOT's compliance with:

(i) PUCT Substantive Rules on performance measure reporting;

(ii) These Protocols or Other Binding Documents; or

(iii) Any Technical Advisory Committee (TAC)-approved reporting requirements;

(w) Information concerning a Mothballed Generation Resource's probability of return to service and expected lead time for returning to service submitted pursuant to Section 3.14.1.9, Generation Resource Status Updates;

(x) Information provided by Entities under Section 10.3.2.4, Reporting of Net Generation Capacity;

(y) Alternative fuel reserve capability and firm gas availability information submitted pursuant to Section 6.5.9.3.1, Operating Condition Notice, Section 6.5.9.3.2, Advisory, and Section 6.5.9.3.3, Watch, and as defined by the Operating Guides;

(z) Non-public financial information provided by a Counter-Party to ERCOT pursuant to meeting its credit qualification requirements as well as the QSE's form of credit support;

(aa) ESI ID, identity of Retail Electric Provider (REP), and MWh consumption associated with transmission-level Customers that wish to have their Load excluded from the Renewable Portfolio Standard (RPS) calculation consistent with Section 14.5.3, End-Use Customers, and subsection (j) of P.U.C. SUBST. R. 25.173, Goal for Renewable Energy;

(bb) ~~Generation Resource e~~Emergency operations plans submitted pursuant to P.U.C. SUBST. R. 25.53, Electric Service Emergency Operations Plans~~, and weatherization plans~~;

(cc) Information provided by a Counter-Party under Section 16.16.3, Verification of Risk Management Framework;

(dd) Any data related to Load response capabilities that are self-arranged by the LSE or pursuant to a bilateral agreement between a specific LSE and its Customers, other than data either related to any service procured by ERCOT or non-LSE-specific aggregated data. Such data includes pricing, dispatch instructions, and other proprietary information of the Load response product;

(ee) Status of Settlement Only Generators (SOGs), including Outages, limitations, or scheduled or metered output data, except that ERCOT may disclose output data from an SOG as part of an extract or forwarded TX SET transaction provided to the LSE associated with the ESI ID of the Premise where the SOG is located. The Protected Information status of this information shall expire 60 days after the applicable Operating Day;

[NPRR829 and NPRR995: Replace applicable portions of paragraph (ee) above with the following upon system implementation:]

(ee) Status of Settlement Only Generators (SOGs) and Settlement Only Energy Storage System (SOESS), including Outages, limitations, schedules, metered output and withdrawal data, or data telemetered for use in the calculation of Real-Time Liability (RTL) as described in Section 16.11.4.3.2, Real-Time Liability Estimate, except that ERCOT may disclose metered output and withdrawal data from an SOG or SOESS as part of an extract or forwarded TX SET transaction provided to the LSE associated with the ESI ID of the Premise where the SOG is located. The Protected Information status of this information shall expire 60 days after the applicable Operating Day;

(ff) Any documents or data submitted to ERCOT in connection with an Alternative Dispute Resolution (ADR) proceeding. The Protected Information status of this information shall expire upon ERCOT's issuance of a Market Notice indicating the disposition of the ADR proceeding pursuant to paragraph (1) of Section 20.9, Resolution of Alternative Dispute Resolution Proceedings and Notification to Market Participants, except to the extent the information continues to qualify as Protected Information pursuant to another paragraph of this Section 1.3.1.1;

(gg) Reasons for and future expectations of overrides to a specific Resource's High Dispatch Limit (HDL) or Low Dispatch Limit (LDL). The Protected Information status of this information shall expire 60 days after the applicable Operating Day;

(hh) Information provided to ERCOT under Section 16.18, Cybersecurity Incident Notification, except that ERCOT may disclose general information concerning a Cybersecurity Incident in a Market Notice in accordance with paragraph (5) of Section 16.18 to assist Market Participants in mitigating risk associated with a Cybersecurity Incident; and

(ii) Information disclosed in response to paragraphs (1)-(4) of the Gas Pipeline Coordination section of Section 22, Attachment K, Declaration of ~~Completion of Generation Resource Summer Weatherization Preparations and~~ Natural Gas Pipeline Coordination ~~for Resource Entities with Natural Gas Generation Resources~~, submitted to ERCOT in accordance with Section 3.21~~.1~~, Submission of Declarations of Natural Gas Pipeline Coordination~~Natural Gas Pipeline Coordination Requirements for Resource Entities with Natural Gas Generation Resources for Summer Preparedness and Summer Peak Load Season~~. The Protected Information status of Resource Outage information shall expire as provided in paragraph (1)(c) of Section 1.3.1.1.

(jj) Information concerning weatherization activities submitted to, obtained by, or generated by ERCOT in connection with P.U.C. SUBST. R. 25.55, Weather Emergency Preparedness, if such information allows the identification of any Resource or Resource Entity.

1.3.2.1 Items Considered ERCOT Critical Energy Infrastructure Information

(1) ECEII includes but is not limited to the following, so long as such information has not been disclosed to the public through lawful means:

(a) Detailed ERCOT System Infrastructure locational information, such as Global Positioning System (GPS) coordinates;

(b) Information that reveals that a specified contingency or fault results in instability, cascading or uncontrolled separation;

(c) Studies and results of simulations that identify cyber and physical security vulnerabilities of ERCOT System Infrastructure;

(d) Black Start Service (BSS) test results, individual Black Start Resource start-up procedures, cranking paths, and ERCOT and individual TSP Black Start plans;

(e) Information contained in Section 1.B. and Exhibit 1 to the Standard Form Black Start Agreement (Section 22, Attachment D, Standard Form Black Start Agreement), except for the Hourly Standby Price, Notice, and Certification sections. This includes, without limitation, the following information that could identify a Generation Resource as a Black Start Resource:

(i) Resource name;

(ii) Resource ID;

(iii) County where the Resource is located;

(iv) Interconnected substation;

(v) Resource MW capability; and

(vi) Tested next start units;

(f) ~~ERCOT, TDSP and Resource e~~Emergency operations plans, including ERCOT's emergency operations plan and any emergency operations plan submitted to ERCOT pursuant to any PUCT rule or North American Electric Reliability Corporation (NERC) Reliability Standard;

(g) Detailed ERCOT Transmission Grid maps, other than maps showing only small portions of the ERCOT Transmission Grid such as those included in Regional Planning Group (RPG) Project ERCOT Independent Review reports;

(h) Detailed diagrams or information about connectivity between ERCOT's and other Entities' computer and telecommunications systems, such as internet protocol (IP) addresses, media access control (MAC) addresses, network protocols, and ports used; and

(i) Any information that is clearly designated as ECEII in writing by the Disclosing Party at the time the information is provided to Receiving Party, subject to the procedures set forth in paragraph (3) of Section 1.3.2.2, Submission of ERCOT Critical Energy Infrastructure Information to ERCOT.

3.21 Submission of ~~Emergency Operations Plans, Weatherization Plans, and~~ Declarations of Natural Gas Pipeline Coordination ~~Summer and Winter Weather Preparedness~~

(1) ~~Each Resource Entity shall provide ERCOT a complete copy of the emergency operations plan for each Generation Resource under the Resource Entity's control. For~~

any jointly-owned Generation Resource, the emergency operations plan shall be submitted by the Master Owner designated in the Resource Registration process. Each Resource Entity shall provide ERCOT with any updated versions of the emergency operations plan by June 1 for any updates made between November 1 and April 30, and by December 1 for any updates made between May 1 through October 31. Resource Entities shall submit all plans and updates electronically. This paragraph does not apply to any currently Mothballed Generation Resource.

(2) For each emergency operations plan submitted, a Resource Entity shall either specifically designate which portions of the plan address weatherization, or shall separately submit a weatherization plan. At a minimum, the emergency operations plan or weatherization plan, as applicable, shall include a description of the Generation Resource's practices and procedures undertaken in preparation for winter and summer weather and during specific occurrences of extreme weather. If a weatherization plan is submitted separately, the Resource Entity shall provide ERCOT with any updated versions of this weatherization plan by June 1 for any updates made between November 1 and April 30, and by December 1 for any updates made between May 1 through October 31. Resource Entities shall submit all such plans and updates electronically. Notwithstanding the foregoing, for any Generation Resource for which ERCOT has expressed an intent to conduct a site visit to evaluate weather preparedness, a Resource Entity shall submit to ERCOT, within three Business Days of ERCOT's request, its most recent weatherization plan or a listing of the portions of its most recent emergency operations plan that address weatherization. Any plan or other information provided in response to an ERCOT request does not fulfill the Resource Entity's obligation to submit that plan or information to ERCOT as otherwise required by this paragraph.

(3) No earlier than November 1 and no later than December 1 of each year, each Resource Entity shall submit the declaration in Section 22, Attachment O, Declaration of Completion of Generation Resource Winter Weatherization Preparations, to ERCOT stating that, at the time of submission, each Generation Resource under the Resource Entity's control has completed or will complete all weather preparations required by the weatherization plan for equipment critical to the reliable operation of the Generation Resource during the winter Peak Load Season. If the work on the equipment that is critical to the reliable operation of the Generation Resource is not complete at the time of filing the declaration, the Resource Entity shall provide a list and schedule of remaining work to be completed. The declaration shall be executed by an officer or executive with authority to bind the Resource Entity. This declaration shall not apply to any Generation Resource for any part of the above designated winter Peak Load Season for which the Resource Entity expects the Generation Resource to be mothballed, and a Resource Entity is not required to submit a declaration for any Generation Resource that is expected to be mothballed for the entire winter Peak Load Season. However, if a Generation Resource was not included on the declaration because it was mothballed at the time the declaration was submitted and was not intended to be operational during the winter Peak Load Season, a Resource Entity shall provide the declaration for that Generation Resource prior to changing its status from mothballed to operational during the winter Peak Load Season.

~~(4)~~ As part of its submission to ERCOT in connection with subsection (c)(3)(B) of P.U.C. SUBST. R. 25.55, Weather Emergency Preparedness~~No earlier than May 1 and no later than June 1 of each year~~, each Resource Entity representing one or more Generation Resources ~~that is~~ subject to P.U.C. SUBST. R. 25.55 that uses natural gas as its primary fuel shall submit to ERCOT the declaration in Section 22, Attachment K, Declaration of ~~Completion of Generation Resource Summer Weatherization Preparations and~~ Natural Gas Pipeline Coordination, ~~for Resource Entities with Natural Gas Generation Resources, to ERCOT stating that, at the time of submission, each Generation Resource under the Resource Entity's control has completed or will complete all weather preparations required by the weatherization plan for equipment critical to the reliable operation of the Generation Resource during the summer Peak Load Season. If the work on the equipment that is critical to the reliable operation of the Generation Resource is not complete at the time of filing the declaration, the Resource Entity shall provide a list and schedule of remaining work to be completed. The declaration shall be executed by an officer or executive with authority to bind the Resource Entity. This declaration shall not apply to any Generation Resource for any part of the summer Peak Load Season for which the Resource Entity expects the Generation Resource to be mothballed, and a Resource Entity is not required to submit a declaration for any Generation Resource that is expected to be mothballed for the entire summer Peak Load Season. However, if a Generation Resource was not included on the declaration because it was mothballed at the time the declaration was submitted and was not intended to be operational during the summer Peak Load Season, a Resource Entity shall provide the declaration for that Generation Resource prior to changing its status from mothballed to operational during the summer Peak Load Season.~~

~~(5) On or before January 15 each year, ERCOT shall report to the Public Utility Commission of Texas (PUCT) the names of Resource Entities failing to provide the declaration required by paragraph (3) above.~~

~~(6) On or before July 15 each year, ERCOT shall report to the PUCT the names of Resource Entities failing to provide the declaration required by paragraph (4) above.~~

~~*3.21.1 Natural Gas Pipeline Coordination Requirements for Resource Entities with Natural Gas Generation Resources for Summer Preparedness and Summer Peak Load Season*~~

~~(1) No earlier than May 1 and no later than June 1 of each year, each Resource Entity that controls a Generation Resource that relies on natural gas as its primary fuel source shall submit the declaration in Section 22, Attachment K, *Declaration of Completion of Generation Resource Summer Weatherization Preparations and Natural Gas Pipeline Coordination for Resource Entities with Natural Gas Generation Resources*, to ERCOT~~ stating that the Resource Entity~~,~~ or its~~he Resource Entity's~~ Qualified Scheduling Entity (QSE) ~~has~~ made a documented effort to communicate with the operator of each natural gas pipeline ~~that is~~ directly connected to its Generation Resource to coordinate regarding potential impacts to the Generation Resource's availability during the summer Peak Load Season of that year. ~~The declaration shall be executed by an officer or executive with the authority to bind the Resource Entity.~~

(2) If a Resource Entity or ~~the Resource Entity's~~ its QSE knows ~~that~~ an activity or condition related to a natural gas pipeline directly connected to its Generation Resource will cause ~~the~~ the ~~the~~ Generation Resource's ~~to be~~ unavailability~~e~~, in whole or in part, ~~then~~ the ~~Resource Entity's~~ QSE shall, as soon as practicable, report ~~such~~ that Outage or derate in the ERCOT Outage Scheduler in accordance with Section 3.1, Outage Coordination. An Outage or derate reported in the ERCOT Outage Scheduler need~~is~~ not ~~required to~~ be disclosed in the declaration contained in Section 22, Attachment K, nor reported ~~in accordance with~~ under paragraph (4) below.

(3) If, before a Resource Entity submits the declaration contained in Section 22, Attachment K, the Resource Entity or ~~the Resource Entity's~~ its QSE is notified by an operator of a natural gas pipeline directly connected to its Generation Resource of an activity or condition (e.g. maintenance, inspection, malfunction, or third-party damage) that may limit or impede normal deliveries but is uncertain whether the activity or condition during the upcoming summer Peak Load Season will cause the Generation Resource to take an Outage or derate, ~~then~~ the Resource Entity shall disclose the natural gas pipeline activity or condition in the declaration contained in Section 22, Attachment K, if the activity or condition materially increases the risk of ~~the~~ Generation Resource ~~being~~ unavailability~~e~~ during the summer Peak Load Season. The Resource Entity shall use its reasonable judgment to~~in~~ determin~~e~~ing whether there is a material increase in the risk of unavailability.

(4) If, after ~~a Resource Entity~~ submitting~~s~~ the declaration contained in Section 22, Attachment K, any previously disclosed information changes~~,~~ or a Resource Entity or ~~the Resource Entity's~~ its QSE receives new information ~~from an operator of a natural gas pipeline directly connected to its Generation Resource~~ about an activity or condition that may limit or impede normal natural gas deliveries and ~~that~~ materially increases the risk of ~~the~~ Generation Resource ~~being~~ unavailability~~e~~ during the summer Peak Load Season, ~~then~~ the Resource Entity shall disclose that information to ERCOT as soon as practicable. The Resource Entity shall use ~~its~~ reasonable judgment to~~in~~ determin~~e~~ing the risk of unavailability. When notifying ERCOT as required under this paragraph, the Resource Entity shall update the information required by paragraphs (3)(a)-(e) of the Natural Gas Pipeline Coordination section of Section 22, Attachment K, for the affected Generation Resource~~,~~ by sending an email to the email address designated by ERCOT.

(5) In complying with its obligations in this Section 3.21~~.1~~, a Resource Entity or ~~the Resource Entity's~~ its QSE relies upon communications with and information received from operators of natural gas pipelines directly connected to the Resource Entity's Generation Resource. The Resource Entity or ~~the Resource Entity's~~its QSE shall act in good faith to request the required information ~~from natural gas pipeline operators~~ and, as soon as practicable, ~~shall~~ share with each other any information ~~they~~ received from a natural gas pipeline operator ~~that is~~ required to be disclosed to ERCOT under Section 3.21~~.1~~. The Resource Entity or ~~the Resource Entity's~~ its QSE ~~is~~ need not ~~required to~~ warrant ~~that~~ the accuracy or completeness of information received from the natural gas pipeline operator and subsequently disclosed to ERCOT ~~is accurate and complete~~.

~~(6) On or before July 15 each year, ERCOT shall report to the PUCT the names of Resource Entities failing to provide the declaration required by paragraph (1) above.~~

ERCOT Nodal

Protocols Section 22

Attachment K: Declaration of ~~Completion of Generation Resource Summer Weatherization Preparations and~~ Natural Gas Pipeline Coordination ~~for Resource Entities with Natural Gas Generation Resources~~

~~May 1, 2020~~[DATE]

Declaration of ~~Completion of Generation Resource Summer Weatherization Preparations and~~ Natural Gas Pipeline ~~Coordination for Resource Entities with Natural Gas Generation Resources~~

~~Summer Peak Load Season:~~

~~Summer: June 20___ through September 20___~~

~~Resource Entity (or Entities):~~ ~~Resource Entity (or Entities)~~

This declaration applies to the following Generation Resources (list by Resource Site Code):
List Generation Resource(s) by Resource Site Code~~Generation Resource(s)~~

Natural Gas Pipeline Coordination

INSTRUCTIONS: ~~(~~Use this section for ~~only a~~ Generation Resource~~s~~ ~~that~~ rel~~ying~~~~ies~~ on natural gas as ~~its~~the primary fuel source. Repeat the following for each applicable Generation Resource.~~)~~

Generation Resource (provide Resource Site Code):

(1) Identify the natural gas pipelines ~~that are~~ directly connected to the Generation Resource and ~~the~~ contact information (name, phone number, and email) for each ~~operator of the~~ natural gas pipeline operator:

(2) If a natural gas pipeline operator did not respond to the Resource Entity's documented effort to coordinate, ~~then~~ check the box below and identify the natural gas pipeline operator.

☐ No response was received from the following natural gas pipeline operator:

(3) If a natural gas pipeline operator responded to the Resource Entity's documented effort to coordinate and disclosed activities or conditions that materially increasinge the risk of Generation Resource unavailability in the summer Peak Load Season, then please disclose the following information:

(a) The name or identifier of the natural gas pipeline with the known activities or conditions:

(b) The operator of the natural gas pipeline that disclosed the known activities or conditions:

(c) The iImpacts that the known activity or condition may have on the Generation Resource's availability (e.g., could cause an Outage or derate or Off-line):

(d) The time period during which the known activity or condition is expectedanticipated to occur, including the expected duration:

(e) Other useful information:

(4) If contract language in an agreement with a natural gas pipeline operator prohibits the Resource Entity from disclosing any of the information requested in 3(a)-(e) above, and the natural gas pipeline operator refused the Resource Entity's documented effort to obtain consent to disclose that information to ERCOT, then check the box below and identify the natural gas pipeline operator.

☐ Contract language prohibits Ddisclosure is prohibited by contract language and the following natural gas pipeline operator(s) would not consent to information disclosurewritten consent to disclose was not given by the following natural gas pipeline operator(s):

Declaration of Summer Weatherization Preparations

I hereby attest that all weatherization preparations for equipment critical to the reliable operation of each of the above-listed Generation Resources during the time period stated above are complete or will be completed, as required by the weatherization plan applicable to each Generation Resource. Any outstanding weatherization preparations are summarized in the attached document and include the name of the Generation Resource, a brief description of the remaining weatherization task(s) if any, and an associated target completion date for each task.

By signing below, I certify that I am an officer or authorized executive of each Resource Entity listed above, that I am authorized to execute and submit this declaration on behalf of each Resource Entity listed above, and that, to the best of my knowledge, the statements contained herein are true and correct.

Signature

Name

Title

Date

Declaration of Natural Gas Pipeline Coordination
(Use this section for only Generation Resources that rely on natural gas as their primary fuel source)

I hereby attest that the Resource Entity for the Generation Resource(s) that rely on natural gas as its primary fuel source has coordinated either directly or through the Resource Entity's Qualified Scheduling Entity (QSE), as required pursuant to ERCOT Protocols Section 3.21.1, Natural Gas Pipeline Coordination Requirements for Resource Entities with Natural Gas Generation Resources for Summer Preparedness and Summer Peak Load Season, with the operator of each natural gas pipeline that is directly connected to the Generation Resource regarding the summer Peak Load Season stated above. I further attest that all natural gas pipeline activities or conditions that have been disclosed by the natural gas pipeline operator of the directly connected natural gas pipeline and that are anticipated to cause a materially increased risk of unavailability have been disclosed in this declaration, as required pursuant to ERCOT Protocols Section 3.21.1. The Resource Entity does not warrant the accuracy or completeness of the information received from the natural gas pipeline operator.

By signing below, I certify that I am an officer or authorized executive of each Resource Entity listed above, that I am authorized to execute and submit this declaration on behalf of each Resource Entity listed above, and that, to the best of my knowledge, the statements contained herein are true and correct.

Signature

Name

Title

_____

Date

ERCOT Nodal Protocols

Section 22

Attachment O: Declaration of Completion of Generation Resource Winter Weatherization Preparations

May 1, 2020

Declaration of Completion of Generation Resource Winter Weatherization Preparations

Winter Peak Load Season: December 20____ through February 20_____

Resource Entity (or Entities): Resource Entity (or Entities)

This declaration applies to the following Generation Resources (list by Resource Site Code):
Generation Resource(s)

I hereby attest that all weatherization preparations for equipment critical to the reliable operation of each of the above-listed Generation Resources during the time period stated above are complete or will be completed, as required by the weatherization plan applicable to each Generation Resource. Any outstanding weatherization preparations are summarized in the attached document and include the name of the Generation Resource, a brief description of the remaining weatherization task(s) if any, and an associated target completion date for each task.

By signing below, I certify that I am an officer or authorized executive of each Resource Entity listed above, that I am authorized to execute and submit this declaration on behalf of each

~~Resource Entity listed above, and that, to the best of my knowledge, the statements contained herein are true and correct.~~

_____

~~Signature~~

_____

~~Name~~

_____

~~Title~~

_____

~~Date~~

ERCOT Impact Analysis Report

NPRR Number	1152	NPRR Title	Remove Requirements to Submit Emergency Operations Plans, Weatherization Plans, and Declarations of Summer/Winter Weather Preparedness
Impact Analysis Date		October 20, 2022	
Estimated Cost/Budgetary Impact		None.	
Estimated Time Requirements		No project required. This Nodal Protocol Revision Request (NPRR) can take effect following Public Utility Commission of Texas (PUCT) approval.	
ERCOT Staffing Impacts (across all areas)		Ongoing Requirements: No impacts to ERCOT staffing.	
ERCOT Computer System Impacts		No impacts to ERCOT computer systems.	
ERCOT Business Function Impacts		ERCOT will update its business processes to implement this NPRR.	
Grid Operations & Practices Impacts		No impacts to ERCOT grid operations and practices.	

Evaluation of Interim Solutions or Alternatives for a More Efficient Implementation
None offered.

Comments
None.

Board Report

NPRR Number	1154	NPRR Title	Include Alternate Resource in the Availability Plan for the Firm Fuel Supply Service
Date of Decision		December 20, 2022	
Action		Recommended Approval	
Timeline		Urgent - to ensure that alternate Resources will be considered in the Availability Plan for the next Firm Fuel Supply Service (FFSS) contract period.	
Proposed Effective Date		Upon system implementation	
Priority and Rank Assigned		Priority – 2023; Rank – 3770	
Nodal Protocol Sections Requiring Revision		3.14.5, Firm Fuel Supply Service 6.6.14.2, Firm Fuel Supply Service Hourly Standby Fee Payment and Fuel Replacement Cost Recovery 8.1.1.2.1.6, Firm Fuel Supply Service Resource Qualification, Testing, and Decertification	
Related Documents Requiring Revision/Related Revision Requests		None	
Revision Description		This Nodal Protocol Revision Request (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 Qualified Scheduling Entity (QSE) per FFSSR by hour.	
Reason for Revision		☐ Addresses current operational issues. ☐ Meets Strategic goals (tied to the ERCOT Strategic Plan or directed by the ERCOT Board). ☒ Market efficiencies or enhancements ☐ Administrative ☐ Regulatory requirements ☐ Other: (explain) *(please select all that apply)*	

Board Report

Business Case	This NPRR clarifies language to allow for the Availability Plan of a qualified alternate Resource to be considered in the event the FFSSR is unavailable. This treatment aligns with the Black Start Service and counts the availability across all Resources that have been designated by ERCOT to satisfy the obligation. Additionally, adding the Firm Fuel Supply Service Award Amount billing determinant will provide QSEs information necessary to validate the results.
PRS Decision	On 11/11/22, PRS voted unanimously to grant NPRR1154 Urgent status; to recommend approval of NPRR1154 as amended by the 11/9/22 LCRA comments; and to forward to TAC NPRR1154. All Market Segments participated in the vote.
Summary of PRS Discussion	On 11/11/22, the sponsor provided an overview of NPRR1154 and the 11/9/22 LCRA comments.
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 Independent Retail Electric Provider (IREP) (Reliant) Market Segment. All Market Segments participated in the vote.
Summary of TAC Discussion	On 12/5/22, TAC reviewed the ERCOT Opinion, ERCOT Market Impact Statement, Impact Analysis, and Independent Market Monitor (IMM) Opinion for NPRR1154.
ERCOT Board Decision	On 12/20/22, the ERCOT Board voted unanimously to recommend approval of NPRR1154 as recommended by TAC in the 12/5/22 TAC Report.

Opinions	
Credit Work Group Review	ERCOT Credit Staff and the Credit Work Group (Credit WG) have reviewed NPRR1154 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 NPRR1154.
ERCOT Opinion	ERCOT supports approval of NPRR1154.
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 FFSS provided.

Board Report

Sponsor	
Name	Emily Jolly
E-mail Address	Emily.Jolly@LCRA.org
Company	Lower Colorado River Authority (LCRA)
Phone Number	512-578-4011
Cell Number	214-641-4398
Market Segment	Cooperative

Market Rules Staff Contact	
Name	Cory Phillips
E-Mail Address	cory.phillips@ercot.com
Phone Number	512-248-6464

Comments Received	
Comment Author	**Comment Summary**
LCRA 110922	Modifed the request for Urgent status to acknowledge that NPRR1154 would not be in effect for the current FFSS contract period.

Proposed Protocol Language Revision

3.14.5 Firm Fuel Supply Service

(1) Each Generation Resource providing Firm Fuel Supply Service (FFSS) must meet technical requirements specified in Section 8.1.1, QSE Ancillary Service Performance Standards, and Section 8.1.1.1, Ancillary Service Qualification and Testing.

(2) ERCOT shall issue an RFP by August 1 of each year soliciting bids from QSEs for Generation Resources to provide FFSS. The RFP shall require bids to be submitted on or before September 1 of each year.

(3) QSEs may submit bids individually for one or more Generation Resources to provide FFSS using a bid submission form posted on the ERCOT website. A QSE may not submit a bid for a given Generation Resource unless it is the QSE designated by the Resource Entity associated with that Generation Resource. ERCOT must evaluate bids using criteria identified in an appendix to the RFP. ERCOT will issue FFSS awards for

each Generation Resource by September 30 and will post the awards to the MIS Certified Area for each QSE that is awarded an FFSS obligation. The posting will include information such as, but not limited to, the identity of the Resource, the FFSS Standby Fee awarded, the amount of reserved fuel associated with the FFSS award, and MW amount awarded, and the Generation Resource's initial minimum LSL when providing FFSS. The RFP awards shall cover a period beginning November 15 of the year in which the RFP is issued and ending on March 15 of the second calendar year after the year in which the RFP is issued. A QSE may submit a bid for one or more Generation Resources to provide FFSS beginning in the same year the RFP is issued or beginning in a subsequent year covered by the RFP. An FFSS Resource (FFSSR) shall be considered an FFSSR and is required to provide FFSS from November 15 through March 15 for each year of the awarded FFSS obligation period. ERCOT shall ensure FFSSRs are procured and deployed as necessary to maintain ERCOT System reliability during, or in preparation for, a natural gas curtailment or other fuel supply disruption.

(a) On the bid submission form, the QSE shall disclose information including, but not limited to, the amount of reserved fuel offered, the MW available from the capacity offered, and each limitation of the offered Resource that could affect the Resource's ability to provide FFSS.

(b) When a Resource is selected to provide FFSS, the Resource shall complete all applicable testing requirements as specified in Section 8.1.1.2.1.7, Firm Fuel Supply Service Resource Qualification, Testing, and Decertification. A QSE representing a FFSSR is allowed to provide the FFSS with an alternate Resource previously approved by ERCOT to replace the FFSSR.

(c) An offer to provide FFSS is an offer to supply an awarded amount of capacity, maintain an awarded amount of fuel, and to designate a specific number of emissions hours for which the awarded FFSSR is obligated to perform in the event that FFSS is deployed. Reserved fuel, emissions hours, and other attributes, in excess of the FFSS awards can be used at the discretion of the QSE as long as the awarded fuel reserves and emissions hours are maintained for the purposes of ERCOT deployment of FFSS.

(4) The QSE for an FFSSR shall ensure that the Resource is prepared and able to come On-Line or remain On-Line in order to maintain Resource availability in the event of a natural gas curtailment or other fuel supply disruption.

(a) When ERCOT issues a Watch for winter weather, ERCOT will notify all Market Participants, including all QSEs representing FFSSRs to begin preparation for potential FFSS deployment. Such preparation may include, but is not limited to, circulation of alternate fuel to its facilities, if applicable; heat fuel oil to appropriate temperatures, if applicable; call out additional personnel as necessary, and be ready to receive a Dispatch Instruction to provide FFSS. An FFSSR may begin consuming a minimum amount of alternate fuel to validate it is ready for an FFSS deployment.

(b) In anticipation of or in the event of a natural gas curtailment or other fuel supply disruption to an FFSSR, the QSE shall notify ERCOT as soon as practicable and may request approval to deploy FFSS to generate electricity. ERCOT shall evaluate system conditions and may approve the QSE's request. The QSE shall not deploy the FFSS unless approved by ERCOT. Upon approval to deploy FFSS, ERCOT shall issue an FFSS VDI to the QSE.

(c) In conjunction with a QSE notification under paragraph (b) above, the QSE shall also report to ERCOT any environmental limitations that would impair the ability of the FFSSR to provide FFSS for the required duration of the FFSS award.

(d) ERCOT may issue an FFSS VDI without a request from the QSE, however ERCOT shall not issue an FFSS VDI without evidence of an impending or actual fuel supply disruption affecting the FFSSR.

(e) If the FFSSR is generating at a level above the FFSS MW awarded amount and that level of output cannot be sustained for the required duration of the FFSS award, ERCOT may use a manual High Dispatch Limit (HDL) override to ensure the FFSSR can continue to generate at the FFSS MW award level for the entire FFSS award duration.

(f) The FFSSR shall continuously deploy FFSS to generate electricity until the earlier of (i) the exhaustion of the FFSS service duration as defined in the RFP, (ii) the fuel supply disruption no longer exists, or (iii) ERCOT determines the FFSS deployment is no longer needed. Upon satisfying one of these qualifications, ERCOT shall terminate the VDI and the FFSSR shall not be obligated to continue its FFSS deployment for the remainder of the Watch.

(g) A QSE shall notify ERCOT of the anticipated exhaustion of emissions credits or permit allowances at least six hours before the exhaustion of those credits or allowances. Upon receiving such notification, ERCOT shall modify the VDI so the FFSS deployment is terminated upon exhaustion of those credits or allowances.

(h) Upon deployment or recall of FFSS, ERCOT shall notify all Market Participants that such deployment or recall has been made, including the MW capacity of service deployed or recalled.

(5) During or following the deployment of FFSS, the QSE for an FFSSR may request an approval from ERCOT to restock their fuel reserve to restore their FFSS capability. Following approval from ERCOT, a QSE may restock their FFSS obligation. In the event ERCOT does not receive the request to restock from a QSE representing an FFSSR, ERCOT may instruct QSE to start restocking fuel reserve to restore its FFSS capability.

(6) FFSSRs providing BSS must reserve FFSS capability in addition to the contracted BSS obligation. Any remaining fuel reserve in addition to that required for meeting FFSS and BSS obligations can be used at the QSE's discretion.

(7) If ERCOT issues an FFSS VDI to an FFSSR for the same Operating Hour where a RUC instruction was issued, for Settlement, ERCOT will consider the RUC instruction as cancelled.

(8) ERCOT will provide a report to the TAC or its designated subcommittee within 45 days of any FFSS deployments, including the Resources deployed and the reason for the deployments.

(9) Any QSE that submits a bid or receives an award for a SWGR to provide FFSS, and the Resource Entity that owns or controls that SWGR, shall:

(a) Not nominate the SWGR to satisfy supply adequacy or capacity planning requirements in any Control Area other than the ERCOT Region during the period of the FFSS obligation; and

(b) Take any further action requested by ERCOT to ensure that ERCOT will be classified as the "Primary Party" for the SWGR under any agreement between ERCOT and another Control Area Operator during the period of the FFSS obligation.

(10) On an annual basis after the FFSS season, ERCOT will provide a report separately for the total amounts from Section 6.6.14.1, Firm Fuel Supply Service Fuel Replacement Costs Recovery, and Section 6.6.14.2, Firm Fuel Supply Service Hourly Standby Fee Payment and Fuel Replacement Cost Recovery, to the TAC or its designated subcommittee.

[NPRR1120: Insert Sections 6.6.14, 6.6.14.1, 6.6.14.2, and 6.6.14.3 below upon system implementation:]

6.6.14 Firm Fuel Supply Service Capability

6.6.14.1 Firm Fuel Supply Service Fuel Replacement Costs Recovery

(1) If ERCOT approves a Firm Fuel Supply Service Resource (FFSSR) to switch to consume the reserved fuel, ERCOT shall pay the QSE representing the FFSSR for the replacement of burned fuel, if the QSE has:

(a) Complied with the Firm Fuel Supply Service (FFSS) instruction to switch to the reserved fuel;

(b) Submitted a Settlement and billing dispute consistent with the dispute process described in Section 9.14, Settlement and Billing Dispute Process;

(c) Submitted the following within 90 days of the issuance of a Real-Time Market (RTM) Initial Statement for the Operating Day on which the FFSS instruction was issued:

(i) An attestation signed by an officer or executive with authority to bind the QSE stating that the information contained in the dispute is accurate;

(ii) For each deployment of FFSS, the quantity of total fuel consumed for the hours in each instance when FFSS was deployed;

(iii) For thermal units, the input-output equation or other documentation that allows for verification of fuel consumption for the hours when FFSS was deployed;

(iv) The dollar amount and quantity of fuel purchased to replace the consumed fuel;

(v) Sufficient documentation to support the QSE's determination of the amount and cost of replaced fuel; and

(vi) Any other technical documentation within the possession of the QSE or Resource Entity which ERCOT finds reasonably necessary to verify paragraphs (i) through (v) above. Any additional request from ERCOT for documentation or clarification of previously submitted documentation must be honored within 15 Business Days.

(2) The Firm Fuel Supply Service Fuel Replacement Cost shall only represent the replacement fuel costs not recovered during the FFSS deployment period through Day-Ahead energy sales and Real-Time energy imbalance settlement revenues related to the Resource with the FFSS award.

(3) ERCOT shall allocate any approved fuel replacement costs to the hours of the corresponding FFSS deployment period when the fuel was consumed following ERCOT's approval to switch to utilize the awarded FFSS.

6.6.14.2 Firm Fuel Supply Service Hourly Standby Fee Payment and Fuel Replacement Cost Recovery

(1) ERCOT shall pay an Hourly Standby Fee to a QSE representing an FFSSR. This standby fee is determined through a competitive bidding process, with an adjustment for reliability based on an Hourly Rolling Equivalent Availability Factor greater than or equal to 90% of the awarded FFSS capability as well as with adjustments for capacity and deployment.

(2) The Firm Fuel Supply Service Resource will be considered available when calculating the Firm Fuel Supply Service Hourly Rolling Equivalent Availability Factor during each non-FFSS deployment hour for which the FFSSR shows available in its Availability Plan, during any successful FFSS deployment, and during the period defined in the FFSS request for proposal (RFP) to restore FFSS capability following the instruction from ERCOT. In the event ERCOT does not issue an instruction or approval to restore FFSS capability, the FFSSR shall be considered to be available.

(3) The FFSS Hourly Standby Fee is subject to reduction and claw-back provisions as described in Section 8.1.1.2.1.7, Firm Fuel Supply Service Resource Qualification, Testing, and Decertification.

(4) ERCOT shall pay an FFSS payment to each QSE for each FFSSR. The FFSS payment for each hour of November 15, through March 15, during the FFSS obligation is calculated as follows:

FFSSAMT $_{q, r, h}$ = **(-1) * (FFSSSBF** $_{q, r, h}$ **+ FFSSFRC** $_{q, r, h}$**)**

Where:

FFSSSBF $_{q, r, h}$ = FFSSAWARD~~PR~~ $_{q, r, h}$ * FFSSCRF $_{q, r, h}$ * FFSSARF $_{q, r, h}$ * (1 - FFSSDRP $_{q, r, h}$)

FFSSAWARD $_{q, r, h}$ = FFSSPR $_{q, r, h}$ * FFSSACAP $_{q, r, h}$

And:

FFSS Capacity Reduction Factor

If (FFSSTCAP $_{q, r, h}$ ≥ FFSSACAP $_{q, r, h}$)

Then: FFSSCRF $_{q, r, h}$ = 1

Otherwise: FFSSCRF $_{q, r, h}$ = Max (0, 1 – 2 * (FFSSACAP $_{q, r, h}$ – FFSSTCAP $_{q, r, h}$) / FFSSACAP $_{q, r, h}$)

FFSS Availability Reduction Factor

If (FFSSHREAF $_{q, r, h}$ ≥ 0.90)

Then: FFSSARF $_{q, r, h}$ = 1

Otherwise: FFSSARF $_{q, r, h}$ = Max (0, 1 - (0.90 - FFSSHREAF $_{q, r, h}$) * 2)

FFSS Hourly Rolling Equivalent Availability Factor

~~If the FFSSR is a Combined Cycle Resource:~~

~~Then: FFSSHREAF $_{q, train}$ = [$\sum_{hr=h-1451}^{h}$ max $_{train, hr}$ (max(FFSEDFLAG $_{q, train, hr}$, FFSSAFLAG $_{q, ccgr, hr}$) * (min(HSL $_{q, ccgr, hr}$, FFSSACAP $_{q, train}$)))] / $\sum_{hr=h-1451}^{h}$(FFSSACAP $_{q, train}$)~~

~~Otherwise:~~

~~$FFSSHREAF_{q, r} = \sum_{hr=h-1451}^{h}(\max(FFSEDFLAG_{q, r, hr}, FFSSAFLAG_{q, r, hr}) * (\min(HSL_{q, r, hr}, FFSSACAP_{q, r}))) / \sum_{hr=h-1451}^{h}(FFSSACAP_{q, r})$~~

$$FFSSHREAF_{q, r, h} = \sum_{hr=h-1451}^{h}(\max(AVCAP_{q, r, hr})) / \sum_{hr=h-1451}^{h}(FFSSACAP_{q, r, hr})$$

Where,

If the Resource is a Combined Cycle Train:

$$AVCAP_{q, r, hr} = \max_{train,hr}(\max(FFSEDFLAG_{q, train, hr}, FFSSAFLAG_{q, ccgr, hr}) * \min(HSL_{q, ccgr, hr}, FFSSACAP_{q, train, hr}))$$

Otherwise:

$$AVCAP_{q, r, hr} = \max(FFSEDFLAG_{q, r, hr}, FFSSAFLAG_{q, r, hr}) * \min(HSL_{q, r, hr}, FFSSACAP_{q, r, hr})$$

Availability for a Combined Cycle Train will be determined pursuant to terms set forth in the RFP but no more than once per hour.

The above variables are defined as follows:

Variable	**Unit**	**Definition**
FFSSAMT $_{q, r, h}$	$	*Firm Fuel Supply Service Amount per QSE per Resource by hour*—The payment to QSE *q* for the FFSS provided by ~~Resource~~ FFSSR *r*, for the hour, calculated each hour of November 15 through March 15 during the awarded FFSS obligation period. Where for a Combined Cycle Train, the Resource *r* is the Combined Cycle Train.
$FFSSAWARD_{q, r, h}$	$	*Firm Fuel Supply Service Award Amount per QSE by hour*—The payment to the QSE *q* for the FFSS awarded to the FFSSR *r* for each hour *h*, during the awarded FFSS obligation period. Where for a Combined Cycle Train, the Resource *r* is the Combined Cycle Train.
$FFSSPR_{q, r, h}$	$/MW per hour	*Firm Fuel Supply Service Price per QSE per Resource by hour*—The standby price of FFSSR *r* represented by QSE *q*, as specified in the FFSS award. Where for a Combined Cycle Train, the Resource *r* is the Combined Cycle Train.
$FFSSCRF_{q, r, h}$	none	*Firm Fuel Supply Service Capacity Reduction Factor per QSE per Resource by hour*—The capacity reduction factor for the FFSSR *r*, represented by QSE *q*, for the hour. Where for a Combined Cycle Train, the Resource *r* is the Combined Cycle Train.
$HSL_{q, r, hr}$	MW	*High Sustained Limit*—The HSL of a Generation Resource *r* represented by QSE *q* as submitted in the COP, for the hour *h*. Where for a combined cycle Resource *r* is a Combined Cycle Generation Resource.

FFSSFRC $_{q, r, h}$	$ per hour	*Firm Fuel Supply Service Fuel Replacement Cost*—The fuel costs and fees to replace the burned fuel, not recovered during the FFSS deployment period, for FFSSR *r* represented by QSE *q* for each FFSS instructed hour. Where for a Combined Cycle Train, the Resource *r* is the Combined Cycle Train.
FFSSDRP $_{q, r, h}$	none	*Firm Fuel Supply Service Deployment Reduction Percentage*—The percentage of the Firm Fuel Supply Service Standby Fee subject to clawback per paragraphs (5) through (12) of Section 8.1.1.2.1.7, Firm Fuel Supply Service Resource Qualification, Testing, and Decertification, for the QSE *q*, for the ~~Resource~~ FFSSR *r*, for the hour *h*. Where for a Combined Cycle Train, the Resource *r* is the Combined Cycle Train.
FFSSSBF $_{q, r, h}$	$	*Firm Fuel Supply Service Standby Fee per QSE per Resource by hour*—The standby fee to QSE *q* for the FFSS provided by FFSSR *r*, for the hour. Where for a Combined Cycle Train, the Resource *r* is the Combined Cycle Train.
FFSSTCAP $_{q, r, h}$	MW	*Firm Fuel Supply Service Testing Capacity per QSE per Resource*—The tested capacity of FFSSR *r*, represented by QSE *q*, for the hour. Where for a Combined Cycle Train, the Resource *r* is the Combined Cycle Train.
FFSSACAP $_{q, r, hr}$	MW	*Firm Fuel Supply Service Awarded Capacity per QSE per Resource*—The awarded FFSS capacity of FFSSR *r*, represented by QSE *q* as specified in the FFSS award, applicable to each hour of November 15 through March 15 during the awarded FFSS obligation period. Where for a Combined Cycle Train, the Resource *r* is the Combined Cycle Train.
FFSSARF $_{q, r, h}$	none	*Firm Fuel Supply Service Availability Reduction Factor per QSE per Resource by hour*—The availability reduction factor of FFSSR *r* represented by QSE *q* for the hour. Where for a Combined Cycle Train, the Resource *r* is the Combined Cycle Train.
FFSSHREAF $_{q, r, h}$	none	*Firm Fuel Supply Service Hourly Rolling Equivalent Availability Factor per QSE per Resource by hour*—The equivalent availability factor of the FFSSR *r* represented by QSE *q* over 1,452 hours, for the hour. Where for a Combined Cycle Train, the Resource *r* is the Combined Cycle Train.
FFSSAFLAG $_{q, r, hr}$	none	*Firm Fuel Supply Service Availability Flag per QSE per Resource by hour*—The flag of the availability of ~~FFSSR~~ Resource *r* represented by QSE *q*, 1 for available and 0 for unavailable, for the hour. ~~The availability flag shall be determined based on FFSSR availability for the current operating hour and the previous 1,451 hours of November 15 through March 15 during the awarded FFSS obligation period.~~ Where for a Combined Cycle Train, the Resource *r* is a Combined Cycle Generation Resource within the Combined Cycle Train.
FFSEDFLAG $_{q, r, hr}$	none	*Firm Fuel Supply Event Deployment Flag per QSE per Resource by hour*—The flag of successful FFSS deployment of the ~~FFSSR~~ Resource *r* ~~including~~ for hours in the period defined in the RFP following the instruction from ERCOT to restore FFSS capability represented by QSE *q*, 1 for successful ~~available~~ and 0 for unsuccessful, ~~unavailable~~, for the hour. Where for a Combined Cycle Train, the Resource *r* is the Combined Cycle Train.

$AVCAP_{q, r, hr}$	MW	*Available Capacity per Resource by hour*—The available capacity of Resource *r* represented by QSE *q* as calculated for the hour. Where for a Combined Cycle Train, the Resource *r* is the Combined Cycle Train.
q	none	A QSE.
r	none	An FFSSR or an alternate Resource approved by ERCOT.
hr	none	The index of a given hour and the previous 1,451 hours counted only during each hour of November 15 through March 15 during the awarded FFSS obligation period, or during the period as defined in the FFSS RFP.
h	none	The Operating Hour.
train	none	A Combined Cycle Train or an alternate Combined Cycle Train approved by ERCOT.
ccgr	none	A Combined Cycle Generation Resource within the Combined Cycle Train.

(5) The total of the payments to each QSE for all FFSSRs represented by this QSE for a given hour is calculated as follows:

$$\mathbf{FFSSAMTQSETOT}_{q} = \sum_{r} \mathbf{FFSSAMT}_{q, r}$$

The above variables are defined as follows:

Variable	Unit	Definition
$\mathbf{FFSSAMTQSETOT}_{q}$	$	*Firm Fuel Supply Service Amount QSE Total per QSE*—The total of the payments to QSE *q* for FFSS provided by all the FFSS Resources represented by this QSE for the hour.
$FFSSAMT_{q, r}$	$	*Firm Fuel Supply Service Amount per QSE per Resource*—The payment to QSE *q* for the FFSS provided by Resource *r*, for the hour, calculated each hour of November 15 through March 15 during the awarded FFSS obligation period. Where for a Combined Cycle Train, the Resource *r* is the Combined Cycle Train.
q	none	A QSE.
r	none	An FFSSR.

6.6.14.3 Firm Fuel Supply Service Capacity Charge

(1) ERCOT shall allocate the total FFSS capacity and fuel replacement payment to the QSEs representing Loads based on an hourly LRS. The resulting charge to each QSE for a given hour is calculated as follows:

$$\mathbf{LAFFSSAMT}_{q} = \mathbf{(-1) * FFSSAMTTOT * HLRS}_{q}$$

Where:

$$FFSSAMTTOT = \sum_{q} FFSSAMTQSETOT_{q}$$

The above variables are defined as follows:

Variable	Unit	Definition
LAFFSSAMT $_q$	$	*Load-Allocated Firm Fuel Supply Service Amount per QSE*—The charge allocated to QSE *q* for the FFSS, for the hour.
FFSSAMTQSETOT $_q$	$	*Firm Fuel Supply Service Amount QSE Total per QSE*—The total of the payments to QSE *q* for FFSS provided by all the FFSSRs represented by this QSE for the hour.
FFSSAMTTOT	$	*Firm Fuel Supply Service Amount QSE Total ERCOT-Wide*—The total of the payments to all QSEs for FFSS for the hour.
HLRS $_q$	none	The hourly LRS calculated for QSE *q* for the hour. See Section 6.6.2.4, QSE Load Ratio Share for an Operating Hour.
q	none	A QSE.

8.1.1.2.1.6 Firm Fuel Supply Service Resource Qualification, Testing, and Decertification

(1) Generation Resources that meet the following requirements will be considered qualified to provide Firm Fuel Supply Service (FFSS) and may be selected in the bidding process for FFSS:

(a) Successfully demonstrates dual fuel capability, the ability to establish and burn an alternative onsite stored fuel, and has onsite fuel storage capability in an amount that satisfies the minimum FFSS capability requirements set forth in the FFSS request for proposal (RFP). This minimum alternative fuel storage capability must be demonstrated such that the Firm Fuel Supply Service Resource (FFSSR) has the capability to operate at the awarded MW value for a period defined in the FFSS RFP. A QSE demonstrates this capability by confirming the following in its bid submission form:

(i) The onsite fuel storage for the FFSSR is sufficient to satisfy the requirements established in the Protocols and the FFSS RFP;

(ii) The FFSSR is capable of being dispatched by SCED but does not have to be qualified for any specific Ancillary Service; and

(iii) The FFSSR is able to begin operation using onsite stored alternative fuel within the period defined in the RFP; or

(b) Has an onsite natural gas storage capability in an amount that satisfies the minimum FFSS capability requirements set forth in the FFSS RFP. This minimum alternative onsite storage capability must be demonstrated such that the FFSSR has the capability to operate at the awarded MW value for a period defined in the FFSS RFP. A QSE demonstrates this capability by confirming the following in its bid submission form:

(i) The onsite natural gas fuel storage for the FFSSR is sufficient to satisfy the requirements established in the Protocols and the FFSS RFP;