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| NPRR Number | [1231](https://www.ercot.com/mktrules/issues/NPRR1231) | NPRR Title | FFSS Program Communication Improvements and Additional Clarifications |
| Date of Decision | August 20, 2024 |
| Action | Recommended Approval |
| Timeline  | Normal |
| Estimated Impacts | Cost/Budgetary: Less than $5K (Operations & Maintenance (O&M))Project Duration: No project required |
| Proposed Effective Date | Upon system implementation |
| Priority and Rank Assigned | Not applicable |
| Nodal Protocol Sections Requiring Revision  | 3.14.5, Firm Fuel Supply Service6.6.14.2, Firm Fuel Supply Service Hourly Standby Fee Payment and Fuel Replacement Cost Recovery8.1.1.2.1.6, Firm Fuel Supply Service Resource Qualification, Testing, Decertification, and Recertification |
| Related Documents Requiring Revision/Related Revision Requests | None |
| Revision Description | This Nodal Protocol Revision Request (NPRR) provides additional clarifications and improvements to the Firm Fuel Supply Service (FFSS) process. The changes in the NPRR include: * Modifying the procedure for the fuel restocking process;
* Modifying the method by which the Qualified Scheduling Entity (QSE) notifies ERCOT of an approved alternate Generation Resource replacing a Firm Fuel Supply Resource (FFSSR) during the FFSS obligation period;
* Extending the deadline for the ERCOT required FFSS deployment report to TAC from 30 days to 45 days;
* Clarifying when a Resource is considered available for Settlement purposes;
* Removing duplicative language for the disqualification of an FFSSR due to the prior implementation of the decertification process; and
* Clarifies the decertification of an FFSSR can occur due to actions throughout the entire FFSS obligation period and an accumulation from prior periods.
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| Reason for Revision |  [Strategic Plan](https://www.ercot.com/files/docs/2023/08/25/ERCOT-Strategic-Plan-2024-2028.pdf) Objective 1 – Be an industry leader for grid reliability and resilience [Strategic Plan](https://www.ercot.com/files/docs/2023/08/25/ERCOT-Strategic-Plan-2024-2028.pdf) Objective 2 - Enhance the ERCOT region’s economic competitiveness with respect to trends in wholesale power rates and retail electricity prices to consumers [Strategic Plan](https://www.ercot.com/files/docs/2023/08/25/ERCOT-Strategic-Plan-2024-2028.pdf) Objective 3 - Advance ERCOT, Inc. as an independent leading industry expert and an employer of choice by fostering innovation, investing in our people, and emphasizing the importance of our mission General system and/or process improvement(s) Regulatory requirements ERCOT Board/PUCT Directive*(please select ONLY ONE – if more than one apply, please select the ONE that is most relevant)* |
| Justification of Reason for Revision and Market Impacts | During the 2023-2024 FFSS obligation period, a few processes and clarifications were identified as areas of needed improvement. The first includes modifications to two existing procedures. The first procedure modification is to be observed in the circumstance where the QSE has requested or ERCOT has instructed the QSE to restock their fuel reserve after an FFSS deployment. The communication regarding the request to restock and the approval from ERCOT will be handled via the email account FFSS@ercot.com. The second procedure modification proposed includes a change to the method by which the QSE communicates to ERCOT when the QSE is changing the FFSS Resource (FFSSR) designation among the primary and alternate Generation Resource(s). Currently, the QSE is required to call the ERCOT Control Room and notify an Operator of this change. ERCOT proposes the QSE send an email to FFSS@ercot.com and notify ERCOT of the change. Such email is required for all changes in the FFSSR, including reversion to the primary FFSSR. This will ensure that the Settlement for the primary FFSSR is based on the appropriate Resource’s Availability Plan. Both of these changes will provide additional transparency to ERCOT and will ensure that the FFSSR is settled appropriately when calculating the FFSS Hourly Rolling Equivalent Availability Factor.Next, ERCOT is required to produce a report to the Technical Advisory Committee (TAC), or its designated subcommittee, within 30 days following the end of the FFSS obligation period with details of the FFSS deployments. ERCOT is proposing extending this deadline to 45 days to allow additional time to gather the information needed for this report.Additionally, ERCOT revises the provisions regarding disqualification to provide FFSS that are no longer needed with the implementation of NPRR1167, Improvements to Firm Fuel Supply Service Based on Lessons Learned. The process for decertification of an FFSSR has now been in place for an obligation period, eliminating the needed for these stop gap provisions that mirrored the grounds for decertification. In addition, changes have been made to the decertification language to clarify that if an FFSSR fails to meet provisions (a) and (b) in paragraph (18) of Section 8.1.1.2.1.6 across any FFSS obligation period, or fails to meet provision (c) through the entire FFSS Obligation period, the FFSSR is subject to decertification. Finally, clarifications have been made to specify the events in which the FFSSR will be considered available for the purposes of calculating the FFSS Hourly Rolling Equivalent Availability Factor. These include the situations when the FFSSR has exhausted all of its fuel following an FFSS deployment and it was approved to restock, the FFSSR has exhausted all of its fuel but ERCOT has not approved a fuel restock, or if the FFSSR has exhausted all of its emissions hours allocated to the FFSSR per the FFSS Offer Submission Form. |
| PRS Decision | On 6/13/24, PRS voted unanimously to recommend approval of NPRR1231 as amended by the 6/12/24 ERCOT comments. All Market Segments participated in the vote.On 7/18/24, PRS voted unanimously to endorse and forward to TAC the 6/13/24 PRS Report and 5/7/24 Impact Analysis for NPRR1231. All Market Segments participated in the vote. |
| Summary of PRS Discussion | On 6/13/24, ERCOT staff provided an overview of NPRR1231, and participants reviewed the 6/6/24 Luminant comments, the 6/10/24 ERCOT comments, and the 6/12/24 ERCOT comments.On 7/18/24, participants reviewed the 5/7/24 Impact Analysis for NPRR1231. |
| TAC Decision | On 7/31/24, TAC voted unanimously to recommend approval of NPRR1231 as recommended by PRS in the 7/18/24 PRS Report. All Market Segments participated in the vote. |
| Summary of TAC Discussion | On 7/31/24, there was no additional discussion beyond TAC review of the items below. |
| TAC Review/Justification of Recommendation |  Revision Request ties to Reason for Revision as explained in Justification  Impact Analysis reviewed and impacts are justified as explained in Justification Opinions were reviewed and discussed Comments were reviewed and discussed (if applicable) Other: (explain) |
| ERCOT Board Decision | On 8/20/24, the ERCOT Board voted unanimously to recommend approval of NPRR1231 as recommended by TAC in the 7/31/24 TAC Report. |

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| **Opinions** |
| Credit Review | ERCOT Credit Staff and the Credit Finance Sub Group (CFSG) have reviewed NPRR1231 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 NPRR1231. |
| ERCOT Opinion | ERCOT supports approval of NPRR1231. |
| ERCOT Market Impact Statement | ERCOT Staff has reviewed NPRR1231 and believes the market impact for this NPRR implements effective improvements to the FFSS program which can be implemented before the 2024/2025 FFSS obligation period begins. |

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| Sponsor |
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| Market Segment | Not applicable |

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| **Comments Received** |
| Comment Author | **Comment Summary** |
| Luminant 060624 | Proposed redlines to introduce the concept of lending fuel from other Resources to FFSSR sites to speed up restocking after a deployment, modify the process to involve a notification to ERCOT rather than a request, and shorten the timeline for providing restocking estimates to ERCOT  |
| ERCOT 061024 | Responded to the 6/6/24 Luminant comments, expressing concerns with potential gaming resulting from QSEs shifting fuel between Resources within their portfolio |
| ERCOT 061224 | Provided additional redlines to clarify the timeline for providing ERCOT with restocking timeline estimates, and requested other improvement ideas raised by Luminant be addressed in a separate NPRR |

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| **Market Rules Notes** |

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

* NPRR1228, Continued One-Winter Procurements for Firm Fuel Supply Service (FFSS) (incorporated 8/1/24)
	+ Section 3.14.5

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

* NPRR1241, Firm Fuel Supply Service (FFSS) Availability and Hourly Standby Fee
	+ Section 8.1.1.2.1.6

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| Proposed Protocol Language Revision |

***3.14.5 Firm Fuel Supply Service***

(1) Each Generation Resource providing or offering to provide Firm Fuel Supply Service (FFSS), including the primary and any alternate Generation Resources identified in the FFSS Offer Submission Form, 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 offers from QSEs for Generation Resources to provide FFSS. The RFP shall require offers to be submitted on or before September 1of each year.

(3) QSEs may submit offers individually for one or more Generation Resources to provide FFSS using the FFSS Offer Submission Form posted on the ERCOT website. A QSE may not submit an offer for a given Generation Resource unless it is the QSE designated by the Resource Entity associated with that Generation Resource. ERCOT must evaluate offers using criteria identified in an appendix to the RFP. ERCOT will issue FFSS awards 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 primary Generation Resource and any alternate Generation Resource(s), the FFSS clearing price, the amount of reserved fuel associated with the FFSS award, the 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 year after the year in which the RFP is issued. A QSE may submit an offer for one or more Generation Resources to provide FFSS beginning in the same year the RFP is issued or as otherwise specified in 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 FFSS Offer Submission Form, the QSE shall disclose information including, but not limited to, the Generation Resource and any alternate Generation Resource(s), the amount of reserved fuel offered, the MW available from the capacity offered, an estimate of the time to restock fuel reserves, and each limitation of the offered Generation Resource that could affect the Generation Resource’s ability to provide FFSS.

(b) If the QSE offers a Generation Resource as meeting the qualification requirements in paragraph (1)(c) of Section 8.1.1.2.1.6, Firm Fuel Supply Service Resource Qualification, Testing, Decertification, and Recertification, the QSE must submit as part of its offer a certification for the offered Generation Resource. The certification must include:

(i) Certification that the Generation Entity for the Generation Resource (or an Affiliate) has a Firm Transportation Agreement, firm natural gas supply, and contracted or owned storage capacity meeting the qualification requirements in paragraph (1)(c) of Section 8.1.1.2.1.6;

(ii) The following information regarding the Firm Transportation Agreement:

(A) FFSS Qualifying Pipeline name;

(B) Term;

(C) Primary points of receipt and delivery;

(D) Maximum daily contract quantity (in MMBtu);

(E) Shipper of record; and

(F) Whether the Firm Transportation Agreement provides for ratable receipts and deliveries; and

(iii) The following information regarding the storage arrangements:

(A) Storage facility name;

(B) Term of the Firm Gas Storage Agreement (if applicable);

(C) Maximum storage quantity owned or contracted under the Firm Gas Storage Agreement (in MMBtu); and

(D) Maximum daily withdrawal quantity (in MMBtu).

(c) For a Generation Resource to be eligible to receive an FFSS award, the primary Generation Resource and any alternate Generation Resource(s) identified in the FFSS Offer Submission Form shall complete all applicable testing requirements as specified in Section 8.1.1.2.1.6. A QSE representing an FFSSR is allowed to provide the FFSS with an alternate Resource previously approved by ERCOT to replace the FFSSR.

(d) An offer to provide FFSS is an offer to supply an awarded amount of capacity, maintain a sufficient amount of reserved fuel to meet that award for the duration requirement specified in the RFP, and to designate a specific number of emissions hours that will be reserved for the awarded FFSSR in meeting its obligation to perform in the event that FFSS is deployed. Reserved fuel, emissions hours, and other attributes, in excess of what is needed to meet the FFSS obligation can be used at the discretion of the QSE as long as sufficient fuel reserves and emissions hours are maintained for the purposes of ERCOT deployment of FFSS.

(e) Within ten Business Days of issuing FFSS awards, ERCOT will post on the ERCOT website the identity of all Generation Resources that were offered as primary Generation Resources or alternate Generation Resources to provide FFSS for the most recent procurement period, including prices and quantities offered.

(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. ERCOT may issue separate VDIs for each Operating Day for each FFSSR that is deployed for FFSS.

(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 duration requirement specified in the RFP.

(f) The FFSSR shall continuously deploy FFSS to generate electricity until the earlier of (i) the exhaustion of the fuel reserved to generate at the FFSS MW award level for the duration requirement specified in the RFP, including any fuel that was restocked following approval or instruction from ERCOT, (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. In the event of (i), the FFSSR shall not be obligated to continue being available for FFSS deployment for the remainder of the Watch. In the event of (ii) or (iii), the FFSSR shall continue being available for FFSS deployment for the remainder of the Watch.

(g) The QSE for the FFSSR is responsible for communicating with the ERCOT control room the anticipated exhaustion of the reserved fuel at least six hours before that anticipated exhaustion and upon the exhaustion of that fuel.

(h) A QSE shall notify the ERCOT control room 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.

(i) 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) Following the deployment of FFSS, the QSE for an FFSSR may request approval from ERCOT via email to FFSS@ercot.com, or ERCOT may instruct the QSE to restock their fuel reserve to restore their ability to generate at the FFSS MW award level for the duration requirement specified in the RFP as follows:

(a) The QSE requests preliminary approval from ERCOT control room, or ERCOT provides preliminary instruction, to restock and provide ERCOT an initial estimated timeline to complete the refueling.

(b) After receiving preliminary approval or instruction from ERCOT, the QSE shall:

(i) Immediately provide a final estimate for completing the restocking of fuel; or

(ii) Within 24 hours, notify the ERCOT control room with an updated estimated timeline to complete the restocking of the fuel.

(c) Based on the most recent expected time needed to restock the fuel, the ERCOT control room may or may not provide final approval for restocking of the fuel.

(d) If ERCOT makes final approval to restock the fuel, the QSE representing the FFSSR shall inform the ERCOT control room immediately when restocking is complete.

(6) Following final approval from ERCOT, a QSE must restock their fuel reserve to restore their ability to generate at the FFSS MW award level for the specified duration requirement. In the event ERCOT does not receive the request to restock from a QSE representing an FFSSR, but the QSE no longer has sufficient reserved fuel to generate at the FFSS MW award level for the specified duration requirement, the QSE shall communicate to the ERCOT control room this reduced capability and ERCOT may instruct the QSE to restock the fuel reserve as described in paragraph (5) above.

(7) For a Resource to be considered as an alternate for providing FFSS, the following requirements must be met. The alternate Resource must:

(a) Be able to provide net real power sufficient to generate at the same FFSS MW award level as the primary Resource for the duration requirement specified in the RFP;

(b) Be a single Generation Resource, as registered with ERCOT; and

(c) Use the same source of fuel reserve for providing FFSS as the primary Resource.

(8) An FFSS Offer Submission Form may have up to three alternate Generation Resources per primary Resource offering to provide FFSS.

(9) For FFSSRs with approved alternate Generation Resources, if the FFSSR becomes unavailable, the QSE must:

(a) As soon as practicable, notify ERCOT via email to FFSS@ercot.com and inform ERCOT that the FFSSR will be replaced by one of the alternate Generation Resources, specify which alternate Generation Resource (if multiple alternate Generation Resources have been designated), and provide an estimate of how long the replacement will be in effect;

(b) Update the Availability Plans for these Generation Resources to reflect current operating conditions within 60 minutes after identifying the change in availability of the FFSSR; and

(c) Update the COPs for these Generation Resources within 60 minutes after identifying the change in availability of the FFSSR.

(10) For FFSSRs that were replaced by one of their approved alternate Generation Resources, when the primary Resource is once again the FFSSR, the QSE must notify ERCOT of the change via email to the email address provided in paragraph (9)(a) above as soon as practicable.

(11) An FFSSR providing BSS must have sufficient fuel reserved to generate at the FFSS MW award level for the duration requirement specified in the RFP in addition to any fuel required for the Generation Resource to meet 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.

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

(13) If FFSS is deployed, then ERCOT will provide a report to the TAC or its designated subcommittee within 45 days of the end of the FFSS obligation period. The report must include the Resources deployed and the reason for any deployments.

(14) Any QSE that submits an offer 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 CAO during the period of the FFSS obligation.

(15) 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.

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

(1) ERCOT shall pay the FFSS Hourly Standby Fee to the QSE representing the primary Generation Resource. This standby fee is determined through a competitive bidding process, with an adjustment for reliability based on an Hourly Rolling Equivalent Availability Factor, as well as adjustments for capacity and deployment.

(2) The FFSSR will be considered available when calculating the FFSS Hourly Rolling Equivalent Availability Factor:

(a) During each non-FFSS deployment hour for which the FFSSR shows available in its Availability Plan;

(b) During any successful FFSS deployment of the FFSSR in which the FFSSR shows available in its Availability Plan;

(c) If the reserved fuel was exhausted during an FFSS deployment, starting the hour after the FFSSR has consumed all the fuel reserved to provide FFSS, through the approved hours when reserved fuel for FFSS is being restocked following a final approval from ERCOT to do so, per paragraph (5) of Section 3.14.5, Firm Fuel Supply Service;

(d) In the event the FFSSR has consumed all the fuel reserved to provide FFSS and ERCOT does not issue an instruction or approval to restore FFSS capability, the FFSSR shall be considered to be available for the remainder of the FFSS obligation period in progress; or

(e) If the FFSSR was deployed to provide FFSS and, as a result, has exhausted its emission hours allocated for the FFSSR, as specified in the FFSS Offer Submission Form.

(3) The FFSS Hourly Standby Fee is subject to reduction and claw-back provisions as described in Section 8.1.1.2.1.6, Firm Fuel Supply Service Resource Qualification, Testing, Decertification, and Recertification.

(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, i.e., during the FFSS obligation period, is calculated as follows:

**FFSSAMT *q, r, h* = (-1) \* (FFSSSBF *q, r, h +* FFSSFRC *q, r, h*)**

Where:

FFSSSBF *q, r, h* = FFSSAWARD *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

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* assigned to the FFSS for the primary Generation 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. |
| 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 primary Generation Resource *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 the primary Generation Resource *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 assigned to the primary Generation Resource *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 the primary Generation Resource or the alternate 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 by the FFSSR, not recovered during the FFSS deployment period, paid to the primary Generation Resource *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 (9) through (16) of Section 8.1.1.2.1.6, Firm Fuel Supply Service Resource Qualification, Testing, Decertification, and Recertification,for the QSE *q*, assigned to the primary Generation Resource *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 assigned to the primary Generation Resource *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 the primary Generation Resource *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 the primary Generation Resource *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 assigned to the primary Generation Resource *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 assigned to the primary Generation Resource *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 assigned to the primary Generation Resource or the alternate Generation Resource *r* represented by QSE *q*, 1 for available and 0 for unavailable, for the hour. 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 assigned to the primary Generation Resource *r*, represented by QSE *q*,that is used to determine if the FFSSR is considered available*,* as described in paragraph (2)(c) through (2)(e) above, 1 for available and 0 for 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 assigned to the primary Generation 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 | A primary or alternate Generation Resource approved by ERCOT to provide FFSS. |
| *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. |
| *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:

**FFSSAMTQSETOT *q* = FFSSAMT *q, r***

The above variables are defined as follows:

| **Variable** | **Unit** | **Definition** |
| --- | --- | --- |
| 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 assigned to the primary Generation 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 | A primary or alternate Generation Resource approved by ERCOT to provide FFSS. |

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

(1) Generation Resources that meet the following requirements are eligible to provide Firm Fuel Supply Service (FFSS) and may be selected in the procurement process for FFSS. Both the primary Generation Resource and any alternate Generation Resources, as specified in the FFSS Offer Submission Form, must meet the following requirements prior to submitting an FFSS Offer Submission Form:

(a) Successfully demonstrates dual fuel capability, the ability to establish and burn an alternativeonsite stored fuel, and has onsite fuel storage capability in an amount that satisfies the minimum FFSS capability requirements, as described in paragraph (2) below;

(b) Has an onsite natural gas or fuel oil storage capability or off-site natural gas storage where the Resource Entity and/or QSE owns and controls the natural gas storage and pipeline to deliver the required amount of reserve natural gas to the Generation Resource from the storage facility in an amount that satisfies the minimum FFSS capability requirements, as defined in paragraph (2) below; or

(c) Meets the following requirements:

(i) The Generation Entity for the Generation Resource (or an Affiliate of such Generation Entity) either owns a storage facility with, or has a Firm Gas Storage Agreement for, sufficient natural gas storage capacity for the offered Generation Resource to deliver the offered MW for the duration requirement specified in the request for proposal (RFP);

(ii) The Generation Entity for the Generation Resource (or an Affiliate of such Generation Entity) must own and have good title to sufficient natural gas in the storage facility for the offered Generation Resource to deliver the offered MW for at least the duration requirement specified in the RFP, and must commit to maintain such quantity of natural gas in storage at all times during the obligation period; and

(iii) The Generation Entity for the Generation Resource (or an Affiliate of such Generation Entity) must have entered into a Firm Transportation Agreement on an FFSS Qualifying Pipeline, or multiple Firm Transportation Agreements on multiple Qualifying Pipelines, and:

(A) Each Firm Transportation Agreement must have a maximum daily contract quantity sufficient to transport the quantity of natural gas described above from the storage facility to the Generation Resource in a quantity that is sufficient to allow generation of the offered FFSS MW for at least the duration requirement specified in the RFP;

(B) At least one of the Firm Transportation Agreements must contain a primary receipt point that is the point of withdrawal for the storage facility used to comply with paragraph (i) above;

(C) At least one of the Firm Transportation Agreements must contain a primary delivery point that permits delivery of the natural gas directly to the Generation Resource (including through a plant line or other dedicated lateral);

(D) Each Firm Transportation Agreement must have a term that includes each hour of November 15 through March 15, i.e., during the FFSS obligation period; and

(E) If multiple Firm Transportation Agreements will be used, the point of delivery for each Firm Transportation Agreement, other than the Firm Transportation Agreement that satisfies the requirements set forth in paragraph (C) above, must be a primary receipt point under another Firm Transportation Agreement such that there is a complete path for firm transportation service from the storage facility to the Generation Facility.

(iv) If the Generation Entity will utilize a contractual right to firm gas storage capacity on a third-party system under a Firm Gas Storage Agreement to comply with paragraph (i) above rather than a self-owned physical gas storage facility to qualify, then the Firm Gas Storage Agreement must have:

(A) A term that includes each hour of November 15 through March 15, i.e., during the FFSS obligation period;

(B) A maximum storage quantity not less than the amount of natural gas needed to allow the Generation Resource to deliver the offered MW for the duration requirement specified in the RFP;

(C) A maximum daily withdrawal quantity that permits the Generation Entity (or an Affiliate) to withdraw from storage a daily quantity of natural gas sufficient to allow the Generation Resource to deliver the offered MW for the duration requirement specified in the RFP; and

(D) A point of withdrawal that is a primary receipt point under its Firm Transportation Agreement.

(v) If the Generation Entity will utilize storage owned by it or an Affiliate to comply with paragraph (i) above, then the Generation Entity must certify that for the entire obligation period it or its Affiliate, as applicable, retains the rights to:

(A) Sufficient storage capacity in its facility to store not less than the amount of natural gas needed to allow the Generation Resource to deliver the offered MW for the duration requirement specified in the RFP;

(B) Withdraw from its storage a daily quantity of natural gas sufficient to allow the Generation Resource to deliver the offered MW for the duration requirement specified in the RFP; and

(C) Withdraw from its storage facility at a point of withdrawal that is a primary receipt point under its Firm Transportation Agreement.

(vi) The MW offered by the QSE for the Generation Resource may not be less than the Generation Resource’s LSL.

(vii) The Generation Entity for the Generation Resource may satisfy the requirements set forth in paragraphs (i) through (v) above through use of a single, bundled agreement providing for gas supply, storage, and transportation service, as long as the bundled agreement satisfies the requirements of the definitions of Firm Transportation Agreement and Firm Gas Storage Agreement, the requirements in paragraphs (ii), (iii)(A), (iii)(D), (iv)(A), (iv)(B), and (iv)(C) above, and has a primary delivery point that permits delivery of the gas directly to the Generation Resource (including through a plant line or other dedicated lateral).

(d) A Generation Resource may participate as a Firm Fuel Supply Service Resource (FFSSR) under only one of paragraphs (a), (b), or (c) above.

(e) Successfully demonstrates the ability to provide FFSS in order to maintain Resource availability in the event of a natural gas curtailment or other fuel supply disruption consistent with qualifying technologies identified by the Public Utility Commission of Texas (PUCT).

(2) The minimum FFSS capability requirement is the volume of fuel necessary to operate the Generation Resource at the FFSS MW award level for the duration requirement specified in the RFP. This MW value must be greater than or equal to the Generation Resource’s LSL and is a limit on the MW quantity of FFSS that can be offered for the Generation Resource in the FFSS Offer Submission Form.

(3) A Generation Resource will not be considered qualified to provide FFSS if, in a prior obligation period, the Generation Resource was decertified per paragraph (18) below. However, such Generation Resource may nevertheless be considered qualified to provide FFSS if the Generation Resource:

(a) Has subsequently been recertified, as provided in paragraph (22) below; or

(b) The QSE representing the Generation Resource submits a corrective action plan to ERCOT and has agreement with ERCOT on that plan.

(4) A Generation Entity may, but is not required to, submit in writing a proposed form of Firm Gas Storage Agreement or Firm Transportation Agreement (whether to be entered into by the Generation Entity or an Affiliate thereof) to ERCOT for review to be certified as an FFSS Qualified Contract in accordance with such policies and procedures as ERCOT may develop or require from time to time consistent with the requirements of the ERCOT Protocols.

(a) ERCOT may, but is not obligated to, undertake a review of such agreement and, if acceptable, certify in writing such agreement as an FFSS Qualified Contract. The decision whether to certify such agreement as an FFSS Qualified Contract shall be in ERCOT’s sole discretion.

(b) To the extent that any such agreement is so certified by ERCOT, it shall constitute an FFSS Qualified Contract, and a Generation Entity may rely upon such certification for purposes of qualifying as an FFSSR under paragraph (1)(c) above. Any material change to the ERCOT certified form of an existing FFSS Qualified Contract that affects the requirements of a firm natural gas FFSSR shall require a re-certification by ERCOT. For the avoidance of doubt, a Firm Gas Storage Agreement or Firm Transportation Agreement meeting the requirements of the natural gas FFSSR is not required to be certified as an FFSS Qualified Contract.

(5) A QSE representing a Generation Resource that will be offered to provide FFSS as a primary Generation Resource or an alternate Generation Resource must annually demonstrate each offered Generation Resource’s capability to use reserved fuel sources identified in paragraphs (1)(a) through (1)(c) above and sustain its output for 60 minutes at the MW value equal to the QSE’s desired level of FFSS qualification for the Resource. The maximum MW of FFSS that can be offered for the designated Resource by the QSE must be limited to the average Real-Time net real power (in MW) telemetered for the Resource during the demonstration period. Each QSE representing an FFSSR or prospective FFSSR must annually complete the test or successfully deploy at the maximum awarded MW amount for at least the demonstration period and inform ERCOT by August 15 of each year. In order to complete this annual process, the QSE representing the Generation Resource(s) shall:

(a) If qualifying by a self-test, coordinate the test with the ERCOT control room and show the Resource as having a Resource Status of “ONTEST” in its COP and through its Real-Time telemetry for the duration of the demonstration; and

(b) Submit a Resource FFSS qualification form with the date and time of the self-test or the successful deployment that the QSE would like considered for qualification.

(6) A QSE representing an FFSSR must ensure the full awarded FFSS capability is available by November 15 of each year awarded in the RFP.

(7) A QSE representing an FFSSR shall update the Availability Plan for a Generation Resource to show it is unavailable to provide FFSS if it is not available to come On-Line or generate using reserved fuel. The QSE representing an FFSSR must submit an Availability Plan for any alternate Generation Resource that were designated in the FFSS Offer Submission Form. The QSE shall continue to show the Generation Resource is unavailable to provide FFSS in the Availability Plan until it can successfully come On-Line or generate using the reserved fuel.

(8) An FFSSR that is not available to come On-Line shall inform the ERCOT control room as soon as practicable and update the FFSSR Availability Plan within 60 minutes of identifying the unavailability.

(9) If the FFSSR is not available for the hours for which ERCOT has issued a Watch for winter weather, ERCOT shall claw back and/or withhold the FFSS Hourly Standby Fee for 90 days, unless the FFSSR exhausted the fuel reserved to generate at the FFSS MW award level for the duration requirement specified in the RFP, including any fuel that was restocked following final approval or instruction from ERCOT, or the FFSSR exhausted emission hours allocated for the FFSSR, as specified in the FFSS Offer Submission Form. Evidence of an FFSSR not being available includes, but is not limited to, an Availability Plan submission of unavailable or other communications to the ERCOT control room indicating the FFSSR is not available during the Watch.

(10) If the FFSSR fails to come On-Line or stay On-Line during an FFSS deployment due to a fuel-related issue, ERCOT shall claw back and/or withhold the FFSS Hourly Standby Feefor 90 days. A QSE representing an FFSSR may coordinate with ERCOT and seek approval to take the FFSSR Off-Line for no more than four hours to perform critical maintenance associated with consuming the reserved fuel. If the QSE coordinates with ERCOT and receives approval to take the FFSSR unit Off-Line and brings the FFSSR back On-Line within four hours or less, this shall not count as failure to stay On-Line for the purpose of this paragraph.

(11) If the FFSSR comes On-Line or continues generating using reserved fuel during an FFSS deployment, but fails to telemeter on average an HSL equal to or greater than 95% of the awarded FFSS MW value due to a fuel-related issue, ERCOT shall claw back and/or withhold the FFSS Hourly Standby Feefor 90 days, in proportion to the difference between the awarded MW value and the average telemetered HSL over the FFSS deployment period.

(12) If the FFSSR comes On-Line or continues generating using reserved fuel during an FFSS deployment but fails to generate on average at the minimum of either 95% of the MW level instructed by ERCOT or 95% of the awarded FFSS MW value due to a fuel-related issue, ERCOT shall claw back and/or withhold the FFSS Hourly Standby Fee for 90 days, in proportion to the difference between the average MW level instructed by ERCOT over the FFSS deployment period and the corresponding average generation of the FFSSR.

(13) If the FFSSR fails to come On-Line or stay On-Line during an FFSS deployment due to a non-fuel related issue, ERCOT shall claw back and/or withhold the FFSS Hourly Standby Feefor 15 days.

(14) If the FFSSR comes On-Line or continues generating using reserved fuel during an FFSS deployment but fails to telemeter on average an HSL equal to or greater than 95% of the awarded FFSS MW value due to a non-fuel related issue, ERCOT shall claw back and/or withhold the FFSS Hourly Standby Feefor 15 days, in proportion to the difference between the awarded MW value and the average telemetered HSL over the FFSS deployment period.

(15) If the FFSSR comes On-Line or continues generating using reserved fuel during an FFSS deployment but fails to generate on average at the minimum of either 95% of the MW level instructed by ERCOT or 95% of the awarded FFSS MW value due to a non-fuel related issue, ERCOT shall claw back and/or withhold the FFSS Hourly Standby Fee for 15 days, in proportion to the difference between the average MW level instructed by ERCOT over the FFSS deployment period and the corresponding average generation of the FFSSR.

(16) Notwithstanding paragraphs (9) through (15) above, if the FFSSR is otherwise available but fails to come On-Line or is forced Off-Line due to a transmission system outage or transmission system limitation that would prevent the unit from being deployed to LSL, ERCOT shall not claw back the FFSS Hourly Standby Fee.

(17) If conditions described in paragraphs (11) and (12) occur for the same deployment period, ERCOT shall only claw back the larger amount calculated in paragraph (11) or (12). If conditions described in paragraphs (14) and (15) occur for the same deployment period, ERCOT shall only claw back the larger amount calculated in paragraph (14) or (15).

(18) ERCOT shall decertify a primary Generation Resource or any alternate Generation Resource that was an FFSSR for any of the following:

(a) Failure to come On-Line or stay On-Line during an FFSS deployment due to a fuel-related issue for two or more deployments;

(b) If the FFSSR comes On-Line or continues generating using reserved fuel during an FFSS deployment, failure to generate on average at the minimum of either 95% of the MW level instructed by ERCOT or 95% of the awarded FFSS MW value due to a fuel-related issue for two or more deployments; or

(c) Failure to maintain an Hourly Rolling Equivalent Availability Factor greater than or equal to 50%.

(19) If ERCOT decertifies a primary Generation Resource, the QSE shall designate an alternate Generation Resource that was awarded through the FFSS procurement process to replace the decertified Generation Resource and continue to provide FFSS. The designated alternate Generation Resource shall satisfy all of the requirements in paragraph (9) of Section 3.14.5, Firm Fuel Supply Service. The designated alternate Generation Resource may no longer be an alternate for another primary Generation Resource.

(20) If ERCOT decertifies an FFSSR that does not have any alternate Generation Resources that were awarded through the FFSS procurement process, ERCOT will cease payments to the QSE under Section 6.6.14.2, Firm Fuel Supply Service Hourly Standby Fee Payment and Fuel Replacement Cost Recovery, until the FFSSR is recertified by ERCOT. ERCOT may issue one or more RFPs to replace the decertified FFSSR’s capacity for the remainder of the FFSS obligation period.

(21) If ERCOT has not replaced a decertified Generation Resource’s FFSSR capacity, the QSE of a decertified Generation Resource may request to reestablish its FFSSR certification by submitting a corrective action plan to ERCOT that identifies actions taken to correct performance deficiencies and by successfully passing a new test, as described in paragraph (5) above. ERCOT shall, in its sole discretion, determine whether a Generation Resource shall be recertified.

(22) A decertified Generation Resource that has not been recertified by ERCOT must submit a corrective action plan to ERCOT and have agreement with ERCOT on that plan in order to be considered qualified to provide FFSS and be selected in the procurement process for any future FFSS obligation period.

(23) If an FFSSR is unavailable or fails to continuously deploy due to a Force Majeure Event, the Generation Entity for such Generation Resource must provide a report to ERCOT containing certain additional information, including:

(a) If the basis of the non-performance is a Force Majeure Event affecting the FFSSR, a description of the Force Majeure Event giving rise to the non-performance, with reasonably full details of such Force Majeure Event;

(b) If the basis of the non-performance is the unavailability of the FFSSR’s FFSS Qualifying Pipeline or natural gas storage facility:

(i) A copy of the relevant Firm Transportation Agreement and/or Firm Gas Storage Agreement;

(ii) A copy of the nominations submitted or a detailed accounting of no notices volumes delivered for the gas day prior to the Force Majeure Event until the gas day after the Force Majeure Event;

(iii) The applicable storage inventory level for the gas day prior to the Force Majeure Event until the gas day after the Force Majeure Event;

(iv) A copy of the force majeure notice from the FFSS Qualifying Pipeline operator or storage provider; and

(v) The capacity and flow data from the FFSS Qualifying Pipeline or storage facility for the gas day prior to the Force Majeure Event until the gas day after the Force Majeure Event;

(c) To the best of its knowledge, how, why, and to what extent the Force Majeure Event actually and directly affected the FFSSR’s ability to perform;

(d) The FFSSR’s heat rate;

(e) The applicable nominations, and if applicable, no-notice delivered, on the FFSS Qualifying Pipeline from the gas day prior to the Force Majeure Event until the day after the Force Majeure Event; and

(f) ERCOT will have the right to request that the Generation Entity provide, or cause to be provided, any additional information ERCOT deems necessary, and the Generation Entity must provide such requested information to the extent reasonably within its possession or control. If the information is not in the possession of the Generation Entity (or its Affiliate) but may be in the possession of the FFSS Qualifying Pipeline operator or storage provider, the Generation Entity will exercise any contractual rights it has to request such information from the FFSS Qualifying Pipeline operator or storage provider, as applicable.

(24) Unless the agreement is a certified contract, if the relevant Firm Transportation Agreement and/or Firm Gas Storage Agreement does not ensure firmness in the manner required by the ERCOT Protocols, ERCOT shall revoke the award and claw back and/or withhold all of the FFSS Hourly Standby Fees for all of the days of the obligation period.

(25) For an FFSSR, a Force Majeure Event will be treated the same as any other cause for unavailability for the purposes of calculating the FFSSR’s FFSS Hourly Rolling Equivalent Availability Factor and for paragraphs (9) through (15) above.

(26) It will constitute a material change under the ERCOT Protocols if a primary Generation Resource or any alternate Generation Resource that qualified to provide FFSS under paragraph (1)(c) above ceases to satisfy any of the requirements to qualify as an FFSSR under paragraph (1)(c) above (for example, but not limited to, if the Firm Transportation Agreement is terminated or if the FFSS Qualifying Pipeline no longer qualifies as an FFSS Qualifying Pipeline).

(a) The QSE of such Generation Resource will be required to notify ERCOT within two Business Days of such a material change.

(b) ERCOT may decertify a primary Generation Resource or alternate Generation Resource if such material change is, in ERCOT’s sole opinion, an adverse change (for example, but not limited to, if a Firm Transportation Agreement is terminated and not replaced with a comparable, qualifying Firm Transportation Agreement).