|  |  |  |  |
| --- | --- | --- | --- |
| NPRR Number | [1120](https://www.ercot.com/mktrules/issues/NPRR1120) | NPRR Title | Create Firm Fuel Supply Service |
|  |  |
| Date | February 21, 2022 |
|  |  |
| Submitter’s Information |
| Name | Clif Lange  |
| E-mail Address | clif@stec.org |
| Company | South Texas Electric Coop., Inc. (STEC) |
| Phone Number | 361-485-6206 |
| Cell Number | 361-894-3465 |
| Market Segment | Cooperative |

|  |
| --- |
| Comments |

STEC files these comments to Nodal Protocol Revision Request (NPRR) 1120 to address a narrow issue in paragraph (6) of Section 8.1.1.2.1.7, Firm Fuel Supply Service Resource Qualification, Testing, and Decertification, to allow for coordinated shutdowns of a Firm Fuel Supply Service Resource (FFSSR) to allow for brief fuel-related maintenance that will help to ensure that the FFSSR is reliable and available at a later time when it is needed more urgently. Under this proposal, a FFSSR that coordinates those shutdowns with ERCOT will not be subject to the clawback if the unit can return to an On-Line state within four hours of coming Off-Line. Examples that may necessitate such a shutdown include fuel filter changeouts or leak repairs.

|  |
| --- |
| Revised Cover Page Language |

None

|  |
| --- |
| Revised Proposed Protocol Language |

**1.3.1.2 Items Not Considered Protected Information**

(1) Notwithstanding the definition of “Protected Information” in Section 1.3.1.1, Items Considered Protected Information, the following items are not Protected Information even if so designated:

(a) Data comprising Load flow cases, which may include estimated peak and off-peak Demand of any Load;

(b) Existence of Power System Stabilizers (PSSs) at each interconnected Generation Resource and PSS status (in service or out of service);

(c) Reliability Must-Run (RMR) Agreements;

(d) Studies, reports and data used in ERCOT’s assessment of whether an RMR Unit satisfies ERCOT’s criteria for operational necessity to support ERCOT System reliability but only if they have been redacted to exclude Protected Information under Section 1.3.1.1;

(e) Status of RMR Units;

(f) Black Start Agreements;

(g) Firm Fuel Supply Service (FFSS) awards;

(h) RMR Settlement charges and payments;

|  |
| --- |
| ***[NPRR885: Insert items (i) and (j) below upon system implementation and renumber accordingly:]***(i) Must-Run Alternative (MRA) Agreements;(j) Settlement charges and payments for MRA Service; |

(i) Within two Business Days of a request from a potential generating Facility for a full resource interconnection study, the county in which the Facility is located, Facility fuel type(s), Facility nameplate capacity, and anticipated Commercial Operations Date(s) and signed generation interconnection agreements; and

(j) Any other information specifically designated in these Protocols or in the PUCT Substantive Rules as information to be posted to the ERCOT website or Market Information System (MIS) Secure Area that is not specified as information that is subject to the requirements of Section 1.3, Confidentiality.

(2) Protected Information that Receiving Party is permitted or required to disclose or use under the Protocols or under an agreement between Receiving Party and a Disclosing Party does not cease to be regarded as Protected Information in all other circumstances not encompassed by these Protocols or such agreement by virtue of the permitted or required disclosure or use under these Protocols or such agreement.

## 2.1 DEFINITIONS

**Availability Plan**

An hourly representation of availability of Reliability Must-Run (RMR) Units or an hourly representation of the capability of Black Start Resources as submitted to ERCOT by 0600 in the Day-Ahead by Qualified Scheduling Entities (QSEs) representing RMR Units or Black Start Resources. An hourly representation of availability of Firm Fuel Supply Service Resources (FFSSRs) as submitted to ERCOT 14 days prior to Operating Day by QSEs representing FFSSRs.

|  |
| --- |
| ***[NPRR885: Replace the above definition “Availability Plan” with the following upon system implementation:]*****Availability Plan**An hourly representation of availability of Reliability Must-Run (RMR) Units, Must-Run Alternatives (MRAs), or an hourly representation of the capability of Black Start Resources as submitted to ERCOT by 0600 in the Day-Ahead by Qualified Scheduling Entities (QSEs) representing RMR Units, MRAs, or Black Start Resources. An hourly representation of availability of Firm Fuel Supply Service Resources (FFSSRs) as submitted to ERCOT 14 days prior to Operating Day by QSEs representing FFSSRs. |

**Firm Fuel Supply Service (FFSS)**

A service provided by certain Generation Resources in order to maintain Resource availability in the event of a natural gas curtailment or other fuel supply disruption.

**Firm Fuel Supply Service Resource (FFSSR)**

A Generation Resource that has an obligation to provide Firm Fuel Supply Service (FFSS).

## 2.2 ACRONYMS AND ABBREVIATIONS

FFSS Firm Fuel Supply Service

FFSSR Firm Fuel Supply Service Resource

***3.1.1 Role of ERCOT***

(1) ERCOT shall coordinate and use reasonable efforts, consistent with Good Utility Practice, to accept, approve or reject all Outage schedules for maintenance, repair, and construction of both Transmission Facilities and Resources within the ERCOT System. ERCOT may reject an Outage schedule under certain circumstances, as set forth in these Protocols.

(2) ERCOT’s responsibilities with respect to Outage Coordination include:

(a) Approving or rejecting requests for Planned Outages and Maintenance Outages of Transmission Facilities for Transmission Service Providers (TSPs) in coordination with and based on information regarding all Entities’ Planned Outages and Maintenance Outages;

|  |
| --- |
| ***[NPRR857: Replace paragraph (a) above with the following upon system implementation:]***(a) Approving or rejecting requests for Planned Outages and Maintenance Outages of Transmission Facilities for Transmission Service Providers (TSPs) and Direct Current Tie Operators (DCTOs) in coordination with and based on information regarding all Entities’ Planned Outages and Maintenance Outages; |

(b) Assessing the adequacy of available Resources, based on planned and known Resource Outages, relative to forecasts of Load, Ancillary Service requirements, and reserve requirements;

(c) Coordinating and approving or rejecting schedules for Planned Outages of Resources scheduled to occur within 45 days after request;

(d) Coordinating and approving or rejecting schedules for Planned Outages of Reliability Must-Run (RMR) Units under the terms of the applicable RMR Agreements;

(e) Coordinating and approving or rejecting Outages associated with Black Start Resources under the applicable Black Start Unit Agreements;

(f) Coordinating and approving or rejecting Outages affecting Subsynchronous Resonance (SSR) vulnerable Generation Resources that do not have SSR Mitigation in the event of five or six concurrent transmission Outages;

(g) Reviewing and coordinating changes to existing 12-month Resource Outage plans to determine how changes will affect ERCOT System reliability, including Resource Outages not previously included in the Outage plan;

(h) Monitoring how Planned Outage schedules compare with actual Outages;

(i) Posting all proposed and approved schedules for Planned Outages, Maintenance Outages, and Rescheduled Outages of Transmission Facilities on the Market Information System (MIS) Secure Area under Section 3.1.5.13, Transmission Report;

(j) Creating aggregated schedules of Planned Outages for Resources and posting those schedules on the MIS Secure Area under Section 3.2.3, Short-Term System Adequacy Reports;

(k) Monitoring Transmission Facilities and Resource Forced Outages and Maintenance Outages of immediate nature and implementing responses to those Outages as provided in these Protocols;

(l) Establishing and implementing communication procedures:

(i) For a TSP to request approval of Transmission Facilities Planned Outage and Maintenance Outage schedules; and

|  |
| --- |
| ***[NPRR857: Replace item (i) above with the following upon system implementation:]***(i) For a TSP or a DCTO to request approval of Transmission Facilities Planned Outage and Maintenance Outage schedules; and |

(ii) For a Resource Entity’s designated Single Point of Contact to submit Outage plans and to coordinate Resource Outages;

(m) Establishing and implementing record-keeping procedures for retaining all requested Planned Outages, Maintenance Outages, Rescheduled Outages, and Forced Outages; and

(n) Planning and analyzing Transmission Facilities Outages.

**3.1.4.3 Reporting for Planned Outages, Maintenance Outages, and Rescheduled Outages of Resource and Transmission Facilities**

(1) Each Resource Entity and TSP shall submit information regarding proposed Planned Outages, Maintenance Outages, and Rescheduled Outages of Transmission Facilities or Planned Outages and Maintenance Outages of Generation Resources under procedures adopted by ERCOT. The obligation to submit that information applies to each Resource Entity that is responsible to operate or maintain a Generation Resource that is part of or that affects the ERCOT System. The obligation to submit that information applies to each TSP or Resource Entity that is responsible to operate or maintain Transmission Facilities that are part of or affect the ERCOT System. A Resource Entity or TSP is also obligated to submit information for Transmission Facilities or Generation Resources that are not part of the ERCOT System or that do not affect the ERCOT System if that information is required for regional security coordination as determined by ERCOT.

|  |
| --- |
| ***[NPRR857 and NPRR1014: Replace applicable portions of paragraph (1) above with the following upon system implementation:]***(1) Each Resource Entity, TSP, and DCTO shall submit information regarding proposed Planned Outages, Maintenance Outages, and Rescheduled Outages of Transmission Facilities or Planned Outages and Maintenance Outages of Generation Resources or Energy Storage Resources (ESRs) under procedures adopted by ERCOT. The obligation to submit that information applies to each Resource Entity that is responsible to operate or maintain a Generation Resource or ESR that is part of or that affects the ERCOT System. The obligation to submit that information applies to each TSP, DCTO, or Resource Entity that is responsible to operate or maintain Transmission Facilities that are part of or affect the ERCOT System. A Resource Entity, TSP, or DCTO is also obligated to submit information for Transmission Facilities or Generation Resources or ESRs that are not part of the ERCOT System or that do not affect the ERCOT System if that information is required for regional security coordination as determined by ERCOT. |

(2) Before taking an RMR or Black Start Resource (“Reliability Resources”) out of service for a Planned Outage or Maintenance Outage, the Single Point of Contact for that Reliability Resource must obtain ERCOT’s approval of the schedule of the Planned Outage or Maintenance Outage. ERCOT shall review and approve or reject each proposed Planned Outage or Maintenance Outage Schedule under this Section and the applicable Agreements.

(3) An FFSSR shall not schedule or request a Planned Outage that would occur during the period of December 1 through March 1.

**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 Resource (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.

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 a request for proposals (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 1of 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 Low Sustained Limit (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.

(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 Verbal Dispatch Instruction (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 able to generate at a level in which the FFSS MW awarded amount 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 starting restocking fuel reserve to restore its FFSS capability.

(6) FFSSRs providing Black Start Service (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 Technical Advisory Committee (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 Switchable Generation Resource (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.

**4.3 QSE Activities and Responsibilities in the Day-Ahead**

(1) During the Day-Ahead, a Qualified Scheduling Entity (QSE):

(a) Must submit its Current Operating Plan (COP) and update its COP as required in Section 3.9, Current Operating Plan (COP); and

(b) May submit Three-Part Supply Offers, Day-Ahead Market (DAM) Energy-Only Offers, DAM Energy Bids, Energy Trades, Self-Schedules, Capacity Trades, Direct Current Tie (DC Tie) Schedules, Ancillary Service Offers, Ancillary Service Trades, Self-Arranged Ancillary Service Quantities, and Point-to-Point (PTP) Obligation bids as specified in this Section.

|  |
| --- |
| ***[NPRR1008 and NPRR1014: Replace applicable portions of paragraph (b) above with the following upon system implementation of the Real-Time Co-Optimization (RTC) project for NPRR1008; or upon system implementation for NPRR1014:]***(b) May submit Three-Part Supply Offers, Day-Ahead Market (DAM) Energy-Only Offers, DAM Energy Bids, Energy Bid/Offer Curves, Energy Trades, Self-Schedules, Capacity Trades, Direct Current Tie (DC Tie) Schedules, Resource-Specific Ancillary Service Offers, DAM Ancillary Service Only Offers, Ancillary Service Trades, Self-Arranged Ancillary Service Quantities, and Point-to-Point (PTP) Obligation bids as specified in this Section. |

(2) By 0600 in the Day-Ahead, each QSE representing Reliability Must-Run (RMR) Units, Firm Fuel Supply Service (FFSS) Resources (FFSSR), or Black Start Resources shall submit its Availability Plan to ERCOT indicating availability of RMR Units, FFSSR, and Black Start Resources for the Operating Day and any other information that ERCOT may need to evaluate use of the units.

6.6.13 Firm Fuel Supply Service Capability

6.6.13.1 Firm Fuel Supply Service Fuel Replacement Costs Recovery

(1) If ERCOT approves an 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 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 burned 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 the quantity and cost of fuel consumption for the hours when FFSS was deployed. 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 and Real-Time settlement revenues.

(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.

6.6.13.2 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 a Firm Fuel Supply Service Resource (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.

(2) The Firm Fuel Supply Service Resource will be considered available when calculating the Firm Fuel Supply Service Hourly Rolling Equivalent Availability Factor 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* = (-1) \*(FFSSSBF *q, r +* FFSSFRC *q, r*)

Where:

FFSSSBF *q, r* = FFSSPR *q, r* \* FFSSCRF *q, r* \* FFSSARF *q, r*\* (1 - FFSSDRP)

And:

FFSS Capacity Reduction Factor

If (FFSSTCAP *q, r* ≥ FFSSACAP *q, r*)

Then: FFSSCRF *q, r* = 1

Otherwise: FFSSCRF *q, r* = Max (0, 1 – 2 \* (FFSSACAP *q, r* – FFSSTCAP *q, r*) **/**

FFSSACAP *q, r*)

FFSS Availability Reduction Factor

If (FFSSHREAF *q, r* ≥ 0.90)

Then: FFSSARF *q, r* = 1

Otherwise: FFSSARF *q, r* = Max (0, 1 - (0.90 - FFSSHREAF *q, r*) \* 2)

FFSS Hourly Rolling Equivalent Availability Factor

If the FFSSR is a Combined Cycle Resource:

Then: FFSSHREAF *q, train* = [max *train,hr* (max(FFSEDFLAG *q, train, hr*,

FFSSAFLAG *q, ccgr, hr*)\* (min(HSL *q, ccgr, hr*, FFSSACAP*q,*

*train* )))] / FFSSACAP *q, train*)

Otherwise:

FFSSHREAF *q, r* = max(FFSEDFLAG *q, r, hr*, FFSSAFLAG *q,r,hr*)\* (min(HSL *q, r, hr*, FFSSACAP*q, r*))) / FFSSACAP *q, r*)

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* | $ | *Firm Fuel Supply Service Amount per QSE per Resource by hour*—The payment to QSE *q* for the Firm Fuel Supply Service (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. |
| FFSSPR *q, r* | $ per hour | *Firm Fuel Supply Service Price per QSE per Resource*—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* | 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, hi* | 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* | $ 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 (9) of Section 8.1.1.2.1.7, Firm Fuel Supply Service Resource Qualification, Testing, and Decertification,for the QSE *q*, for the Resource *r*, for the hour *h*. Where for a Combined Cycle Train, the Resource *r* is the Combined Cycle Train. |
| FFSSSBF *q, r* | $ | *Firm Fuel Supply Service Standby Fee per QSE per Resource by hour*—The standby fee to QSE *q* for the Firm Fuel Supply Service (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* | 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* | 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* | 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* | 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 *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 *r* including hours in the period defined in the RFP following the instruction from ERCOT to restore FFSS capability represented by QSE *q*, 1 for available and 0 for unavailable, for the hour. Where for a Combined Cycle Train, the Resource *r* is the Combined Cycle Train. |
| *q* | none | A QSE |
| *r* | none | A FFSSR |
| *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  |
| *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 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 | A FFSSR. |

6.6.13.3 Firm Fuel Supply Service Capacity Charge

(1) ERCOT shall allocate the total Firm Fuel Supply Service (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:

LAFFSSAMT *q* = (-1) \* FFSSAMTTOT \* HLRS *q*

Where:

FFSSAMTTOT = 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. |

8.1.1.2.1.7 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 alternativeonsite stored fuel, and has onsite fuel storage capability in an amount that satisfies the minimum FFSS capability requirements set forth in the FFSS RFP. This minimum alternative fuel 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 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 Security-Constrained Economic Dispatch (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;

(ii) The FFSSR is capable of being dispatched by Security-Constrained Economic Dispatch (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 natural gas fuel within the period defined in the RFP; or

(c) 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) A QSE representing an FFSSR must annually demonstrate the FFSSR’s capability to use an onsite stored alternative fuel or reserved fuel sources identified in paragraphs (1)(b) and (1)(c) above and sustain its output for 60 minutes at the maximum awarded MW amount. Each QSE representing an FFSSR must annually complete the test or successfully deploy at the maximum awarded MW amount for at least 60 minutes and inform ERCOT by November 1 of each year. The QSE representing the FFSSR shall show the Resource as “ONTEST” in its COP and through its Real-Time telemetry for the duration of the demonstration.

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

(4) A QSE representing an FFSSR shall update its Availability Plan for an FFSSR to show the FFSSR is unavailable if the FFSSR is not available to come On-Line or generate using reserved fuel . The FFSSR shall continue to be shown as unavailable until it can successfully come On-Line using reserved fuel or completes a successful test as described in paragraph (2) above.

(5) If the FFSSR does not reflect that it is available, through its Availability Plan, for the hours for which ERCOT has issued a Watch for winter weather , ERCOT shall claw back or withhold the Firm Fuel Supply Service Standby Fee for 90 days, starting with the first day after the day on which the FFSS deployment period ended, unless the FFSSR successfully deployed for its entire FFSS award obligation and exhausted emission hours allocated in the RFP for the FFSSR.

(6) 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 or withhold the Firm Fuel Supply Service Standby Feefor 90 days, starting with the first day after the day on which the FFSS deployment period ended. 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.

(7) 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 or withhold the Firm Fuel Supply Service Standby Feefor 90 days, starting with the first day after the day on which the FFSS deployment period ended, in proportion to the difference between the awarded MW value and the average telemetered HSL over the FFSS deployment period.

(8) 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 or withhold the Firm Fuel Supply Service Standby Fee for 90 days, starting with the first day after the day on which the FFSS deployment period ended, 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.

(9) 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 or withhold the Firm Fuel Supply Service Standby Feefor 15 days, starting with the first day after the day on which the FFSS deployment period ended.

(10) 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 or withhold the Firm Fuel Supply Service Standby Feefor 15 days, starting with the first day after the day on which the FFSS deployment period ended, in proportion to the difference between the awarded MW value and the average telemetered HSL over the FFSS deployment period.

(11) 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 or withhold the Firm Fuel Supply Service Standby Fee for 15 days, starting with the first day after the day on which the FFSS deployment period ended, 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.

(12) Notwithstanding paragraphs (5) through (11) 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 hourly Firm Fuel Supply Service Standby Fee. If conditions described in paragraphs (7) and (8) occur for the same deployment period, ERCOT shall only claw back the larger amount calculated in (7) or (8). If conditions described in paragraphs (10) and (11) occur for the same deployment period, ERCOT shall only claw back the larger amount calculated in (10) or (11).

***9.5.3 Real-Time Market Settlement Charge Types***

(1) ERCOT shall provide, on each RTM Settlement Statement, the dollar amount for each RTM Settlement charge and payment. The RTM Settlement “Charge Types” are:

(a) Section 5.7.1, RUC Make-Whole Payment;

(b) Section 5.7.2, RUC Clawback Charge;

(c) Section 5.7.3, Payment When ERCOT Decommits a QSE-Committed Resource;

(d) Section 5.7.4.1, RUC Capacity-Short Charge;

(e) Section 5.7.4.2, RUC Make-Whole Uplift Charge;

(f) Section [5.7.5, RUC Clawback Payment](#_Toc109528011);

(g) Section [5.7.6, RUC Decommitment Charge](#_Toc109528014);

(h) Section 6.6.3.1, Real-Time Energy Imbalance Payment or Charge at a Resource Node;

(i) Section 6.6.3.2, Real-Time Energy Imbalance Payment or Charge at a Load Zone;

(j) Section 6.6.3.3, Real-Time Energy Imbalance Payment or Charge at a Hub;

(k) Section 6.6.3.4, Real-Time Energy Payment for DC Tie Import;

(l) Section 6.6.3.5, Real-Time Payment for a Block Load Transfer Point;

(m) Section 6.6.3.6, Real-Time Energy Charge for DC Tie Export Represented by the QSE Under the Oklaunion Exemption;

(n) Section 6.6.3.7, Real-Time High Dispatch Limit Override Energy Payment;

(o) Section 6.6.3.8, Real-Time High Dispatch Limit Override Energy Charge;

(p) Section 6.6.3.9, Real-Time Payment or Charge for Energy from a Settlement Only Distribution Generator (SODG) or a Settlement Only Transmission Generator (SOTG);

(q) Section 6.6.4, Real-Time Congestion Payment or Charge for Self-Schedules;

(r) Section 6.6.5.1.1.1, Base Point Deviation Charge for Over Generation;

(s) Section 6.6.5.1.1.2, Base Point Deviation Charge for Under Generation;

(t) Section 6.6.5.2, IRR Generation Resource Base Point Deviation Charge;

(u) Section 6.6.5.4, Base Point Deviation Payment;

(v) Section 6.6.6.1, RMR Standby Payment;

(w) Section 6.6.6.2, RMR Payment for Energy;

(x) Section 6.6.6.3, RMR Adjustment Charge;

(y) Section 6.6.6.4, RMR Charge for Unexcused Misconduct;

(z) Section 6.6.6.5, RMR Service Charge;

(aa) Section 6.6.6.6, Method for Reconciling RMR Actual Eligible Costs, RMR and MRA Contributed Capital Expenditures, and Miscellaneous RMR Incurred Expenses;

(bb) Paragraph (2) of Section 6.6.7.1, Voltage Support Service Payments;

(cc) Paragraph (4) of Section 6.6.7.1;

(dd) Section 6.6.7.2, Voltage Support Charge;

(ee) Section 6.6.8.1, Black Start Hourly Standby Fee Payment;

(ff) Section 6.6.8.2, Black Start Capacity Charge;

(gg) Section 6.6.9.1, Payment for Emergency Power Increase Directed by ERCOT;

(hh) Section 6.6.9.2, Charge for Emergency Power Increases;

(ii) Section 6.6.10, Real-Time Revenue Neutrality Allocation;

(jj) Section 6.6.13.1, Firm Fuel Supply Service Fuel Replacement Costs Recovery;

(kk) Section 6.6.13.2, Firm Fuel Supply Service Hourly Standby Fee Payment and Fuel Replacement Cost Recovery;

(ll) Section 6.6.13.3, Firm Fuel Supply Service Capacity Charge;

(mm) Paragraph (1)(a) of Section 6.7.1, Payments for Ancillary Service Capacity Sold in a Supplemental Ancillary Services Market (SASM) or Reconfiguration Supplemental Ancillary Services Market (RSASM);

(nn) Paragraph (1)(b) of Section 6.7.1;

(oo) Paragraph (1)(c) of Section 6.7.1;

(pp) Paragraph (1)(d) of Section 6.7.1;

(qq) Paragraph (1)(a) of Section 6.7.2, Payments for Ancillary Service Capacity Assigned in Real-Time Operations;

(rr) Paragraph (1)(b) of Section 6.7.2;

(ss) Paragraph (1)(a) of Section 6.7.2.1, Charges for Infeasible Ancillary Service Capacity Due to Transmission Constraints;

(tt) Paragraph (1)(b) of Section 6.7.2.1;

(uu) Paragraph (1)(c) of Section 6.7.2.1;

(vv) Paragraph (1)(d) of Section 6.7.2.1;

(ww) Paragraph (1)(a) of Section 6.7.3, Charges for Ancillary Service Capacity Replaced Due to Failure to Provide;

(xx) Paragraph (1)(b) of Section 6.7.3;

(yy) Paragraph (1)(c) of Section 6.7.3;

(zz) Paragraph (1)(d) of Section 6.7.3;

(aaa) Paragraph (2) of Section 6.7.4, Adjustments to Cost Allocations for Ancillary Services Procurement;

(bbb) Paragraph (3) of Section 6.7.4;

(ccc) Paragraph (4) of Section 6.7.4;

(ddd) Paragraph (5) of Section 6.7.4;

(eee) Paragraph (7) of Section 6.7.5, Real-Time Ancillary Service Imbalance Payment or Charge (Real-Time Ancillary Service Imbalance Amount);

(fff) Paragraph (7) of Section 6.7.5, (Real-Time Reliability Deployment Ancillary Service Imbalance Amount);

(ggg) Paragraph (8) of Section 6.7.5, (Real-Time RUC Ancillary Service Reserve Amount);

(hhh) Paragraph (8) of Section 6.7.5, (Real-Time Reliability Deployment RUC Ancillary Service Reserve Amount);

(iii) Section 6.7.6, Real-Time Ancillary Service Imbalance Revenue Neutrality Allocation (Load-Allocated Ancillary Service Imbalance Revenue Neutrality Amount);

(jjj) Section 6.7.6, (Load-Allocated Reliability Deployment Ancillary Service Imbalance Revenue Neutrality Amount);

(kkk) Section 7.9.2.1, Payments and Charges for PTP Obligations Settled in Real-Time; and

(lll) Section 9.16.1, ERCOT System Administration Fee.

|  |
| --- |
| ***[NPRR841, NPRR863, NPRR885, NPRR963, NPRR995, NPRR1012, NPRR1014, and NPRR1054: Replace applicable portions of paragraph (1) above with the following upon system implementation for NPRR841, NPRR863, NPRR885, NPRR963, NPRR995, NPRR1014, or NPRR1054; or upon system implementation of the Real-Time Co-Optimization (RTC) project for NPRR1012:]***(1) ERCOT shall provide, on each RTM Settlement Statement, the dollar amount for each RTM Settlement charge and payment. The RTM Settlement “Charge Types” are:(a) Section 5.7.1, RUC Make-Whole Payment;(b) Section 5.7.2, RUC Clawback Charge;(c) Section 5.7.3, Payment When ERCOT Decommits a QSE-Committed Resource;(d) Section 5.7.4.1, RUC Capacity-Short Charge;(e) Section 5.7.4.2, RUC Make-Whole Uplift Charge;(f) Section [5.7.5, RUC Clawback Payment](#_Toc109528011);(g) Section [5.7.6, RUC Decommitment Charge](#_Toc109528014);(h) Section 6.6.3.1, Real-Time Energy Imbalance Payment or Charge at a Resource Node; (i) Section 6.6.3.2, Real-Time Energy Imbalance Payment or Charge at a Load Zone;(j) Section 6.6.3.3, Real-Time Energy Imbalance Payment or Charge at a Hub;(k) Section 6.6.3.4, Real-Time Energy Payment for DC Tie Import;(l) Section 6.6.3.5, Real-Time Payment for a Block Load Transfer Point;(m) Section 6.6.3.6, Real-Time High Dispatch Limit Override Energy Payment;(n) Section 6.6.3.7, Real-Time High Dispatch Limit Override Energy Charge;(o) Section 6.6.3.8, Real-Time Payment or Charge for Energy from a Settlement Only Distribution Generator (SODG), Settlement Only Transmission Generator (SOTG), Settlement Only Distribution Energy Storage System (SODESS), or Settlement Only Transmission Energy Storage System (SOTESS); (p) Section 6.6.4, Real-Time Congestion Payment or Charge for Self-Schedules;(q) Section 6.6.5.2, Set Point Deviation Charge for Over Generation; (r) Section 6.6.5.2.1, Set Point Deviation Charge for Under Generation; (s) Section 6.6.5.3, Controllable Load Resource Set Point Deviation Charge for Over Consumption; (t) Section 6.6.5.3.1, Controllable Load Resource Set Point Deviation Charge for Under Consumption;(u) Section 6.6.5.4, IRR Generation Resource Set Point Deviation Charge; (v) Section 6.6.5.4, Set Point Deviation Payment;(w) Section 6.6.5.5, Energy Storage Resource Set Point Deviation Charge for Over Performance; (x) Section 6.6.5.5.1, Energy Storage Resource Set Point Deviation Charge for Under Performance; (y) Section 6.6.6.1, RMR Standby Payment;(z) Section 6.6.6.2, RMR Payment for Energy;(aa) Section 6.6.6.3, RMR Adjustment Charge;(bb) Section 6.6.6.4, RMR Charge for Unexcused Misconduct;(cc) Section 6.6.6.5, RMR Service Charge;(dd) Section 6.6.6.6, Method for Reconciling RMR Actual Eligible Costs, RMR and MRA Contributed Capital Expenditures, and Miscellaneous RMR Incurred Expenses;(ee) Section 6.6.6.7, MRA Standby Payment;(ff) Section 6.6.6.8, MRA Contributed Capital Expenditures Payment;(gg) Section 6.6.6.9, MRA Payment for Deployment Event;(hh) Section 6.6.6.10, MRA Variable Payment for Deployment; (ii) Section 6.6.6.11, MRA Charge for Unexcused Misconduct;(jj) Section 6.6.6.12, MRA Service Charge;(kk) Paragraph (3) of Section 6.6.7.1, Voltage Support Service Payments;(ll) Paragraph (5) of Section 6.6.7.1;(mm) Section 6.6.7.2, Voltage Support Charge;(nn) Section 6.6.8.1, Black Start Hourly Standby Fee Payment;(oo) Section 6.6.8.2, Black Start Capacity Charge;(pp) Section 6.6.9.1, Payment for Emergency Operations Settlement;(qq) Section 6.6.9.2, Charge for Emergency Operations Settlement;(rr) Section 6.6.10, Real-Time Revenue Neutrality Allocation;(ss) Section 6.6.11.1, Emergency Response Service Capacity Payments; (tt) Section 6.6.11.2, Emergency Response Service Capacity Charge; (uu) Section 6.6.13.1, Firm Fuel Supply Service Fuel Replacement Costs Recovery;(vv) Section 6.6.13.2, Firm Fuel Supply Service Hourly Standby Fee Payment and Fuel Replacement Cost Recovery;(ww) Section 6.6.13.3, Firm Fuel Supply Service Capacity Charge;(xx) Section 6.7.4, Real-Time Settlement for Updated Day-Ahead Market Ancillary Service Obligations;(yy) Section 6.7.5.2, Regulation Up Service Payments and Charges;(zz) Section 6.7.5.3, Regulation Down Service Payments and Charges;(aaa) Section 6.7.5.4, Responsive Reserve Payments and Charges;(bbb) Section 6.7.5.5 , Non-Spinning Reserve Service Payments and Charges;(ccc) Section 6.7.5.6 , ERCOT Contingency Reserve Service Payments and Charges;(ddd) Section 6.7.5.7 , Real-Time Derated Ancillary Service Capability Payment;(eee) Section 6.7.5.8 , Real-Time Derated Ancillary Service Capability Charge;(fff) Section 6.7.6, Real-Time Ancillary Service Revenue Neutrality Allocation;(ggg) Section 7.9.2.1, Payments and Charges for PTP Obligations Settled in Real-Time; and(hhh) Section 9.16.1, ERCOT System Administration Fee. |

(2) In the event that ERCOT is unable to execute the Day-Ahead Market (DAM), ERCOT shall provide, on each RTM Settlement Statement, the dollar amount for the following RTM Congestion Revenue Right (CRR) Settlement charges and payments:

(a) Section 7.9.2.4, Payments for FGRs in Real-Time; and

(b) Section 7.9.2.5, Payments and Charges for PTP Obligations with Refund in Real-Time.

***9.14.7 Disputes for RUC Make-Whole Payment for Fuel Costs***

(1) If the actual price paid for delivered natural gas for a specific Resource during a Reliability Unit Commitment (RUC)-Committed Interval is greater than Fuel Index Price (FIP) adjusted by the proxy fuel adder, X, defined in the Verifiable Cost Manual (i.e., FIP \* (1+X)), then the QSE may file a Settlement dispute for that Resource’s RUC Make-Whole Payment. The maximum amount that may be recovered through this dispute process is the difference between the RUC Guarantee based on the actual price paid and the fuel price of FIP \* (1+X). The QSE must provide documentation (invoices) that identifies intra-day costs of natural gas consumed during the RUC-Committed Interval. Such documentation is necessary to justify recovery of natural gas costs, which is limited to the actual fuel amount (MMBtus) consumed during RUC-Committed Intervals. All documentation submitted by the QSE for natural gas costs incurred intra-day must show a nexus from the seller or distributor of natural gas products to the QSE, Resource Entity or Generation Entity as the ultimate buyer. The QSE must demonstrate that the seller or distributor has procured natural gas fuel intra-day. A Power Purchase or Tolling Agreement (PPA) filed as documentation of proof of fuel costs will not be accepted unless the PPA was signed prior to July 16, 2008, and is not between Affiliates, subsidiaries, or partners.

 (2) If the actual price paid for the delivered fuel oil used to replace oil consumed during a RUC-Committed Interval is greater than Fuel Oil Price (FOP) adjusted by the proxy fuel adder, X, defined in the Verifiable Cost Manual (i.e., FOP \* (1+X)), then the QSE may file a Settlement dispute for the Resource’s RUC Make-Whole Payment. The maximum amount that may be recovered through this dispute process is the difference between the RUC Guarantee based on the actual price paid and the adjusted price, FOP \* (1+X).

(3) If the QSE representing the Generation Resource made a Three-Part Supply Offer into the DAM based on FIP and had to run on fuel oil in a RUC-Committed Hour with an active Three-Part Supply Offer based on the adjusted FIP, the QSE may file a Settlement dispute to recover the difference between the RUC Guarantee based actual price paid for delivered fuel oil and the fuel price of FIP \* (1+X).

(4) When filing a Settlement dispute under paragraph (2) or (3) above, the QSE must provide documentation (invoices) that identifies purchases of fuel oil by the QSE, Resource Entity, or Generation Entity to replace oil consumed for a RUC-Committed Interval. In addition, the QSE must provide proof that the Resource actually consumed fuel oil during the RUC-Committed Interval. Proof of actual consumption may be based on the Resource’s technical specifications or flow meters as appropriate. Documentation of fuel oil purchases must show that these were made no later than seven Business Days after the end of the last consecutive RUC-Committed Interval. Replacement fuel oil costs are limited to the actual gallons/barrels of fuel oil consumed during RUC-Committed Intervals.

(5) ERCOT may, in its sole discretion, consider documentation types other than those specifically listed in paragraphs (1) and (4) above when offered by a QSE in support of its recovery of fuel costs for RUC deployments.***25.5.1 Settlement Activity for a Market Suspension***

(1) Settlement for the Operating Days for which the Real-Time Market (RTM) has been suspended shall be limited to the following payments and charges:

(a) Market Suspension Make-Whole Payment;

(b) Market Suspension Direct Current Tie (DC Tie) Import Payment;

(c) Market Suspension Block Load Transfer Payment;

(d) Reliability Must-Run (RMR) Standby Payment;

(e) RMR Payment for Energy;

(f) Black Start Hourly Standby Fee Payment;

(g) Firm Fuel Supply Service Hourly Standby Fee Payment and Fuel Replacement Cost Recovery;

(h) Market Suspension Charge Allocation; and

(i) ERCOT System Administration Fee.

(2) During a Market Suspension:

(a) To the extent feasible, ERCOT shall calculate and pay the Real-Time Market Suspension Make-Whole Payment to each eligible Qualified Scheduling Entity (QSE).

(b) ERCOT shall wire the funds to the QSE’s banking institution as soon as practicable, subject to the availability of funds and the availability of systems for transfer of funds.

(c) At its sole discretion, ERCOT may suspend calculating monthly verifiable cost updates.

(d) ERCOT shall not assess:

(i) Market Suspension Charge Allocation as defined in Section 25.5.5, Market Suspension Charge Allocation;

(ii) Market Suspension DC Tie Import Payment as defined in Section 25.5.3, Market Suspension DC Tie Import Payment;

(iii) Market Suspension Block Load Transfer Payment as defined in Section 25.5.4, Market Suspension Block Load Transfer Payment;

(iv) RMR Standby Payment;

(v) RMR Payment for Energy;

(vi) Black Start Hourly Standby Fee Payment; and

(vii) ERCOT System Administration Fee.

(3) ERCOT may, at its sole discretion, settle the Operating Days that occur during a Market Suspension without use of RTM Settlement Statements, Settlement Invoices, and associated provisions, as described in Section 9, Settlement and Billing.

(4) ERCOT shall maintain available supporting billing determinant Settlement data for Market Suspension Operating Day Settlement and shall provide this information to each QSE as soon as practicable.

(5) ERCOT shall cease to utilize the provisions for Market Suspension Settlement beginning with the first complete Operating Day for which ERCOT issues Dispatch Instructions to QSEs in accordance with Section 25.3, Market Restart Processes.

(6) After Market Restart ERCOT shall:

(a) Reconcile payments to QSEs with Generation Resources pursuant to Section 25.5.2, Market Suspension Make-Whole Payment, using the best available generation data;

(b) Calculate Market Suspension DC Tie Import Payments as defined in Section 25.5.3;

(c) Calculate Market Suspension Block Load Transfer Payments as defined in Section 25.5.4;

(d) Calculate Market Suspension RMR Standby Payments in accordance with Section 6.6.6.1, RMR Standby Payment;

(e) Calculate Market Suspension RMR Payment for Energy in accordance with Section 6.6.6.2, RMR Payment for Energy;

(f) Calculate Market Suspension Black Start Service in accordance with Section 6.6.8.1, Black Start Hourly Standby Fee Payment;

(g) Allocate costs in accordance with Section 25.5.5; and

(h) Assess the ERCOT System Administration Fee for the time period of the Market Suspension in accordance with Section 9.16.1, ERCOT System Administration Fee, using the best available Load data.

(7) ERCOT shall provide Notice no less than two Business Days prior to issuing any reconciliation Settlement for the impacted period.

(8) ERCOT shall resume other Settlement activities that were suspended as a result of, or in relation to, the Market Suspension as soon as practicable following the Market Restart, including, but not limited to, pending Congestion Revenue Right (CRR), Day-Ahead Market (DAM) and RTM Settlement for Operating Days prior to the Market Suspension.

***25.5.2 Market Suspension Make-Whole Payment***

(1) To compensate QSEs representing Generation Resources for providing energy during a Market Suspension, ERCOT shall calculate a Market Suspension Make-Whole Payment for the Operating Day as follows:

|  |
| --- |
| ***[NPRR1029: Replace paragraph (1) above with the following upon system implementation:]***(1) To compensate QSEs representing Generation Resources or Energy Storage Resources (ESRs) for providing energy during a Market Suspension, ERCOT shall calculate a Market Suspension Make-Whole Payment for the Operating Day as follows: |

MSMWAMT *q, r, d* = (-1) \* (MSSUC *q, r, d* + MSOC *q, r, d* + MSSUCADJ *q, r, d* + MSOCADJ *q, r, d*)

Where,

The startup cost (MSSUC) is calculated as follows:

For Black Start Resources:

MSSUC *q, r, d* = $0.00

For Combined Cycle Trains:

MSSUC *q, r, d* = MSSUPR *q, r,* s + (MAX (0, MSSUPR afterCCGR –

MSSUPR beforeCCGR))

For all other Resources:

MSSUC *q, r, d* =  MSSUPR *q, r, s*

The startup price (MSSUPR) and operating cost (MSOC) are calculated as follows:

If ERCOT has approved verifiable costs for the Generation Resource:

For Firm Fuel Supply Resources (FFSRs) starting with a reserved fuel

MSSUPR *q, r, s* = RVOMS *q, r, s*

MSOC *q, r, d* = (ROM *q, r*) \* MSGEN *q, r, i*

Otherwise,

MSSUPR *q, r, s* = RABCFCRS *q, r, s* \* (MSAVGFP + FA *q, r*) + RVOMS *q, r, s*

MSOC *q, r, d* = (AHR *q, r, i* \* (MSAVGFP + FA *q, r*) + ROM *q, r*) \* MSGEN *q, r, i*

If ERCOT has not approved verifiable costs for the Generation Resource:

For FFSRs starting with a reserved fuel

MSSUPR *q, r, s* = RCGSC

MSOC *q, r, d* = (STOM *rc*) \* MSGEN *q, r, i*

Otherwise,

MSSUPR *q, r, s* = RCGSC

MSOC *q, r, d* = (PAHR *r, i* \* (MSAVGFP + PFA *rc*) + STOM *rc*) \* MSGEN *q, r, i*

Where,

MSAVGFP = MSAVGFIP for Generation Resources that indicate in the Resource Registration process or the verifiable cost process to start on natural gas

|  |
| --- |
| ***[NPRR1029: Replace the formula for “MSAVGP” above with the following upon system implementation:]***MSAVGFP = MSAVGFIP for Generation Resources that indicate in the Resource Registration process or the verifiable cost process to start on natural gas. For ESRs, the MSAVGFIP shall be set to zero. |

Or,

MSAVGFP = MSAVGFOP for Generation Resources that indicate in the Resource Registration process or through the verifiable cost process to start on fuel oil

The above variables are defined as follows:

| **Variable** | **Unit** | **Definition** |
| --- | --- | --- |
| MSMWAMT *q, r, d* | $ | *Market Suspension Make-Whole Payment –* The Market SuspensionMake-Whole Payment to the QSE *q,* for Resource *r*, for the Operating Day *d*. Where for a Combined Cycle Train, the Resource *r* is the Combined Cycle Train. |
| MSSUCADJ *q, r, d* | $ | *Market Suspension Startup Costs Adjustment –* Adjustment to the Market SuspensionMake-Whole Payment to pay or charge the QSE *q* for actual costs related to starting up Resource *r*, for the Operating Day *d*. Where for a Combined Cycle Train, the Resource *r* is the Combined Cycle Train. |
| MSOCADJ *q, r, d* | $ | *Market Suspension Operating Costs Adjustment –* Adjustment to the Market SuspensionMake-Whole Payment to pay or charge the QSE *q* for actual costs for operating Resource *r*, for the Operating Day *d*. Where for a Combined Cycle Train, the Resource *r* is the Combined Cycle Train. |
| MSSUC *q, r, d*  | $ | *Market Suspension Startup Cost –* The Startup Costs for Resource *r* represented by QSE *q* during restart hours, for the Operating Day *d*. Where for a Combined Cycle Train, the Resource *r* is the Combined Cycle Train. |
| MSSUPR *q, r, s* | $ | *Market Suspension Startup Price per Start –* The MarketSuspensionSettlement price for Resource *r* represented by QSE *q* for the start *s*. Where for a Combined Cycle Train, the Resource *r* is a Combined Cycle Generation Resource within the Combined Cycle Train. |
| RABCFCRS *q, r, s* | MMBtu / start | *Raw Actual Breaker Close Fuel Consumption Rate per Start –* The raw actual verifiable fuel consumption rate, from first fire to breaker close, for the Resource *r* represented by QSE *q*, per start *s,* for the warmth state, as submitted through the verifiable cost process. Where for a Combined Cycle Train, the Resource *r* is a Combined Cycle Generation Resource within the Combined Cycle Train. |
| MSOC *q, r, d*  | $ | *Market Suspension Operating Cost* *–* The MarketSuspensionoperating cost for Resource *r* represented by QSE *q* for operations after breaker close for the Operating Day *d*. Where for a Combined Cycle Train, the Resource *r* is a Combined Cycle Generation Resource within the Combined Cycle Train. |
| RVOMS *q, r, s* | $/start | *Raw Verifiable Operations and Maintenance Cost per Start –* The raw verifiable Operations and Maintenance (O&M) cost for the Resource *r* represented by QSE *q*, per start *s,* for the warmth state, as submitted through the verifiable cost process*.*  Where for a Combined Cycle Train, the Resource *r* is a Combined Cycle Generation Resource within the Combined Cycle Train.  |
| ROM *q, r* | $/MWh | *Raw Verifiable Operations and Maintenance Cost Above LSL –* The raw verifiable O&M cost for the Resource *r* represented by QSE *q* for operations above Low Sustained Limit (LSL). Where for a Combined Cycle Train, the Resource *r* is a Combined Cycle Generation Resource within the Combined Cycle Train. |
| STOM *rc* | $/MWh | *Standard Operations and Maintenance Cost –* The standard O&M cost for the Resource category *rc* for operations above LSL, shall be set to the minimum energy variable O&M costs, as described in paragraph (6)(c) of Section 5.6.1, Verifiable Costs.

|  |
| --- |
| ***[NPRR1029: Replace the definition above with the following upon system implementation:]****Standard Operations and Maintenance Cost –* The standard O&M cost for the Resource category *rc* for operations above LSL, shall be set to the minimum energy variable O&M costs, as described in paragraph (6)(c) of Section 5.6.1, Verifiable Costs. For an ESR, STOM shall be set at $0.3/MWh and for a DC-Coupled Resource, the value shall be set at $4.40/MWh. |

 |
| MSAVGFP | $/MMBtu | *Market Suspension Average Fuel Price* *–* The Market Suspensionaverage fuel price calculated based on MSAVGFIP or MSAVGFOP. |
| MSAVGFIP | $/MMBtu | *Market Suspension Average Fuel Index Price* *–* The Market Suspensionaverage Fuel Index Price (FIP) calculated as the average price of FIP for the 15 days prior to the Market Suspensionevent, calculated on a daily rolling basis for Operating Days the index price is available to ERCOT.  |
| MSAVGFOP | $/MMBtu | *Market Suspension Average Fuel Oil Price* *–* The Market Suspension average Fuel Oil Price (FOP) calculated as the average price of FOP for the 15 days prior to the Market Suspensionevent, calculated on a daily rolling basis for Operating Days the index price is available to ERCOT.  |
| RCGSC | $/start | *Resource Category Generic Startup Cost –* The Resource Category Generic Startup Cost cap for the category of the Resource, according to Section 4.4.9.2.3, Startup Offer and Minimum-Energy Offer Generic Caps, for the Operating Day. |
| FA *q, r* | $/MMBtu | *Verifiable Average Fuel Adder* *–* The verifiable average fuel price adder for the Resource *r* represented by QSE *q*. The fuel adder shall be set to the actual approved verifiable fuel adder or the standard value defined in the Verifiable Cost Manual. Where for a Combined Cycle Train, the Resource *r* is a Combined Cycle Generation Resource within the Combined Cycle Train. |
| PFA *rc* | $/MMBtu | *Proxy Fuel Adder –* The proxy fuel price adder for the Resource category *rc*. For all thermal Generation Resources, the fuel adder shall be set to $0.50/MMBtu; otherwise, the fuel adder shall be set to $0.00/MMBtu.  |
| AHR *q, r, i* | MMBtu / MWh | *Average Heat Rate per Resource –* The verifiable average heat rate for the Resource *r* represented by QSE *q*, for operating levels between LSL and High Sustained Limit (HSL), for the 15-minute Settlement Interval *i*. Where for a Combined Cycle Train, the Resource *r* is a Combined Cycle Generation Resource within the Combined Cycle Train. |
| PAHR *r, i* | MMBtu / MWh | *Proxy Average Heat Rate –* The proxy average heat rate for the Resource *r* for the 15-minute Settlement Interval *i*. Where for a Combined Cycle Train, the Resource *r* is a Combined Cycle Generation Resource within the Combined Cycle Train. |
| MSGEN *q, r, i* | MWh | *Market Suspension Generation per Resource –* The generation for the Resource *r* represented by QSE *q* for the 15-minute Settlement Interval *i*.  |
| *q* | None | A QSE. |
| *r* | None | A Generation Resource.

|  |
| --- |
| ***[NPRR1029: Replace the definition above with the following upon system implementation:]***A Generation Resource or ESR. |

 |
| *d* | None | An Operating Day during a Market Suspensionevent. |
| *i* | None | A 15-minute Settlement Interval within the hour of an Operating Day of a Market Suspensionevent. |
| *s* | None | A Generation Resource start during an Operating Day of a Market Suspension event. |
| *t* | None | A transition that is eligible to have its costs included in the Market Suspension Startup Cost. |
| *rc* | None | A Resource category. |
| *afterCCGR* | None | The Combined Cycle Generation Resource to which a Combined Cycle Train transitions. |
| *beforeCCGR* | None | The Combined Cycle Generation Resource from which a Combined Cycle Train transitions. |

(2) The total compensation to each QSE for the Market SuspensionMake-Whole Payment for an Operating Day is calculated as follows:

**MSMWAMTQSETOT *q, d* =** **MSMWAMT *q, r, d***

And,

MSMWAMTTOT *d* =  MSMWAMTQSETOT *q, d*

The above variables are defined as follows:

| **Variable** | **Unit** | **Definition** |
| --- | --- | --- |
| MSMWAMTQSETOT*q, d*  | $ | *Market Suspension Make-Whole Payment per QSE –* The total payment to QSE *q* for MarketSuspensionMake-Whole Payment for the Operating Day *d*. |
| MSMWAMTTOT *d* | $ | *Market Suspension Make-Whole Payment Total –* The total payment to all QSEs for MarketSuspensionMake-Whole Payment for the Operating Day.  |
| MSMWAMT *q, r, d* | $ | *Market Suspension Make-Whole Payment –* The MarketSuspensionMake-Whole Payment to the QSE *q,* for Resource *r*, for the Operating Day *d*. Where for a Combined Cycle Train, the Resource *r* is the Combined Cycle Train. |
| *q* | none | A QSE. |
| *r* | none | A Generation Resource.

|  |
| --- |
| ***[NPRR1029: Replace the definition above with the following upon system implementation:]***A Generation Resource or ESR. |

 |
| *d* | none | An Operating Day during a Market Suspensionevent. |

(3) During a Market Suspension, ERCOT may cease making payments in accordance with this Section in the event that funds are not available to make such payments.

***25.5.5 Market Suspension Charge Allocation***

(1) After resumption of the RTM, and in accordance with Section 25.5.1, Settlement Activity for a Market Suspension, ERCOT shall allocate the cost on a Load Ratio Share (LRS) basis for the cost to:

(a) Reimburse QSEs representing Resources for Market Suspension Make-Whole Payments in accordance with Section 25.5.2, Market Suspension Make-Whole Payment;

(b) Reimburse QSEs for Market Suspension DC Tie Import Payments in accordance with Section 25.5.3, Market Suspension DC Tie Import Payment;

(c) Reimburse QSEs for Market Suspension Block Load Transfer Payments in accordance with Section 25.5.4, Market Suspension Block Load Transfer Payment;

(d) Reimburse QSEs for Market Suspension RMR Standby Payments in accordance with Section 6.6.6.1, RMR Standby Payment;

(e) Reimburse QSEs for Market Suspension RMR Payment for Energy in accordance with Section 6.6.6.2, RMR Payment for Energy;

(f) Reimburse QSEs for Market Suspension Firm Fuel Supply Service Standby Payment and Fuel Replacement Cost Recovery Payment in accordance with Section 6.6.13.2, Firm Fuel Supply Service Hourly Standby Fee Payment and Fuel Replacement Cost Recovery;

(g) Reimburse QSEs for Market Suspension Black Start Service in accordance with Section 6.6.8.1, Black Start Hourly Standby Fee Payment; and

|  |
| --- |
| ***[NPRR1029: Insert paragraph (h) below upon system implementation and renumber accordingly:]***(h) Reimburse QSEs representing ESRs for approved charging costs incurred prior to the Market Suspension; and |

(h) Pay any other unfunded non-recurring costs incurred in restarting ERCOT markets.

(2) ERCOT shall charge for the costs described above through the Market Suspension Charge Allocation.

(a) These charges shall be initially allocated on an LRS basis for the most recent 30 days prior to the Market Suspension event for which Initial Settlement has been completed. For purposes of this charge, a QSE’s basis shall be the QSE’s total Real-Time Adjusted Metered Load (AML) for the 30 days prior to the Market Suspension divided by the total ERCOT Real-Time AML for the same period. The initial Market Suspension Charge to each QSE for a given Operating Day is calculated as follows:

LARTMSAMT*q* = (-1) \* (MSMWAMTTOT *d* + MSEDCIMPAMTTOT *d* + MSBLTRAMTTOT *d* + RMRSBAMTTOT + RMREAMTTOT + BSSAMTTOT) \* RTMSLRS *q*

Where:

RTMSLRS *q*= Max(0,RTAML *q, p, i*) / (Max(0,RTAML *q, p, i*))

 The above variables are defined as follows:

| **Variable** | **Unit** | **Definition** |
| --- | --- | --- |
| LARTMSAMT*q* | $ | *Load Allocated Real-Time Market Suspension Charge –* The allocated charge to QSE *q* for Market Suspension activities for the Operating Day. |
| MSEDCIMPAMTTOT *d*  | $ | *Market Suspension Emergency DC Import Amount Total –* The total Market Suspension Emergency DC Import Amount charges for all QSEs for the Operating Day *d*. |
| MSMWAMTTOT *d*  | $ | *Market Suspension Make-Whole Payment Total –* The total payment to all QSEs for Market SuspensionMake-Whole Payments for the Operating Day.  |
| MSBLTRAMTTOT *d* | $ | *Market Suspension Block Load Transfer Amount Total –* The total Market Suspension Block Load Transfer Amount for all QSEs for the Operating Day *d*. |
| BSSAMTTOT | $ | *Black Start Service Amount QSE Total ERCOT-Wide –* The total of the payments to QSE *q* for Black Start Service (BSS) provided by all the BSS Resource represented by this QSE for the hour *h*. |
| RMREAMTTOT | $ | *RMR Energy Amount Total –* The total of the energy cost payments to all QSEs for all RMR Units, for the hour. |
| RMRSBAMTTOT | $ | *RMR Standby Amount Total –* The total of the Standby Payments to all QSEs for all RMR Units, for the hour. |
| RTMSLRS *q* | none | *Real-Time Market Suspension Load Ratio Share –* The ratio of the QSE *q*’s Real-Time AML to the total ERCOT Real-Time AML for the 30 day period prior to the Market Suspension for which Initial Settlement has been completed. |
| RTAML *q, p, i* | MWh | *Real-Time Adjusted Metered Load –* The sum of the AML at the Electrical Buses that are included in Settlement Point *p*, represented by QSE *q*, for the 15-minute Settlement Interval *i*. |
| *i* | none | A 15-minute Settlement Interval. |
| *q* | none | A QSE. |
| *p* | none | A Load Zone Settlement Point. |
| *d* | none | An Operating Day. |
| *h* | none | An hour within a Market Suspension. |

(b) This Market Suspension Charge shall be resettled using Transmission and/or Distribution Service Provider (TDSP)-submitted actual and estimated Load data. ERCOT-estimated data will be excluded. The most recent 30 day LRS prior to the Market Suspension event, as described in paragraph (a) above, will continue to be used to allocate Startup Costs and standby payments for RMR Units and Black Start Resources. The resettled Market Suspension Charge to each QSE for a given Operating Day is calculated as follows:

LARTMSAMT*q*= (-1) \* {((MSSUC *q, r, d* + MSSUCADJ *q, r, d*) + RMRSBAMTTOT +BSSAMTTOT) \* RTMSLRS *q* + [MSMWAMTTOT *d* - (MSSUC *q, r, d* + MSSUCADJ *q, r, d*)+ MSEDCIMPAMTTOT *d* + MSBLTRAMTTOT *d* + RMREAMTTOT] \* AMRTSLRS *q, d*}

Where:

AMRTSLRS *q, d*= Max(0, AMRTAML *q, d*) / Max(0, AMRTAML *q, d*)

The above variables are defined as follows:

| **Variable** | **Unit** | **Definition** |
| --- | --- | --- |
| LARTMSAMT*q* | $ | *Load Allocated Real-Time Market Suspension Charge –* The allocated charge to QSE *q* for Market Suspension activities for the Operating Day. |
| MSSUC *q, r, d*  | $ | *Market Suspension Startup Cost –* The Startup Costs for Resource *r* represented by QSE *q* during restart hours, for the Operating Day *d*. Where for a Combined Cycle Train, the Resource *r* is the Combined Cycle Train. |
| MSEDCIMPAMTTOT *d*  | $ | *Market Suspension Emergency DC Import Amount Total –* The total Market Suspension Emergency DC Import Amount charges for all QSEs for the Operating Day *d*. |
| MSMWAMTTOT *d*  | $ | *Market Suspension Make-Whole Payment Total –* The total payment to all QSEs for Market SuspensionMake-Whole Payments for the Operating Day.  |
| MSBLTRAMTTOT *d* | $ | *Market Suspension Block Load Transfer Amount Total –* The total Market Suspension Block Load Transfer Amount for all QSEs for the Operating Day *d*. |
| BSSAMTTOT | $ | *Black Start Service Amount QSE Total ERCOT-Wide –* The total of the payments to QSE *q* for BSS provided by all the BSS Resource represented by this QSE for the hour. |
| RMREAMTTOT | $ | *RMR Energy Amount Total –* The total of the energy cost payments to all QSEs for all RMR Units, for the hour. |
| RMRSBAMTTOT | $ | *RMR Standby Amount Total –* The total of the Standby Payments to all QSEs for all RMR Units, for the hour. |
| RTMSLRS *q, d* | none | *Real-Time Market Suspension Load Ratio Share –* The ratio of the QSE *q*’s Real-Time AML to the total ERCOT Real-Time AML for the 30 day period prior to the Market Suspension for which Initial Settlement has been completed. |
| AMRTSLRS *q, d* | none | *Actual Metered Real-Time Suspension Load Ratio Share –* The ratio of the QSE *q*’s actual metered Real-Time AML to the total ERCOT actual metered Real-Time AML. |
| AMRTAML  *q, d*  | MWh | *Actual Metered Real-Time Adjusted Metered Load –* The sum of the actual metered interval data that are represented by QSE *q* for the day *d*. |
| *q* | none | A QSE. |
| *d* | none | An Operating Day during a Market Suspensionevent. |
| *h* | none | An hour within a Market Suspension. |
| *r* | none | A Generation Resource. |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| ***[NPRR1029: Replace paragraph (b) above with the following upon system implementation:]***(b) This Market Suspension Charge shall be resettled using Transmission and/or Distribution Service Provider (TDSP)-submitted actual and estimated Load data. ERCOT-estimated data will be excluded. The most recent 30 day LRS prior to the Market Suspension event, as described in paragraph (a) above, will continue to be used to allocate Startup Costs and standby payments for RMR Units and Black Start Resources. The resettled Market Suspension Charge to each QSE for a given Operating Day is calculated as follows: LARTMSAMT*q*= (-1) \* {((MSSUC *q, r, d* + MSSUCADJ *q, r, d*) + RMRSBAMTTOT +BSSAMTTOT) \* RTMSLRS *q* + [MSMWAMTTOT *d* - (MSSUC *q, r, d* + MSSUCADJ *q, r, d*)+ MSEDCIMPAMTTOT *d* + MSBLTRAMTTOT *d* + RMREAMTTOT] \* AMRTSLRS *q, d*}Where:AMRTSLRS *q, d*= Max(0, AMRTAML *q, d* – AMRTAESRML *q, d*) / Max(0, AMRTAML *q, d* – AMRTAESRML *q, d*)The above variables are defined as follows:

| **Variable** | **Unit** | **Definition** |
| --- | --- | --- |
| LARTMSAMT*q* | $ | *Load Allocated Real-Time Market Suspension Charge –* The allocated charge to QSE *q* for Market Suspension activities for the Operating Day. |
| MSSUC *q, r, d*  | $ | *Market Suspension Startup Cost –* The Startup Costs for Resource *r* represented by QSE *q* during restart hours, for the Operating Day *d*. Where for a Combined Cycle Train, the Resource *r* is the Combined Cycle Train. |
| MSEDCIMPAMTTOT *d*  | $ | *Market Suspension Emergency DC Import Amount Total –* The total Market Suspension Emergency DC Import Amount charges for all QSEs for the Operating Day *d*. |
| MSMWAMTTOT *d*  | $ | *Market Suspension Make-Whole Payment Total –* The total payment to all QSEs for Market SuspensionMake-Whole Payments for the Operating Day.  |
| MSBLTRAMTTOT *d* | $ | *Market Suspension Block Load Transfer Amount Total –* The total Market Suspension Block Load Transfer Amount for all QSEs for the Operating Day *d*. |
| BSSAMTTOT | $ | *Black Start Service Amount QSE Total ERCOT-Wide –* The total of the payments to QSE *q* for BSS provided by all the BSS Resource represented by this QSE for the hour. |
| RMREAMTTOT | $ | *RMR Energy Amount Total –* The total of the energy cost payments to all QSEs for all RMR Units, for the hour. |
| RMRSBAMTTOT | $ | *RMR Standby Amount Total –* The total of the Standby Payments to all QSEs for all RMR Units, for the hour. |
| RTMSLRS *q, d* | none | *Real-Time Market Suspension Load Ratio Share –* The ratio of the QSE *q*’s Real-Time AML to the total ERCOT Real-Time AML for the 30 day period prior to the Market Suspension for which Initial Settlement has been completed. |
| AMRTSLRS *q, d* | none | *Actual Metered Real-Time Suspension Load Ratio Share –* The ratio of the QSE *q*’s actual metered Real-Time AML to the total ERCOT actual metered Real-Time AML. |
| AMRTAML  *q, d*  | MWh | *Actual Metered Real-Time Adjusted Metered Load –* The sum of the actual metered Load represented by QSE *q* for the day *d*. |
| AMRTAESRML *q, d*  | MWh | *Actual Metered Real-Time Adjusted ESR Metered Load –* The sum of the ESR actual metered Load represented by QSE *q* for the day *d*. Where the ESR actual metered Load represents the ESR Load as measured by Metered Energy for Energy Storage Resource Load at Bus (MEBR), as described in Section 6.6.3.1, Real-Time Energy Imbalance Payment or Charge at a Resource Node. |
| *q* | none | A QSE. |
| *d* | none | An Operating Day during a Market Suspensionevent. |
| *h* | none | An hour within a Market Suspension. |
| *r* | none | A Generation Resource or ESR. |

 |