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| NPRR Number | [1054](http://www.ercot.com/mktrules/issues/NPRR1054) | NPRR Title | Removal of Oklaunion Exemption Language |
| Date of Decision | January 27, 2021 |
| Action | Recommended Approval |
| Timeline  | Normal  |
| Proposed Effective Date | March 1, 2021 for Sections 4.2.1.2, 4.4.4, and 4.4.4.2; upon system implementation for all remaining language |
| Priority and Rank Assigned | Priority - 2021; Rank - 3300 |
| Nodal Protocol Sections Requiring Revision  | 2.1, Definitions4.2.1.2, Ancillary Service Obligation Assignment and Notice4.4.4, DC Tie Schedules4.4.4.2, Oklaunion Exemption (delete)5.7.4.1.1, Capacity Shortfall Ratio Share6.6.2.1, ERCOT Total Adjusted Metered Load for a 15-Minute Settlement Interval6.6.2.3, ERCOT Total Adjusted Metered Load for an Operating Hour6.6.2.6, QSE DC Tie Export Load Ratio Share for a Month6.6.2.8, QSE DC Tie Export Load Ratio Share by Congestion Management Zone for a Month6.6.3.5, Real-Time Payment for a Block Load Transfer Point6.6.3.6, Real-Time Energy Charge for DC Tie Export Represented by the QSE Under the Oklaunion Exemption (delete)6.6.3.7, Real-Time High Dispatch Limit Override Energy Payment6.6.3.8, Real-Time High Dispatch Limit Override Energy Charge6.6.10, Real-Time Revenue Neutrality Allocation7.5.7, Method for Distributing CRR Auction Revenues7.9.3.5, CRR Balancing Account Closure9.5.3, Real-Time Market Settlement Charge Types11.4.6.1, Calculation of ERCOT-Wide Unaccounted For Energy16.11.4.3.2, Real-Time Liability Estimate |
| Related Documents Requiring Revision/Related Revision Requests | None |
| Revision Description | This Nodal Protocol Revision Request (NPRR) removes all references to Oklaunion Exemption from the ERCOT Protocols and adjusts the affected sections’ remaining language accordingly. |
| Reason for Revision |  Addresses current operational issues. Meets Strategic goals (tied to the [ERCOT Strategic Plan](http://www.ercot.com/content/wcm/lists/144926/ERCOT_Strategic_Plan_2019-2023.pdf) or directed by the ERCOT Board). Market efficiencies or enhancements Administrative Regulatory requirements Other: (explain)*(please select all that apply)* |
| Business Case | The Oklaunion Plant suspended operations on October 1, 2020. The Oklaunion Exemption language included in the ERCOT Protocols is no longer applicable; this NPRR removes the Oklaunion Exemption references from the ERCOT Protocols. This action will relieve ERCOT and Market Participants from further administration and accounting for exports previously eligible for the Oklaunion Exemption over the North Direct Current Tie (DC Tie). |
| Credit Work Group Review | ERCOT Credit Staff and the Credit Work Group (Credit WG) have reviewed NPRR1054 and do not believe that it requires changes to credit monitoring activity or the calculation of liability. |
| PRS Decision | On 12/10/20, PRS voted unanimously via roll call to recommend approval of NPRR1054 as amended by the 12/8/20 ERCOT comments. All Market Segments were present for the vote.On 1/14/21, PRS voted via roll call to endorse and forward to TAC the 12/10/20 PRS Report and Impact Analysis for NPRR1054 with a recommended effective date of March 1, 2021 for Sections 4.2.1.2, 4.4.4, and 4.4.4.2; and upon system implementation for all remaining language with a recommended priority of 2021 and rank of 3300. There was one abstention from the Independent Power Marketer (IPM) (Morgan Stanley) Market Segment. All Market Segments were present for the vote. |
| Summary of PRS Discussion | On 12/10/20, participants noted needed administrative edits.On 1/14/21, participants discussed the proposed bifurcated effective date as noted in the Impact Analysis for NPRR1054.  |
| TAC Decision | On 1/27/21, TAC unanimously voted via roll call to recommend approval of NPRR1054 as recommended by PRS in the 1/14/21 PRS Report as amended by the 1/26/21 ERCOT comments. All Market Segments were present for the vote. |
| Summary of TAC Discussion | On 1/27/21, there was no discussion. |
| ERCOT Opinion | ERCOT supports approval of NPRR1054. |

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| **Comments Received** |
| **Comment Author** | **Comment Summary** |
| ERCOT 120820 | Revised Section 4.2.1.2 to clarify that DC Tie exports are included in the Load Ratio Share calculation for assignment of Ancillary Service Obligations |
| ERCOT 012621 | Reapplied existing redlines over revised baseline language as a result of the 1/1/21 Nodal Protocol update |

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| Market Rules Notes |

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

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

* NPRR1008, RTC – NP 4: Day-Ahead Operations (incorporated 1/1/21)
	+ Section 4.2.1.2
	+ Section 4.4.4
* NPRR1009, RTC – NP 5: Transmission Security Analysis and Reliability Unit Commitment (incorporated 1/1/21)
	+ Section 5.7.4.1.1
* NPRR1010, RTC – NP 6: Adjustment Period and Real-Time Operations (incorporated 1/1/21)
	+ Section 6.6.3.7
* NPRR1012, RTC – NP 9: Settlement and Billing (incorporated 1/1/21)
	+ Section 9.5.3
* NPRR1013, RTC – NP 1, 2, 16, and 25: Overview, Definitions and Acronyms, Registration and Qualification of Market Participants, and Market Suspension and Restart (incorporated 1/1/21)
	+ Section 16.11.4.3.2
* NPRR1029, BESTF-6 DC-Coupled Resources (incorporated 1/1/21)
	+ Section 5.7.4.1.1
* NPRR1032, Consideration of Physical Limits of DC Ties in RUC Optimization and Settlements (incorporated 1/1/21)
	+ Section 5.7.4.1.1
* NPRR1039, Replace the Term MIS Public Area with ERCOT Website (incorporated on 1/1/21)
	+ Section 4.4.4

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

* NPRR1034, Frequency-Based Limits on DC Tie Imports or Exports
	+ Section 4.4.4

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| Proposed Protocol Language Revision |

**2.1 DEFINITIONS**

**Adjusted Metered Load (AML)**

Retail Load usage data that has been adjusted for Unaccounted for Energy (UFE), Transmission Losses, Distribution Losses, and Direct Current Tie (DC Tie) exports.

**4.2.1.2 Ancillary Service Obligation Assignment and Notice**

(1) ERCOT shall assign part of the Ancillary Service Plan quantity, by service, by hour, to each Qualified Scheduling Entity (QSE) based on its Load Serving Entity (LSE) Load Ratio Shares (LRSs) (including the shares for Direct Current Tie (DC Tie) exports) aggregated by hour to the QSE level. If the resultant QSE-level share is negative, the QSE’s share will be set to zero and all other QSE shares will be adjusted on a pro rata basis such that the sum of all shares is equal to one. The resulting Ancillary Service quantity for each QSE, by service, by hour, is called its Ancillary Service Obligation. ERCOT shall base the QSE Ancillary Service allocation on the QSE to LSE relationships for the operating date and on the hourly LSE LRSs from the Real-Time Market (RTM) data used for Initial Settlement for the same hour and day of the week, for the most recent day for which Initial Settlement data is available, multiplied by the quantity of that service required in the Day-Ahead Ancillary Service Plan. The Ancillary Service Obligation defined shall be adjusted based on the most current real time settlement and resettlement data for the Operating Day for which the Ancillary Service was procured.

(2) By 0600 of the Day-Ahead, ERCOT shall notify each QSE of its Ancillary Service Obligation for each service and for each hour of the Operating Day.

(3) By 0600 of the Day-Ahead, ERCOT shall post on the MIS Certified Area each QSE’s LRS used for the Ancillary Service Obligation calculation.

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| ***[NPRR1008: Replace Section 4.2.1.2 above with the following upon system implementation of the Real-Time Co-Optimization (RTC) project:]***4.2.1.2 Ancillary Service Obligation Assignment and Notice(1) ERCOT shall assign part of the Ancillary Service Plan quantity, or total Ancillary Service procurement quantity, if different, by service, by hour, to each Qualified Scheduling Entity (QSE) based on its Load Serving Entity (LSE) Load Ratio Shares (LRSs) (including the shares for Direct Current Tie (DC Tie) exports) aggregated by hour to the QSE level. If the resultant QSE-level share is negative, the QSE’s share will be set to zero and all other QSE shares will be adjusted on a pro rata basis such that the sum of all shares is equal to one. The resulting Ancillary Service quantity for each QSE, by service, by hour, is called its Ancillary Service Obligation. ERCOT shall base the QSE Ancillary Service allocation on the QSE to LSE relationships for the operating date and on the hourly LSE LRSs from the Real-Time Market (RTM) data used for Initial Settlement for the same hour and day of the week, for the most recent day for which Initial Settlement data is available, multiplied by the quantity of that service required in the Day-Ahead Ancillary Service Plan. The Ancillary Service Obligation defined shall be adjusted based on the most current real time settlement and resettlement data for the Operating Day for which the Ancillary Service was procured.(2) By 0600 of the Day-Ahead, ERCOT shall notify each QSE of its advisory Ancillary Service Obligation for each service and for each hour of the Operating Day, based on the Ancillary Service Plan, as well as that QSE’s proportional limit for any Self-Arranged Ancillary Services as set forth in Section 3.16, Standards for Determining Ancillary Service Quantities.(3) By 0600 of the Day-Ahead, ERCOT shall post on the MIS Certified Area each QSE’s LRS used for both the advisory and final Ancillary Service Obligation calculations. (4) The minimum Ancillary Service Obligation quantity will be 0.1 MW and will apply to both advisory and final values.(5) After DAM has published, ERCOT shall notify each QSE of its final Ancillary Service Obligation based on the total DAM Ancillary Service procurement quantity, comprised of DAM Ancillary Service awards and Self-Arranged Ancillary Service Quantities for each service and for each hour of the Operating Day. |

***4.4.4 DC Tie Schedules***

(1) All schedules between the ERCOT Control Area and a non-ERCOT Control Area(s) over Direct Current Tie(s) (DC Ties(s)), must be implemented under these Protocols, any applicable North American Electric Reliability Corporation (NERC) Reliability Standards, North American Energy Standards Board (NAESB) Practice Standards, and operating agreements between ERCOT and the Comision Federal de Electricidad (CFE).

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| ***[NPRR857: Replace paragraph (1) above with the following upon system implementation:]***(1) All Direct Current Tie (DC Tie) Schedules between the ERCOT Control Area and a non-ERCOT Control Area(s) must be implemented in accordance with these Protocols, any applicable North American Electric Reliability Corporation (NERC) Reliability Standards, North American Energy Standards Board (NAESB) Practice Standards, and operating agreements between ERCOT and the appropriate operating authority for the non-ERCOT Control Area. |

(2) A DC Tie Schedule for hours in the Operating Day corresponding to an Electronic Tag (e-Tag) that is reported to ERCOT before 1430 in the Day-Ahead creates a capacity supply for the equivalent Resource or an obligation for the equivalent Load of the DC Tie in the DRUC process. DC Tie Schedules corresponding to e-Tags approved after 1430 in the Day-Ahead for the Operating Day create a capacity supply or obligation in any applicable HRUC processes. DC Tie Schedules corresponding to e-Tags approved after the Reliability Unit Commitment (RUC) snapshot are considered in the Adjustment Period snapshot in accordance with the market timeline.

(3) A QSE that is an importer into ERCOT through a DC Tie in a Settlement Interval under an approved e-Tag must be treated as a Resource at that DC Tie Settlement Point for that Settlement Interval.

(4) A QSE that is an exporter from ERCOT through a DC Tie in a Settlement Interval under an approved e-Tag must be treated as a Load at the DC Tie Settlement Point for that Settlement Interval and is responsible for allocated Transmission Losses, Unaccounted for Energy (UFE), System Administration Fee, and any other applicable ERCOT fees. (5) ERCOT shall approve any e-Tag that does not exceed the available physical capacity of the DC Tie and any limits supplied the non-ERCOT Control Area for the time period for which the e-Tag is requested unless a DC Tie Curtailment Notice is in effect for the particular DC Tie for which the e-Tag request is made. While a DC Tie Curtailment Notice is in effect, ERCOT will deny any additional e-Tag requests that would exacerbate the transmission security violations that led to that DC Tie Curtailment Notice. Notwithstanding the foregoing, ERCOT shall deny or curtail any e-Tag over any of the DC Ties if necessary to avoid causing any Entity in the ERCOT Region that is not a “public utility” as defined in the Federal Power Act (FPA), including ERCOT, to become such a public utility. If ERCOT determines that it is necessary to deny or curtail e-Tags in order to prevent any Entity from becoming a “public utility,” it shall provide notice of that determination by posting an operations message to the ERCOT website and issuing a Market Notice.

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| ***[NPRR999: Replace paragraph (5) above with the following upon project implementation of the Intra-Hour Variability (iCAT) Tool:]***(5) ERCOT shall approve any e-Tag that does not exceed the available physical capacity of the DC Tie, system ramping capability, and any limits supplied by the non-ERCOT Control Area for the time period for which the e-Tag is requested unless a DC Tie Curtailment Notice is in effect for the particular DC Tie for which the e-Tag request is made; otherwise, ERCOT shall deny the e-Tag. While a DC Tie Curtailment Notice is in effect, ERCOT will deny any additional e-Tag requests that would exacerbate the transmission security violations that led to that DC Tie Curtailment Notice. Notwithstanding the foregoing, ERCOT shall deny or curtail any e-Tag over any of the DC Ties if necessary to avoid causing any Entity in the ERCOT Region that is not a “public utility” as defined in the Federal Power Act (FPA), including ERCOT, to become such a public utility. If ERCOT determines that it is necessary to deny or curtail e-Tags in order to prevent any Entity from becoming a “public utility,” it shall provide notice of that determination by posting an operations message to the ERCOT website and issuing a Market Notice. |

(6) ERCOT shall perform schedule confirmation with the applicable non-ERCOT Control Area(s) and shall coordinate the approval process for the e-Tags for the ERCOT Control Area. An e-Tag for a schedule across a DC Tie is considered approved if:

(a) All Control Areas and Transmission Service Providers (TSPs) with approval rights approve the e-Tag (active approval); or

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| ***[NPRR857: Replace paragraph (a) above with the following upon system implementation:]***(a) All Control Areas and Direct Current Tie Operators (DCTOs) with approval rights approve the e-Tag (active approval); or |

(b) No Entity with approval rights over the e-Tag has denied it, and the approval time window has ended (passive approval).

(7) Using the DC Tie Schedule information corresponding to e-Tags submitted by QSEs, ERCOT shall update and maintain a Current Operating Plan (COP) for each DC Tie for which the aggregated DC Tie Schedules for that tie show a net export out of ERCOT for the applicable interval. When the net energy schedule for a DC Tie indicates an export, ERCOT shall treat the DC Tie as an Off-Line Resource and set the High Sustained Limit (HSL) and Low Sustained Limit (LSL) for that DC Tie Resource to zero. ERCOT shall monitor the associated Resource Status telemetry during the Operating Period. When the net energy schedule for a DC Tie shows a net import, the Resource HSL, High Ancillary Service Limit (HASL) and LSL must be set appropriately, considering the resulting net import.

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| ***[NPRR1008: Replace paragraph (7) above with the following upon system implementation of the Real-Time Co-Optimization (RTC) project:]***(7) Using the DC Tie Schedule information corresponding to e-Tags submitted by QSEs, ERCOT shall update and maintain a Current Operating Plan (COP) for each DC Tie for which the aggregated DC Tie Schedules for that tie show a net export out of ERCOT for the applicable interval. When the net energy schedule for a DC Tie indicates an export, ERCOT shall treat the DC Tie as an Off-Line Resource and set the High Sustained Limit (HSL) and Low Sustained Limit (LSL) for that DC Tie Resource to zero. ERCOT shall monitor the associated Resource Status telemetry during the Operating Period. When the net energy schedule for a DC Tie shows a net import, the Resource HSL and LSL must be set appropriately, considering the resulting net import. |

(8) A QSE exporting from ERCOT and/or importing to ERCOT through a DC Tie shall:

(a) Secure and maintain an e-Tag service to submit e-Tags and monitor e-Tag status according to NERC requirements;

(b) Submit e-Tags for all proposed transactions; and

(c) Implement backup procedures in case of e-Tag service failure.

(9) ERCOT shall post a notice to the MIS Certified Area when a confirmed e-Tag is downloaded, cancelled, or curtailed by ERCOT’s systems.

(10) ERCOT shall use the DC Tie e-Tag MW amounts for Settlement. The DC Tie operator shall communicate deratings of the DC Ties to ERCOT and other affected regions and all parties shall agree to any adjusted or curtailed e-Tag amounts.

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| ***[NPRR857: Replace paragraph (10) above with the following upon system implementation:]***(10) ERCOT shall use the DC Tie e-Tag MW amounts for Settlement. The DCTO shall communicate deratings of the DC Ties to ERCOT and other affected regions and all parties shall agree to any adjusted or curtailed e-Tag amounts.  |

(11) DC Tie Load is considered as Load for daily and hourly reliability studies, and settled as Adjusted Metered Load (AML). DC Tie Load is curtailed prior to other Load on the ERCOT System as described below, and during Energy Emergency Alert (EEA) events as set forth in Section 6.5.9.4.2, EEA Levels.

(12) DC Tie Load shall neither be curtailed by ERCOT during the Adjustment Period, nor for more than one hour at a time, except for the purpose of maintaining reliability, or as indicated in paragraphs (13), (14), (15), and (16) below.

(13) If a system operator in a non-ERCOT Control Area requests curtailment of a DC Tie Schedule due to an actual or anticipated emergency in its Control Area, ERCOT may curtail the DC Tie Schedule. If the DC Tie Schedule is curtailed, ERCOT shall post a DC Tie Curtailment Notice to the ERCOT website as soon as practicable.

(14) If a DC Tie experiences an Outage, ERCOT may curtail DC Tie Schedules that are, or that are expected to be, affected by the Outage based on system conditions and expected restoration time of the Outage. ERCOT shall post a post a DC Tie Curtailment Notice to the ERCOT website as soon as practicable. Updated DC Tie limits shall be posted as required in paragraph (1) of Section 3.10.7.7, DC Tie Limits.

(15) If market-based congestion management techniques embedded in Security-Constrained Economic Dispatch (SCED) as specified in these Protocols will not be adequate to resolve one or more transmission security violations that would be fully or partially resolved by the curtailment of DC Tie Load and, in ERCOT’s judgment, no approved Constraint Management Plan (CMP) is adequate to resolve those violations, ERCOT may instruct Resources to change output and, if still necessary, curtail DC Tie Load to maintain reliability and shall post a DC Tie Curtailment Notice to the ERCOT website as soon as practicable. The quantity of DC Tie Load to be curtailed shall be the minimum required to resolve the constraint(s) after the other remediation actions described above have been taken.

(16) ERCOT may curtail DC Tie Schedules as necessary to ensure that any Entity in the ERCOT Region that is not a “public utility” as defined in the FPA, including ERCOT, does not become such a public utility.

(17) Market Participants shall not engage in DC Tie export transactions that are reasonably expected to be uneconomic in consideration of all costs and revenues associated with the transaction, excluding Congestion Revenue Right (CRR) Auction Revenue Distribution (CARD) and CRR Balancing Account (CRRBA) allocations.

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| ***[NPRR1030: Delete paragraph (17) above upon system implementation.]*** |

***5.7.4.1.1 Capacity Shortfall Ratio Share***

(1) In calculating the amount short for each QSE, the Wind-powered Generation Resource Production Potential (WGRPP), as described in Section 4.2.2, Wind-Powered Generation Resource Production Potential, for a Wind-powered Generation Resource (WGR), or the PhotoVoltaic Generation Resource Production Potential (PVGRPP), as described in Section 4.2.3, PhotoVoltaic Generation Resource Production Potential, for a PhotoVoltaic Generation Resource (PVGR), at the time of RUC execution, shall be considered the available capacity of the WGR or PVGR when determining responsibility for the corresponding RUC charges, regardless of the Real-Time output of the WGR or PVGR. Therefore, the HASLSNAP variable used below shall be equal to the WGRPP and PVGRPP described above.

(2) In calculating the amount short for each QSE, the QSE must be given a capacity credit for non-Intermittent Renewable Resources (IRRs) that were given notice of decommitment within the two hours before the Operating Hour as a result of the RUC process by setting the HASLSNAP and HASLADJ variables used below equal to the HASLSNAP value for the Resource immediately before the decommitment instruction was given.

(3) In calculating the short amount for each QSE, if the High Ancillary Service Limit (HASL) for a Resource was credited to the QSE during the RUC snapshot but the Resource experiences a Forced Outage within two hours before the start of the Settlement Interval, then the HASL for that Resource is also credited to the QSE in the HASLADJ.

(4) In calculating the short amount for each QSE, if the DCIMPSNAP was credited to the QSE during the RUC snapshot but the entire Direct Current Tie (DC Tie) experiences a Forced Outage within two hours before the start of the Settlement Interval, then the DCIMPSNAP is also credited to the QSE in the DCIMPADJ.

(5) For Combined Cycle Generation Resources, if more than one Combined Cycle Generation Resource is shown On-Line in its COP for the same Settlement hour, then the provisions of paragraph (6)(a) of Section 3.9.1, Current Operating Plan (COP) Criteria, apply in the determination of the On-Line Combined Cycle Generation Resource for that Settlement hour.

(6) The capacity shortfall ratio share of a specific QSE for a particular RUC process is calculated, for a 15-minute Settlement Interval, as follows:

**RUCSFRS *ruc, i, q* = RUCSF *ruc, i, q* / RUCSFTOT *ruc, i***

Where:

**RUCSFTOT *ruc, i* = RUCSF *ruc, i, q***

(7) The RUC Shortfall in MW for one QSE for one 15-minute Settlement Interval is:

**RUCSF *ruc, i, q* = Max (0, Max (RUCSFSNAP *ruc, q, i*, RUCSFADJ *ruc, q, i*) – RUCCAPCREDIT *q, i, z*)**

(8) The RUC Shortfall in MW for one QSE for one 15-minute Settlement Interval, as measured at the snapshot, is:

**RUCSFSNAP *ruc ,q ,i* = Max (0, ((RTAML *q, p, i* \* 4) – RUCCAPSNAP *ruc, q, i*))**

(9) The amount of capacity that a QSE had according to the RUC snapshot for a 15-minute Settlement Interval is:

**RUCCAPSNAP *ruc, q, i* = HASLSNAP *q, r, h* + (RUCCPSNAP *q, h* – RUCCSSNAP *q, h*) + (DAEP *q, p, h* –DAES *q, p, h*) + (RTQQEPSNAP *q, p, i* – RTQQESSNAP *q, p, i*) +  DCIMPSNAP *q, p, i***

(10) The RUC Shortfall in MW for one QSE for one 15-minute Settlement Interval, as measured at Real-Time, but including capacity from IRRs as seen in the RUC snapshot, is:

**RUCSFADJ *ruc, q, i* = Max (0, ((RTAML *q, p, i*) \*4) – (HASLSNAP *ruc, q, r, h* + RUCCAPADJ *q, i*))**

(11) The amount of capacity that a QSE had in Real-Time for a 15-minute Settlement Interval, excluding capacity from IRRs, is:

**RUCCAPADJ *q, i* = HASLADJ *q, r, h* + (RUCCPADJ *q, h* – RUCCSADJ *q, h*) + (DAEP *q, p, h* – DAES *q, p, h*) + (RTQQEPADJ *q, p, i* – RTQQESADJ *q, p, i*) +  DCIMPADJ *q, p, i***

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

| **Variable** | **Unit** | **Definition** |
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| RUCSFRS *ruc, i, q* | none | *RUC Shortfall Ratio Share*—The ratio of the QSE *q*’s capacity shortfall to the sum of all QSEs’ capacity shortfalls, for the RUC process *ruc*, for the 15-minute Settlement Interval *i*. |
| RUCSF *ruc, i, q* | MW | *RUC Shortfall*—The QSE *q*’s capacity shortfall for the RUC process *ruc* for the 15-minute Settlement Interval *i*. |
| RUCSFTOT *ruc, i* | MW | *RUC Shortfall Total*—The sum of all QSEs’ capacity shortfalls, for a RUC process *ruc*, for a 15-minute Settlement Interval *i*. |
| RUCSFSNAP *ruc, q, i* | MW | *RUC Shortfall at Snapshot*—The QSE *q*’s capacity shortfall according to the snapshot for the RUC process *ruc* for the 15-minute Settlement Interval *i*. |
| RUCSFADJ *ruc, q, i* | MW | *RUC Shortfall at Adjustment Period*—The QSE *q*’s Adjustment Period capacity shortfall, including capacity from IRRs as seen in the snapshot for the RUC process *ruc*, for the 15-minute Settlement Interval *i*. |
| RUCCAPCREDIT *q, i, z* | MW | *RUC Capacity Credit by QSE*—The QSE *q*’s capacity credit resulting from capacity paid through the RUC Capacity-Short Amount for RUC process *z* for the 15-minute Settlement Interval *i*. |
| RTAML *q, p, i* | MWh | *Real-Time Adjusted Metered Load*—The QSE *q*’s Adjusted Metered Load (AML) at the Settlement Point *p* for the 15-minute Settlement Interval *i*. |
| RUCCAPSNAP *ruc, q, i* | MW | *RUC Capacity Snapshot at time of RUC*—The amount of the QSE *q*’s calculated capacity in the COP and Trades Snapshot for the RUC process *ruc* for a 15-minute Settlement Interval *i*.  |
| HASLSNAP *q, r, h* | MW | *High Ancillary Services Limit at Snapshot*—The HASL of the Resource *r* represented by the QSE *q*, according to the COP and Trades Snapshot for the RUC process for the hour *h* that includes the 15-minute Settlement Interval. Where for a Combined Cycle Train, the Resource *r* is a Combined Cycle Generation Resource within the Combined Cycle Train. |
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| DCIMPADJ *q, p, i* | MW | *DC Import per QSE per Settlement Point*—The approved aggregated DC Tie Schedule submitted by QSE *q* as an importer into the ERCOT System through DC Tie *p* according to the Adjustment Period snapshot, for the 15-minute Settlement Interval *i*. |
| DCIMPSNAP *q, p, i* | MW | *DC Import per QSE per Settlement Point*—The approved aggregated DC Tie Schedule submitted by QSE *q* as an importer into the ERCOT System through DC Tie *p*, according to the snapshot for the RUC process for the hour that includes the 15-minute Settlement Interval *i*. |
| RUCCPSNAP *q, h* | MW | *RUC Capacity Purchase at Snapshot*—The QSE *q*’s capacity purchase, according to the COP and Trades Snapshot for the RUC process for the hour *h* that includes the 15-minute Settlement Interval. |
| RUCCSSNAP *q, h* | MW | *RUC Capacity Sale at Snapshot*—The QSE *q*’s capacity sale, according to the COP and Trades Snapshot for the RUC process for the hour *h* that includes the 15-minute Settlement Interval. |
| RUCCAPADJ *q, i* | MW | *RUC Capacity Snapshot during Adjustment Period*—The amount of the QSE *q*’s calculated capacity in the RUC according to the COP and Trades Snapshot, excluding capacity for IRRs, at the end of the Adjustment Period for a 15-minute Settlement Interval *i.* |
| HASLADJ *q, r, h* | MW | *High Ancillary Services Limit at Adjustment Period*—The HASL of a non-IRR *r* represented by the QSE *q*, according to the Adjustment Period snapshot, for the hour *h* that includes the 15-minute Settlement Interval. Where for a Combined Cycle Train, the Resource *r* is a Combined Cycle Generation Resource within the Combined Cycle Train.  |
| RUCCPADJ *q, h* | MW | *RUC Capacity Purchase at Adjustment Period*—The QSE *q*’s capacity purchase, according to the Adjustment Period COP and Trades Snapshot for the hour *h* that includes the 15-minute Settlement Interval. |
| RUCCSADJ *q, h* | MW | *RUC Capacity Sale at Adjustment Period*—The QSE *q*’s capacity sale, according to the Adjustment Period COP and Trades Snapshot for the hour *h* that includes the 15-minute Settlement Interval. |
| DAEP *q, p, h* | MW | *Day-Ahead Energy Purchase*—The QSE *q*’s energy purchased in the DAM at the Settlement Point *p* for the hour *h* that includes the 15-minute Settlement Interval. |
| DAES *q, p, h* | MW | *Day-Ahead Energy Sale*—The QSE *q*’s energy sold in the DAM at the Settlement Point *p* for the hour *h* that includes the 15-minute Settlement Interval. |
| RTQQEPSNAP *q, p, i* | MW | *QSE-to-QSE Energy Purchase by QSE by point*—The QSE *q*’s Energy Trades in which the QSE is the buyer at the delivery Settlement Point *p* for the 15-minute Settlement Interval *i*, in the COP and Trades Snapshot. |
| RTQQESSNAP *q, p, i* | MW | *QSE-to-QSE Energy Sale by QSE by point*—The QSE *q*’s Energy Trades in which the QSE is the seller at the delivery Settlement Point *p* for the 15-minute Settlement Interval *i*, in the COP and Trades Snapshot. |
| RTQQEPADJ *q, p, i* | MW | *QSE-to-QSE Energy Purchase by QSE by point*—The QSE *q*’s Energy Trades in which the QSE is the buyer at the delivery Settlement Point *p* for the 15-minute Settlement Interval *i*, in the last COP and Trades Snapshot at the end of the Adjustment Period for that Settlement Interval. |
| RTQQESADJ *q, p, i* | MW | *QSE-to-QSE Energy Sale by QSE by point*—The QSE *q*’s Energy Trades in which the QSE is the seller at the delivery Settlement Point *p* for the 15-minute Settlement Interval *i*, in the last COP and Trades Snapshot at the end of the Adjustment Period for that Settlement Interval. |
| *q* | none | A QSE. |
| *p* | none | A Settlement Point. |
| *r* | none | A Generation Resource that is QSE-committed or planning to operate as a Quick Start Generation Resource (QSGR) for the Settlement Interval as shown by the Resource Status of OFFQS in the COP and Trades Snapshot and/or Adjustment Period snapshot; or RUC-decommitted for the Settlement Interval (subject to paragraphs (1) and (2) above); or a Switchable Generation Resource (SWGR) released by a non-ERCOT Control Area Operator (CAO) to operate in the ERCOT Control Area due to an ERCOT RUC instruction for an actual or anticipated EEA condition. If the Settlement Interval is a RUCAC-Interval, *r* represents the Combined Cycle Generation Resource that was QSE-committed at the time the RUCAC was issued. |
| *z* | none | A previous RUC process for the Operating Day. |
| *i* | none | A 15-minute Settlement Interval. |
| *h* | none | The hour that includes the Settlement Interval *i*.  |
| *ruc* | none | The RUC process for which this RUC Shortfall Ratio Share is calculated. |

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| ***[NPRR1009, NPRR1014, NPRR1029, and NPRR1032: Replace applicable portions of Section 5.7.4.1.1 above with the following upon system implementation of the Real-Time Co-Optimization (RTC) project for NPRR1009; or upon system implementation for NPRR1014, NPRR1029, or NPRR1032:]***(1) In calculating the shortfall amount for each QSE, the Resource capacity shall be calculated for a Generation Resource or ESR, that is not a DC-Coupled Resource, and that meets any of the following conditions: (a) QSE-committed; (b) Planning to operate as a Quick Start Generation Resource (QSGR) for the Settlement Interval as shown by the COP Status of OFFQS in the RUC Snapshot for the RUC Process and/or Adjustment Period; or(c) A Switchable Generation Resource (SWGR) that is released by a non-ERCOT Control Area Operator (CAO) to operate in the ERCOT Control Area due to an ERCOT RUC instruction for an actual or anticipated EEA condition and that is shown as On-Line in its COP; or (d) If the Settlement Interval is a RUCAC-Interval, the Combined Cycle Generation Resource that was QSE-committed at the time the RUCAC was issued, excluding the condition for SWGRs as describe in paragraph (c) above.(2) In calculating the amount short for each QSE, the available capacity of a DC-Coupled Resource shall be calculated for each RUC Snapshot, and at the end of the Adjustment Period, by adding the capacity value of the Energy Storage System (ESS) that is included in the HSL of the DC-Coupled Resource, as submitted in the COP, to the Wind-powered Generation Resource Production Potential (WGRPP), and/or the PhotoVoltaic Generation Resource Production Potential (PVGRPP), as follows:The DCRCAPSNAP variable at the RUC Snapshot is calculated as:**DCRCAPSNAP *ruc, q, r, h =* RUCHSLESS*ruc, q, r, h* + (WGRPP*ruc, q, r, h* + PVGRPP*ruc, q, r, h*)**The DCRCAPADJ variable at the end of the Adjustment Period is calculated as:**DCRCAPADJ *ruc, q, r, h =* HSLESS *q, r, h* + (WGRPP*ruc, q, r, h* + PVGRPP*ruc, q, r, h*)**The above variables are defined as follows:

| **Variable** | **Unit** | **Definition** |
| --- | --- | --- |
| *DCRCAPSNAP ruc, q, r, h* | MW | *DC-Coupled Resource Capacity at Snapshot*—The Resource Capacity of DC-Coupled Resource *r* represented by the QSE *q* for the hour *h*, according to the RUC Snapshot for the RUC process.  |
| *RUCHSLESS ruc, q, r, h* | MW | *High Sustained Limit of ESS at Snapshot* —The portion of the HSL of the DC-Coupled Resource due to the ESS that is part of the DC-Coupled Resource *r* represented by QSE *q* for the hour *h*, according to the RUC Snapshot for the RUC process.  |
| *WGRPP ruc, q, r, h* | MW | *Wind-powered Generation Resource Production Potential at Snapshot* —The Wind-powered Generation Resource Production Potential (WGRPP) as described in Section 4.2.2, Wind-Powered Generation Resource Production Potential, for the DC-Coupled Resource *r* represented by QSE *q* for the hour *h*, as seen in the RUC Snapshot for the RUC process *ruc*.  |
| *PVGRPP ruc, q, r, h* | MW | *PhotoVoltaic Generation Resource Production Potential at Snapshot* — The PhotoVoltaic Generation Resource Production Potential (PVGRPP) as described in Section 4.2.3, PhotoVoltaic Generation Resource Production Potential, for the DC-Coupled Resource *r* represented by QSE *q* for the hour *h*, as seen in the RUC Snapshot for the RUC process *ruc*.  |
| *DCRCAPADJ ruc, q, r, h* | MW | *DC-Coupled Resource Capacity at Adjustment Period*—The Resource Capacity of DC-Coupled Resource *r* represented by the QSE *q* for the hour *h*, at the end of the Adjustment Period.  |
| *HSLESS q, r, h* | MW | *High Sustained Limit for ESS at Adjustment Period* —The portion of the HSL of the DC-Coupled Resource due to the ESS that is part of the DC-Coupled Resource *r* represented by QSE *q* for the hour *h*, at the end of the Adjustment Period.  |
| *q* | none | A QSE. |
| *r* | none | A DC-Coupled Resource that is QSE-committed or RUC-decommitted for the Settlement Interval (subject to paragraph (4) below) or a Switchable Generation Resource (SWGR) released by a non-ERCOT Control Area Operator (CAO) to operate in the ERCOT Control Area due to an ERCOT RUC instruction for an actual or anticipated EEA condition. |
| *h* | none | An hourly Settlement Interval.  |
| *ruc* | none | A RUC process for which this DC-Coupled Resource Capacity is calculated. |

(3) In calculating the amount short for each QSE, the Wind-powered Generation Resource Production Potential (WGRPP), as described in Section 4.2.2, Wind-Powered Generation Resource Production Potential, for a Wind-powered Generation Resource (WGR), or the PhotoVoltaic Generation Resource Production Potential (PVGRPP), as described in Section 4.2.3, PhotoVoltaic Generation Resource Production Potential, for a PhotoVoltaic Generation Resource (PVGR), at the time of RUC execution, shall be considered the available capacity of the WGR or PVGR when determining responsibility for the corresponding RUC charges, regardless of the Real-Time output of the WGR or PVGR. Therefore, the RCAPSNAP variable used below shall be equal to the WGRPP and PVGRPP described above. (4) In calculating the amount short for each QSE, the QSE must be given a capacity credit if a Resource was given notice of decommitment within the two hours before the Operating Hour as a result of the RUC process as follows:(a) Non-Intermittent Renewable Resources (IRRs) will have the RCAPSNAP and RCAPADJ variables used below set equal to the RCAPSNAP value for the Resource immediately before the decommitment instruction was given;(b) DC-Coupled Resources will have the DCRCAPSNAP and DCRCAPADJ variables used below set equal to the DCRCAPSNAP value for the Resource immediately before the decommitment instruction was given.(5) In calculating the short amount for each QSE, if the RCAPSNAP for a non-IRR was credited to the QSE during the RUC Snapshot but the Resource experiences a Forced Outage within two hours before the start of the Settlement Interval, then the RCAPSNAP for that Resource is also credited to the QSE in the RCAPADJ. If the Resource is a DC-Coupled Resource, then the DCRCAPSNAP for that Resource from the RUC Snapshot is credited to the QSE in the DCRCAPADJ.(6) In calculating the short amount for each QSE, if the DCIMPSNAP was credited to the QSE during the RUC Snapshot but the entire Direct Current Tie (DC Tie) experiences a Forced Outage within two hours before the start of the Settlement Interval, then the DCIMPSNAP is also credited to the QSE in the RTDCIMP.(7) For Combined Cycle Generation Resources, if more than one Combined Cycle Generation Resource is shown On-Line in its COP for the same Settlement hour, then the provisions of paragraph (6)(a) of Section 3.9.1, Current Operating Plan (COP) Criteria, apply in the determination of the On-Line Combined Cycle Generation Resource for that Settlement hour.(8) The capacity shortfall ratio share of a specific QSE for a particular RUC process is calculated, for a 15-minute Settlement Interval, as follows:**RUCSFRS *ruc, i, q* = RUCSF *ruc, i, q* / RUCSFTOT *ruc, i***Where:RUCSFTOT *ruc, i* = RUCSF *ruc, i, q*(9) The RUC Shortfall in MW for one QSE for one 15-minute Settlement Interval is:RUCSF *ruc, i, q* = Max (0, Max (RUCSFSNAP *ruc, q, i*, RUCSFADJ *ruc, q, i*) – RUCCAPCREDIT *q, i, z*)(10) The RUC Shortfall in MW for one QSE for one 15-minute Settlement Interval, as measured at the RUC Snapshot, is:RUCSFSNAP *ruc ,q ,i* = Max (RUCOSFSNAP *ruc, q, i* , RUCASFSNAP *ruc, q, i*)(11) The overall shortfall in MW that a QSE had according to the RUC Snapshot for a 15-minute Settlement Interval is:**RUCOSFSNAP *ruc, q, i* = Max (0, ((RTAML *q, p, i* \* 4) + ASONPOSSNAP *ruc, q, i* – RUCCAPSNAP *ruc, q, i*))**The QSE’s On-Line Ancillary Service Position according to the RUC Snapshot for a 15-minute Settlement Interval is:**ASONPOSSNAP *ruc, q, i* = RUPOSSNAP *ruc, q, h* + RRPOSSNAP *ruc, q, h* + Max (0, (ECRPOSSNAP *ruc, q, h* + NSPOSSNAP *ruc, q, h* – ASOFFOFRSNAP *ruc, q, r, h*))** The amount of capacity that a QSE had according to the RUC Snapshot for a 15-minute Settlement Interval is:**RUCCAPSNAP *ruc, q, i* = RCAPSNAP *ruc, q, r, h* + DCRCAPSNAP *ruc, q, r, h* + (RUCCPSNAP *ruc, q, h* – RUCCSSNAP *ruc, q, h*) + (DAEP *q, p, h* –DAES *q, p, h*) + (RTQQEPSNAP *ruc, q, p, i* – RTQQESSNAP *ruc, q, p, i*) +  DCIMPSNAP *ruc, q, p, i* + ASOFRLRSNAP *ruc, q, r, h***(12) The Ancillary Service shortfall calculation compares the Ancillary Service capability of the QSE, measured by the submitted Ancillary Service Offers, to the Ancillary Service Position. Because the same Resource capacity can be represented in Ancillary Offers for multiple products, the aggregated capability is accounted for by grouping Ancillary Service types in the calculation below. The Ancillary Service shortfall in MW that a QSE had according to the RUC Snapshot for a 15-minute Settlement Interval is:**RUCASFSNAP *ruc, q, i* = Max (0, ASCAP1SNAP *ruc, q, i* , ASCAP2SNAP *ruc, q, i*, ASCAP3SNAP *ruc, q, i* , ASCAP4SNAP *ruc, q, i*, ASCAP5SNAP *ruc, q, i*) + Max (0, ASCAP6SNAP *ruc, q, i*)**Where,ASCAP1SNAP *ruc, q, i* = RUPOSSNAP *ruc, q, h* – ASOFR1SNAP *ruc, q, r, h*ASCAP2SNAP *ruc, q, i* = RRPOSSNAP*ruc, q, h* –  ASOFR2SNAP *ruc, q, r, h* ASCAP3SNAP *ruc, q, i* = (RUPOSSNAP *ruc, q, h* + RRPOSSNAP *ruc, q, h*) – ASOFR3SNAP *ruc, q, r, h* ASCAP4SNAP *ruc, q, i* = (RUPOSSNAP *ruc, q, h* + RRPOSSNAP *ruc, q, h*  + ECRPOSSNAP *ruc, q, h*) – ASOFR4SNAP *ruc, q, r, h* ASCAP5SNAP *ruc, q, i* = (RUPOSSNAP *ruc, q, h* + RRPOSSNAP *ruc, q, h*+ ECRPOSSNAP *ruc, q, h* + NSPOSSNAP *ruc, q, h*) – ASOFR5SNAP *ruc, q, r, h* ASCAP6SNAP *ruc, q, i =* RDPOSSNAP *ruc, q, h* – ASOFR6SNAP *ruc, q, r, h*(13) The RUC Shortfall in MW for one QSE for one 15-minute Settlement Interval, as measured at the end of the Adjustment Period, is:**RUCSFADJ *ruc, q, i* = Max (RUCOSFADJ *ruc, q, i*, RUCASFADJ *q, i* )**(14) The overall shortfall in MW that a QSE had at the end of the Adjustment Period for a 15-minute Settlement Interval, but including capacity from IRRs as seen in the RUC Snapshot and capacity from DC-Coupled Resources, is:**RUCOSFADJ *ruc, q, i*  = Max (0, ((RTAML *q, p, i* \*4) + ASONPOSADJ *q, i* – (RCAPSNAP *ruc, q, r, h* +  DCRCAPADJ *ruc, q, r, h* + RUCCAPADJ *q, i*)))**Where,The On-Line Ancillary Service Position the QSE had at the end of the Adjustment Period for a 15-minute Settlement Interval is:ASONPOSADJ *q ,i* = RUPOSADJ *q, h* + RRPOSADJ *q, h* + Max (0, (ECRPOSADJ *q, h* + NSPOSADJ *q,h* – ASOFFOFRADJ *q, r, h* )) The amount of capacity that a QSE had at the end of the Adjustment Period for a 15-minute Settlement Interval, excluding capacity from IRRs and DC-Coupled Resources, is:RUCCAPADJ *q, i* = RCAPADJ *q, r, h* + (RUCCPADJ *q, h* – RUCCSADJ *q, h*) + (DAEP *q, p, h* – DAES *q, p, h*) + (RTQQEPADJ *q, p, i* – RTQQESADJ *q, p, i*) +  RTDCIMP *q, p* + ASOFRLRADJ *q, r, h*(15) The Ancillary Service shortfall calculation compares the Ancillary Service capability of the QSE, measured by the submitted Ancillary Service Offers, to the Ancillary Service Position. Because the same Resource capacity can be represented in Ancillary Offers for multiple products, the aggregated capability is accounted for by grouping Ancillary Service types in the calculation below. The Ancillary Service shortfall in MW that a QSE had at the end of the Adjustment Period for a 15-minute Settlement Interval is:**RUCASFADJ *q, i* = Max (0, ASCAP1ADJ *q, i* , ASCAP2ADJ *q, i* , ASCAP3ADJ *q, i* , ASCAP4ADJ *q, i* , ASCAP5ADJ *q, i*) + Max (0, ASCAP6ADJ *q, i* )**Where,ASCAP1ADJ *q, i* = RUPOSADJ *q, h* –  ASOFR1ADJ *q, r, h* ASCAP2ADJ *q, i* = RRPOSADJ *q, h* –  ASOFR2ADJ *q, r, h* ASCAP3ADJ *q, i* = (RUPOSADJ *q, h* + RRPOSADJ *q, h* ) –  ASOFR3ADJ *q, r, h* ASCAP4ADJ *q, i* = (RUPOSADJ *q, h* + RRPOSADJ *q, h* + ECRPOSADJ *q, h*) –  ASOFR4ADJ *q, r, h* ASCAP5ADJ *q, i* = (RUPOSADJ *q, h* + RRPOSADJ *q, h* + ECRPOSADJ *q, h* + NSPOSADJ *q, h* ) –  ASOFR5ADJ *q, r, h* ASCAP6ADJ *q, i* = RDPOSADJ *q, h* – ASOFR6ADJ *q, r, h* The above variables are defined as follows:

| Variable | Unit | Definition |
| --- | --- | --- |
| RUCSFRS *ruc, i, q* | none | *RUC Shortfall Ratio Share*—The ratio of the QSE *q*’s capacity shortfall to the sum of all QSEs’ capacity shortfalls, for the RUC process *ruc*, for the 15-minute Settlement Interval *i*. |
| RUCSF *ruc, i, q* | MW | *RUC Shortfall*—The QSE *q*’s capacity shortfall for the RUC process *ruc* for the 15-minute Settlement Interval *i*. |
| RUCSFTOT *ruc, i* | MW | *RUC Shortfall Total*—The sum of all QSEs’ capacity shortfalls, for a RUC process *ruc*, for a 15-minute Settlement Interval *i*. |
| RUCSFSNAP *ruc, q, i* | MW | *RUC Shortfall at Snapshot*—The QSE *q*’s capacity shortfall will be the maximum of the QSE’s overall shortfall or Ancillary Service shortfall, as calculated for the RUC process *ruc* for the 15-minute Settlement Interval *i*. |
| RUCSFADJ *ruc, q, i* | MW | *RUC Shortfall at End of Adjustment Period*—The QSE *q*’s end of Adjustment Period capacity shortfall will be the maximum of the QSE’s overall shortfall or Ancillary Service shortfall, as calculated for the RUC process *ruc*, for the 15-minute Settlement Interval *i*. |
| RUCCAPCREDIT *q, i, z* | MW | *RUC Capacity Credit*—The QSE *q*’s capacity credit resulting from capacity paid through the RUC Capacity-Short Amount for RUC process *z* for the 15-minute Settlement Interval *i*. |
| RUCOSFSNAP *ruc, q, i* | MW | *RUC Overall Shortfall at Snapshot* —The QSE *q*’s overall capacity shortfall according to the RUC Snapshot for the RUC process *ruc* for the 15-minute Settlement Interval *i*. |
| RUCASFSNAP *ruc, q, i* | MW | *RUC Ancillary Service Shortfall at Snapshot* —The QSE *q*’s Ancillary Service capacity shortfall according to the RUC Snapshot for the RUC process *ruc* for the 15-minute Settlement Interval *i*. |
| ASONPOSSNAP *ruc ,q ,i* | MW | *Ancillary Service On-Line Position at Snapshot –* The QSE *q’s* total On-Line Ancillary Service position according to the RUC Snapshot for the RUC process *ruc* for the 15-minute Settlement Interval *i.*  |
| RUPOSSNAP *ruc, q, h* | MW | *Regulation Up Position at Snapshot* ⎯The QSE *q’s* Real-Time Reg-Up Ancillary Service Position according to the RUC Snapshot for the RUC process *ruc* for the hour *h* that includes the 15-minute Settlement Interval. |
| RRPOSSNAP *ruc, q, h* | MW | *Responsive Reserve Service Position at Snapshot* ⎯The QSE *q’s* Real-Time RRS Ancillary Service Position according to the RUC Snapshot for the RUC process *ruc* for the hour *h* that includes the 15-minute Settlement Interval. |
| ECRPOSSNAP *ruc, q, h* | MW | *ERCOT Contingency Reserve Service Position at Snapshot* ⎯The QSE *q’s* Real-Time ECRS Ancillary Service Position according to the RUC Snapshot for the RUC process *ruc* for the hour *h* that includes the 15-minute Settlement Interval. |
| NSPOSSNAP *ruc, q, h* | MW | *Non-Spin Reserve Service Position at Snapshot* ⎯The QSE *q’s* Real-Time Non-Spin Ancillary Service Position according to the RUC Snapshot for the RUC process *ruc* for the hour *h* that includes the 15-minute Settlement Interval. |
| RDPOSSNAP *ruc, q, h* | MW | *Regulation Down Position at Snapshot* ⎯The QSE *q’s* Real-Time Reg-Down Ancillary Service Position according to the RUC Snapshot for the RUC process *ruc* for the hour *h* that includes the 15-minute Settlement Interval. |
| ASOFFOFRSNAP *ruc, q, r, h* | MW | *Ancillary Service Offline Offers at Snapshot –*The capacity represented by validated Ancillary Service Offers for ECRS and Non-Spin for Resource *r* represented by QSE *q* according to the RUC Snapshot for the RUC process *ruc* for the hour *h* that includes the 15-minute Settlement Interval. Where for a Combined Cycle Train, the Resource *r* is a Combined Cycle Generation Resource within the Combined Cycle Train. A Resource’s offered capacity is only included in the sum to the extent that the Resource’s COP Status and Ancillary Service Capability indicate it would be capable of providing the Ancillary Service during the hour *h*. |
| ASOFRLRSNAP *ruc, q, r, h* | MW | *Ancillary Service Offer per Load Resource at Snapshot –* The capacity represented by validated Ancillary Service Offers for Reg-Up, Non-Spin, RRS, and ECRS for the Load Resource *r* represented by QSE *q* according to the RUC Snapshot for the RUC process *ruc* for the hour *h* that includes the 15-minute Settlement Interval. A Resource’s offered capacity is only included in the sum to the extent that the Resource’s COP Status and Ancillary Service Capability indicate it would be capable of providing the Ancillary Service during the hour *h*. |
| ASCAP1SNAP *ruc, q, i* | MW | *Ancillary Service Net Capacity Level 1 at Snapshot* ⎯The net capacity for Reg-Up for QSE *q*, according to the RUC Snapshot for the RUC process *ruc* for the 15-minute Settlement Interval *i*. |
| ASCAP2SNAP *ruc, q, i* | MW | *Ancillary Service Net Capacity Level 2 at Snapshot* ⎯The net capacity for RRS for QSE *q*, according to the RUC Snapshot for the RUC process *ruc* for the 15-minute Settlement Interval *i*. |
| ASCAP3SNAP *ruc, q, i* | MW | *Ancillary Service Net Capacity Level 3 at Snapshot* ⎯The net capacity for Reg-Up and RRS for QSE *q*, according to the RUC Snapshot for the RUC process *ruc* for the 15-minute Settlement Interval *i*. |
| ASCAP4SNAP *ruc, q, i* | MW | *Ancillary Service Net Capacity Level 4 at Snapshot* ⎯The net capacity for Reg-Up, RRS, and ECRS for QSE *q*, according to the RUC Snapshot for the RUC process *ruc* for the 15-minute Settlement Interval *i*. |
| ASCAP5SNAP *ruc, q, i* | MW | *Ancillary Service Net Capacity Level 5 at Snapshot* ⎯The net capacity for Reg-Up, RRS, ECRS, and Non-Spinning Reserve (Non-Spin) for QSE *q*, according to the RUC Snapshot for the RUC process *ruc* for the 15-minute Settlement Interval *i*. |
| ASCAP6SNAP *ruc, q, i* | MW | *Ancillary Service Net Capacity Level 6 at Snapshot* ⎯The net capacity for Regulation Down Service (Reg-Down) for QSE *q*, according to the RUC Snapshot for the RUC process *ruc* for the 15-minute Settlement Interval *i*. |
| ASOFR1SNAP *ruc, q, r, h* | MW | *Ancillary Service Offer Level 1 at Snapshot –* The capacity represented by validated Reg-Up Ancillary Service Offers for Resource *r* represented by QSE *q* according to the RUC Snapshot for the RUC process *ruc* for the hour *h* that includes the 15-minute Settlement Interval. Where for a Combined Cycle Train, the Resource *r* is a Combined Cycle Generation Resource within the Combined Cycle Train. A Resource’s offered capacity is only included in the sum to the extent that the Resource’s COP Status and Ancillary Service Capability indicate it would be capable of providing the Ancillary Service during the hour *h*. |
| ASOFR2SNAP *ruc, q, r, h* | MW | *Ancillary Service Offer Level 2 at Snapshot –* The capacity represented by validated RRS Ancillary Service Offers for Resource *r* represented by QSE *q* according to the RUC Snapshot for the RUC process *ruc* for the hour *h* that includes the 15-minute Settlement Interval. Where for a Combined Cycle Train, the Resource *r* is a Combined Cycle Generation Resource within the Combined Cycle Train. A Resource’s offered capacity is only included in the sum to the extent that the Resource’s COP Status and Ancillary Service Capability indicate it would be capable of providing the Ancillary Service during the hour *h*.  |
| ASOFR3SNAP *ruc, q, r, h* | MW | *Ancillary Service Offer Level 3 at Snapshot –* The capacity represented by validated Reg-Up and RRS Ancillary Service Offers for Resource *r* represented by QSE *q* according to the RUC Snapshot for the RUC process *ruc* for the hour *h* that includes the 15-minute Settlement Interval. Where for a Combined Cycle Train, the Resource *r* is a Combined Cycle Generation Resource within the Combined Cycle Train. A Resource’s offered capacity is only included in the sum to the extent that the Resource’s COP Status and Ancillary Service Capability indicate it would be capable of providing the Ancillary Service during the hour *h*. |
| ASOFR4SNAP *ruc, q, r, h* | MW | *Ancillary Service Offer Level 4 at Snapshot –* The capacity represented by validated Reg-Up, RRS, and ECRS Ancillary Service Offers for Resource *r* represented by QSE *q* according to the RUC Snapshot for the RUC process *ruc* for the hour *h* that includes the 15-minute Settlement Interval. Where for a Combined Cycle Train, the Resource *r* is a Combined Cycle Generation Resource within the Combined Cycle Train. A Resource’s offered capacity is only included in the sum to the extent that the Resource’s COP Status and Ancillary Service Capability indicate it would be capable of providing the Ancillary Service during the hour *h*. |
| ASOFR5SNAP *ruc, q, r, h* | MW | *Ancillary Service Offer Level 5 at Snapshot –* The capacity represented by validated Reg-Up, RRS, ECRS, and Non-Spin Ancillary Service Offers for Resource *r* represented by QSE *q* according to the RUC Snapshot for the RUC process *ruc* for the hour *h* that includes the 15-minute Settlement Interval. Where for a Combined Cycle Train, the Resource *r* is a Combined Cycle Generation Resource within the Combined Cycle Train. A Resource’s offered capacity is only included in the sum to the extent that the Resource’s COP Status and Ancillary Service Capability indicate it would be capable of providing the Ancillary Service during the hour *h*. |
| ASOFR6SNAP *ruc, q, r, h* | MW | *Ancillary Service Offer Level 6 at Snapshot –* The capacity represented by validated Reg-Down Ancillary Service Offers for Resource *r* represented by QSE *q* according to the RUC Snapshot for the RUC process *ruc* for the hour *h* that includes the 15-minute Settlement Interval. Where for a Combined Cycle Train, the Resource *r* is a Combined Cycle Generation Resource within the Combined Cycle Train. A Resource’s offered capacity is only included in the sum to the extent that the Resource’s COP Status and Ancillary Service Capability indicate it would be capable of providing the Ancillary Service during the hour *h*. |
| RUCOSFADJ *ruc, q, i* | MW | *RUC Overall Shortfall at End of Adjustment Period* —The QSE *q’s* overall capacity shortfall at the end of the Adjustment Period, including capacity from IRRs as seen in the RUC Snapshot for the RUC process *ruc* and capacity from DC-Coupled Resources, for the 15-minute Settlement Interval *i*. |
| RUCASFADJ *q, i* | MW | *RUC Ancillary Service Shortfall at End of Adjustment Period* —The QSE *q’s* Ancillary Service capacity shortfall at the end of the Adjustment Period for the 15-minute Settlement Interval *i*. |
| ASONPOSADJ *q ,i* | MW | *Ancillary Service On-Line Position at End of Adjustment Period –* The QSE *q’s* total On-Line Ancillary Service position at the end of the Adjustment Periodfor the 15-minute Settlement Interval *i.* |
| RUPOSADJ *q, h* | MW | *Regulation Up Position at End of Adjustment Period* ⎯The QSE *q’s* Reg-Up Ancillary Service Position at the end of the Adjustment Period for the hour *h* that includes the 15-minute Settlement Interval. |
| RRPOSADJ *q, h* | MW | *Responsive Reserve Service Position at End of Adjustment Period* ⎯The QSE *q’s* RRS Ancillary Service Position at the end of the Adjustment Period for the hour *h* that includes the 15-minute Settlement Interval. |
| ECRPOSADJ *q, h* | MW | *ERCOT Contingency Reserve Service Position at End of Adjustment Period* ⎯The QSE *q’s* ECRS Ancillary Service Position at the end of the Adjustment Period for the hour *h* that includes the 15-minute Settlement Interval. |
| NSPOSADJ *q, h* | MW | *Non-Spin Reserve Service Position at End of Adjustment Period* ⎯The QSE *q’s* Non-Spin Ancillary Service Position at the end of the Adjustment Period for the hour *h* that includes the 15-minute Settlement Interval. |
| RDPOSADJ *q, h* | MW | *Regulation Down Position at End of Adjustment Period* ⎯The QSE *q’s* Reg-Down Ancillary Service Position at the end of the Adjustment period for the hour *h* that includes the 15-minute Settlement Interval. |
| ASOFFOFRADJ *q, r, h* | MW | *Ancillary Service Offline Offers at End of Adjustment Period –*The capacity represented by validated Ancillary Service Offers for ECRS and Non-Spin for Resource *r* represented by QSE *q* at the end of the Adjustment Period for the hour *h* that includes the 15-minute Settlement Interval. Where for a Combined Cycle Train, the Resource *r* is a Combined Cycle Generation Resource within the Combined Cycle Train. A Resource’s offered capacity is only included in the sum to the extent that the Resource’s COP Status and Ancillary Service Capability indicate it would be capable of providing the Ancillary Service during the hour *h*. |
| ASOFRLRADJ *q, r, h* | MW | *Ancillary Service Offer per Load Resource at End of Adjustment Period –* The capacity represented by validated Ancillary Service Offers for Reg-Up, Non-Spin, RRS, and ECRS for the Load Resource *r* represented by QSE *q* at the end of the Adjustment Period for the hour *h* that includes the 15-minute Settlement Interval. A Resource’s offered capacity is only included in the sum to the extent that the Resource’s COP Status and Ancillary Service Capability indicate it would be capable of providing the Ancillary Service during the hour *h.* |
| ASCAP1ADJ *q, i* | MW | *Ancillary Service Net Capacity Level 1 at End of Adjustment Period* ⎯The net capacity at the end of the Adjustment Period for Reg-Up for QSE *q*, for the 15-minute Settlement Interval *i*. |
| ASCAP2ADJ *q, i* | MW | *Ancillary Service Net Capacity Level 2 at End of Adjustment Period* ⎯The net capacity at the end of the Adjustment Period for RRS for QSE *q*, for the 15-minute Settlement Interval *i*. |
| ASCAP3ADJ *q, i* | MW | *Ancillary Service Net Capacity Level 3 at End of Adjustment Period* ⎯The net capacity at the end of the Adjustment Period for Reg-Up and RRS for QSE *q*, for the 15-minute Settlement Interval *i*. |
| ASCAP4ADJ *q, i* | MW | *Ancillary Service Net Capacity Level 4 at End of Adjustment Period* ⎯The net capacity at the end of the Adjustment Period for Reg-Up, RRS, and ECRS for QSE *q*, for the 15-minute Settlement Interval *i*. |
| ASCAP5ADJ *q, i* | MW | *Ancillary Service Net Capacity Level 5 at End of Adjustment Period* ⎯The net capacity at the end of the Adjustment Period for Reg-Up, RRS, ECRS, and Non-Spin for QSE *q*, for the 15-minute Settlement Interval *i*. |
| ASCAP6ADJ *q, i* | MW | *Ancillary Service Net Capacity Level 6 at End of Adjustment Period* ⎯ The net capacity at the end of the Adjustment Period for Reg-Down for QSE *q*, for the 15-minute Settlement Interval *i*. |
| ASOFR1ADJ *q, r, h* | MW | *Ancillary Service Offer Level 1 at End of Adjustment Period –* The capacity represented by validated Reg-Up Ancillary Service Offers for Resource *r* represented by QSE *q* at the end of the Adjustment Period for the hour *h* that includes the 15-minute Settlement Interval. Where for a Combined Cycle Train, the Resource *r* is a Combined Cycle Generation Resource within the Combined Cycle Train. A Resource’s offered capacity is only included in the sum to the extent that the Resource’s COP status and Ancillary Service Capability indicate it would be capable of providing the Ancillary Service during the hour *h*. |
| ASOFR2ADJ *q, r, h* | MW | *Ancillary Service Offer Level 2 at End of Adjustment Period –* The capacity represented by validated RRS Ancillary Service Offers for Resource *r* represented by QSE *q* at the end of the Adjustment Period for the hour *h* that includes the 15-minute Settlement Interval. Where for a Combined Cycle Train, the Resource *r* is a Combined Cycle Generation Resource within the Combined Cycle Train. A Resource’s offered capacity is only included in the sum to the extent that the Resource’s COP status and Ancillary Service Capability indicate it would be capable of providing the Ancillary Service during the hour *h*. |
| ASOFR3ADJ *q, r, h* | MW | *Ancillary Service Offer Level 3 at End of Adjustment Period –* The capacity represented by validated Reg-Up and RRS Ancillary Service Offers for Resource *r* represented by QSE *q* at the end of the Adjustment Period for the hour *h* that includes the 15-minute Settlement Interval. Where for a Combined Cycle Train, the Resource *r* is a Combined Cycle Generation Resource within the Combined Cycle Train. A Resource’s offered capacity is only included in the sum to the extent that the Resource’s COP status and Ancillary Service Capability indicate it would be capable of providing the Ancillary Service during the hour *h*. |
| ASOFR4ADJ *q, r, h* | MW | *Ancillary Service Offer Level 4 at End of Adjustment Period –* The capacity represented by validated Reg-Up, RRS, and ECRS Ancillary Service Offers for Resource *r* represented by QSE *q* at the end of the Adjustment Period for the hour *h* that includes the 15-minute Settlement Interval. Where for a Combined Cycle Train, the Resource *r* is a Combined Cycle Generation Resource within the Combined Cycle Train. A Resource’s offered capacity is only included in the sum to the extent that the Resource’s COP status and Ancillary Service Capability indicate it would be capable of providing the Ancillary Service during the hour *h*. |
| ASOFR5ADJ *q, r, h* | MW | *Ancillary Service Offer Level 5 at End of Adjustment Period–* The capacity represented by validated Reg-Up, RRS, ECRS, and Non-Spin Ancillary Service Offers for Resource *r* represented by QSE *q* at the end of the Adjustment Period for the hour *h* that includes the 15-minute Settlement Interval. Where for a Combined Cycle Train, the Resource *r* is a Combined Cycle Generation Resource within the Combined Cycle Train. A Resource’s offered capacity is only included in the sum to the extent that the Resource’s COP status and Ancillary Service Capability indicate it would be capable of providing the Ancillary Service during the hour *h*. |
| ASOFR6ADJ *q, r, h* | MW | *Ancillary Service Offer Level 6 at End of Adjustment Period –* The capacity represented by validated Reg-Down Ancillary Service Offers for Resource *r* represented by QSE *q* at the end of the Adjustment Period for the hour *h* that includes the 15-minute Settlement Interval. Where for a Combined Cycle Train, the Resource *r* is a Combined Cycle Generation Resource within the Combined Cycle Train. A Resource’s offered capacity is only included in the sum to the extent that the Resource’s COP status and Ancillary Service Capability indicate it would be capable of providing the Ancillary Service during the hour *h*. |
| RTAML *q, p, i* | MWh | *Real-Time Adjusted Metered Load*—The QSE *q*’s Adjusted Metered Load (AML) at the Settlement Point *p* for the 15-minute Settlement Interval *i*. |
| RUCCAPSNAP *ruc, q, i* | MW | *RUC Capacity Snapshot at time of RUC*—The amount of the QSE *q*’s calculated capacity in the RUC Snapshot for the RUC process *ruc* for a 15-minute Settlement Interval *i*.  |
| RCAPSNAP *ruc, q, r, h* | MW | *Resource Capacity at Snapshot*—The available capacity of Generation Resource or ESR *r,* that is not a DC-Coupled Resource, represented by the QSE *q*, according to the RUC Snapshot for the RUC process *ruc* for the hour *h* that includes the 15-minute Settlement Interval. For ESRs and Generation Resources that are not IRRs, the available capacity shall be equal to HSL. For WGRs and PVGRs, the available capacity shall be equal to the WGRPP and the PVGRPP, respectively. Where for a Combined Cycle Train, the Resource *r* is a Combined Cycle Generation Resource within the Combined Cycle Train.  |
|  |  |  |
| *DCRCAPSNAP ruc, q, r, h* | MW | *DC-Coupled Resource Capacity at Snapshot*—The Resource Capacity of DC-Coupled Resource *r* represented by the QSE *q* for the hour *h*, according to the RUC Snapshot for the RUC process *ruc*.  |
| DCRCAPADJ *ruc, q, r, h* | MW | *DC-Coupled Resource Capacity at Adjustment Period*—The Resource Capacity of DC-Coupled Resource *r* represented by the QSE *q* for the hour *h*, at the end of the Adjustment Period.  |
| DCIMPSNAP *ruc, q, p, i* | MW | *DC Import at Snapshot*—The approved aggregated DC Tie Schedule submitted by QSE *q* as an importer into the ERCOT System through DC Tie *p*, according to the RUC Snapshot for the RUC process *ruc* for the 15-minute Settlement Interval *i*. |
| RTDCIMP *q, p* | MW | *Real-Time DC Import per QSE per Settlement Point*—The aggregated final, approved DC Tie Schedule submitted by QSE *q* as an importer into the ERCOT System through DC Tie *p*, for the 15-minute Settlement Interval. |
| RUCCPSNAP *ruc, q, h* | MW | *RUC Capacity Purchase at Snapshot*—The QSE *q*’s capacity purchase, according to the RUC Snapshot for the RUC process *ruc* for the hour *h* that includes the 15-minute Settlement Interval. |
| RUCCSSNAP *ruc, q, h* | MW | *RUC Capacity Sale at Snapshot*—The QSE *q*’s capacity sale, according to the RUC Snapshot for the RUC process *ruc* for the hour *h* that includes the 15-minute Settlement Interval. |
| RUCCAPADJ *q, i* | MW | *RUC Capacity at End of Adjustment Period*—The amount of the QSE *q*’s calculated capacity, excluding capacity for IRRs and DC-Coupled Resources, at the end of the Adjustment Period for a 15-minute Settlement Interval *i.* |
| RCAPADJ *q, r, h* | MW | *Resource Capacity at End of Adjustment Period*—The HSL of a non-IRR Generation Resource or ESR *r,* that is not a DC-Coupled Resource, represented by the QSE *q* at the end of the Adjustment Period, for the hour *h* that includes the 15-minute Settlement Interval. Where for a Combined Cycle Train, the Resource *r* is a Combined Cycle Generation Resource within the Combined Cycle Train.  |
| RUCCPADJ *q, h* | MW | *RUC Capacity Purchase at End of Adjustment Period*—The QSE *q*’s capacity purchase, at the end of Adjustment Period for the hour *h* that includes the 15-minute Settlement Interval. |
| RUCCSADJ *q, h* | MW | *RUC Capacity Sale at End of Adjustment Period*—The QSE *q*’s capacity sale, at the end of Adjustment Period for the hour *h* that includes the 15-minute Settlement Interval. |
| DAEP *q, p, h* | MW | *Day-Ahead Energy Purchase*—The QSE *q*’s energy purchased in the DAM at the Settlement Point *p* for the hour *h* that includes the 15-minute Settlement Interval. |
| DAES *q, p, h* | MW | *Day-Ahead Energy Sale*—The QSE *q*’s energy sold in the DAM at the Settlement Point *p* for the hour *h* that includes the 15-minute Settlement Interval. |
| RTQQEPSNAP *ruc, q, p, i* | MW | *Real-Time QSE-to-QSE Energy Purchase at Snapshot*—The QSE *q*’s Energy Trades in which the QSE is the buyer at the delivery Settlement Point *p* for the 15-minute Settlement Interval *i*, in the RUC Snapshot for the RUC process *ruc*. |
| RTQQESSNAP *ruc, q, p, i* | MW | *Real-Time QSE-to-QSE Energy Sale at Snapshot*—The QSE *q*’s Energy Trades in which the QSE is the seller at the delivery Settlement Point *p* for the 15-minute Settlement Interval *i*, in the RUC Snapshot for the RUC process *ruc*. |
| RTQQEPADJ *q, p, i* | MW | *Real-Time QSE-to-QSE Energy Purchase at End of Adjustment Period*—The QSE *q*’s Energy Trades in which the QSE is the buyer at the delivery Settlement Point *p* for the 15-minute Settlement Interval *i*, at the end of the Adjustment Period for that Settlement Interval. |
| RTQQESADJ *q, p, i* | MW | *Real-Time QSE-to-QSE Energy Sale at End of Adjustment Period*—The QSE *q*’s Energy Trades in which the QSE is the seller at the delivery Settlement Point *p* for the 15-minute Settlement Interval *i*, at the end of the Adjustment Period for that Settlement Interval. |
| *q* | none | A QSE. |
| *p* | none | A Settlement Point. |
| *r* | none | A Generation Resource, an ESR, or a Load Resource. |
| *z* | none | A previous RUC process for the Operating Day. |
| *i* | none | A 15-minute Settlement Interval. |
| *h* | none | The hour that includes the Settlement Interval *i*.  |
| *ruc* | none | The RUC process for which this RUC Shortfall Ratio Share is calculated. |

 |

**6.6.2.1 ERCOT Total Adjusted Metered Load for a 15-Minute Settlement Interval**

(1) ERCOT total Adjusted Metered Load (AML) for a 15-minute Settlement Interval is calculated as follows:

**RTAMLTOT = (max(0,RTAML *q, p*))**

The above variables are defined as follows:

|  |  |  |
| --- | --- | --- |
| **Variable** | **Unit** | **Description** |
| RTAMLTOT | MWh | *Real-Time Adjusted Metered Load Total*—The total AML in ERCOT, for the 15-minute Settlement Interval. |
| RTAML *q, p* | MWh | *Real-Time Adjusted Metered Load per Qualified Scheduling Entity (QSE) per Settlement Point*—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. |
| *q* | none | A QSE. The summation is over all of the QSEs with metered readings in that interval. |
| *p* | none | A Settlement Point. The summation is over all of the Settlement Points. |

**6.6.2.3 ERCOT Total Adjusted Metered Load for an Operating Hour**

(1) ERCOT total AML for an Operating Hour is calculated as follows:

**HRTAMLTOT = (max(0, RTAML *q, p*)** **)**

The above variables are defined as follows:

|  |  |  |
| --- | --- | --- |
| **Variable** | **Unit** | **Description** |
| HRTAMLTOT | MWh | *Real-Time Adjusted Metered Load Total*—The total AML in ERCOT, for the Operating Hour. |
| RTAML *q, p* | MWh | *Real-Time Adjusted Metered Load per QSE per Settlement Point*—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. |
| *q* | none | A QSE. The summation is over all of the QSEs with metered readings in that interval. |
| *p* | none | A Settlement Point. The summation is over all of the Settlement Points. |
| *i* | none | A 15-minute Settlement Interval in the Operating Hour. The summation is over all of the Settlement Intervals of the Operating Hour. |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| ***[NPRR1030: Insert Section 6.6.2.6 below upon system implementation:]*****6.6.2.6 QSE DC Tie Export Load Ratio Share for a Month**(1) Each QSE’s DC Tie Export DCMLRS for a calendar month is calculated as follows:**DCMLRS *q* = max(0, RTAMLDC *q,p,i* ) / MRTAMLTOT** The above variables are defined as follows:

|  |  |  |
| --- | --- | --- |
| **Variable** | **Unit** | **Description** |
| DCMLRS *q* | none | *DC Tie Export Monthly Load Ratio Share per QSE*—The ratio share calculated for QSE *q* with DC Tie Exports for the calendar month. |
| RTAMLDC *q,p,i*  | MWh | *Real-Time Adjusted Metered Load for DC Ties per Settlement Point per QSE*—The sum of the DC Tie AML at the Electrical Buses that are included in Settlement Point *p*, represented by QSE *q*, for the 15-minute Settlement Interval *i*.  |
| MRTAMLTOT | MWh | *Monthly Real-Time Adjusted Metered Load Total*—The total AML in ERCOT, for the calendar month. |
| *q* | none | A QSE.  |
| *p* | none | A Settlement Point.  |
| *i* | none | A 15-minute Settlement Interval.  |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| ***[NPRR1030: Insert Section 6.6.2.8 below upon system implementation:]*****6.6.2.8 QSE DC Tie Export Load Ratio Share by Congestion Management Zone for a Month**(1) Each QSE’s DC Tie Export DCMLRSZ by CMZ for a calendar month is calculated as follows:**DCMLRSZ q,z = max(0, RTAMLDC *q, p,i* ) / MRTAMLLZTOT*z***The above variables are defined as follows:

|  |  |  |
| --- | --- | --- |
| **Variable** | **Unit** | **Description** |
| DCMLRSZ *q,z* | none | *DC Tie Exports Monthly Load Ratio Share Zonal per QSE*—The ratio share calculated for QSE *q* with DC Tie exports by CMZ *z* for the calendar month. |
| RTAMLDC *q,p,i*  | MWh | *Real-Time Adjusted Metered Load for DC Ties per Settlement Point per QSE*—The sum of the DC Tie AML at the Electrical Buses that are included in Settlement Point *p*, represented by QSE *q*, for the 15-minute Settlement Interval *i*.  |
| MRTAMLLZTOT*z* | MWh | *Monthly Real-Time Adjusted Metered Load - Load Zone Total*—The total AML in CMZ z, for the calendar month. |
| *q* | none | A QSE.  |
| *p* | none | A Settlement Point in the 2003 ERCOT CMZ. |
| *i* | none | A 15-minute Settlement Interval.  |
| *z* | none | A 2003 ERCOT CMZ. |

 |

**6.6.3.5 Real-Time Payment for a Block Load Transfer Point**

(1) ERCOT shall pay each QSE for the energy delivered to an ERCOT Load through a Block Load Transfer (BLT) Point that is registered for Settlement when that Load is moved from the ERCOT Control Area to a non-ERCOT Control Area. The payment for a given 15-minute Settlement Interval is calculated as follows:

**BLTRAMT *q, bltp, p* = (-1) \* MAX {RTSPPEW *p*, (VEEPBLTP *q, bltp*) *\** CABLT} \* BLTR *q, p, bltp***

The above variables are defined as follows:

|  |  |  |
| --- | --- | --- |
| **Variable** | **Unit** | **Definition** |
| BLTRAMT *q, bltp, p* | $ | *Block Load Transfer Resource Amount per QSE per Settlement Point per BLT Point*⎯The payment to QSE *q* for the BLT Resource that delivers energy to Load Zone *p* through BLT Point *bltp*, for the 15-minute Settlement Interval. |
| RTSPPEW *p* | $/MWh | *Real-Time Settlement Point Price per Settlement Point Energy-Weighted*⎯The Real-Time Settlement Point Price at Settlement Point *p*, for the 15-minute Settlement Interval, that is weighted by the state estimated Load of the Load Zone of each SCED interval within the 15-minute Settlement Internal. |
| VEEPBLTP *q, bltp* | $/MWh | *Verified Emergency Energy Price at BLT Point*⎯The ERCOT verified cost for the energy delivered to an ERCOT Load through BLT Point *bltp*. |
| CABLT | none | *Cost Adder for Block Load Transfer*⎯A multiplier of 1.10. |
| BLTR *q, p, bltp* | MWh | *Block Load Transfer Resource per QSE per Settlement Point per BLT Point*⎯The energy delivered to an ERCOT Load in Load Zone *p* through BLT Point *bltp* represented by QSE *q*, for the 15-minute Settlement Interval.  |
| *q* | none | A QSE. |
| *p* | none | A Load Zone Settlement Point. |
| *bltp* | none | A BLT Point. |

(2) The total of the payments to each QSE for all energy delivered to ERCOT Loads through BLT Points for the 15-minute Settlement Interval is calculated as follows:

**BLTRAMTQSETOT *q* = BLTRAMT *q, bltp, p***

The above variables are defined as follows:

|  |  |  |
| --- | --- | --- |
| **Variable** | **Unit** | **Definition** |
| BLTRAMTQSETOT *q* | $ | *Block Load Transfer Resource Amount QSE Total per QSE*⎯The total of the payments to QSE *q* for energy delivered into the ERCOT System through BLT Points for the 15-minute Settlement Interval. |
| BLTRAMT *q, bltp , p* | $ | *Block Load Transfer Resource Amount per QSE per Settlement Point per BLT Point*—The payment to QSE *q* for the BLT Resource at BLT Point *bltp*, which delivers energy to Load Zone *p*, for the 15-minute Settlement Interval. |
| *q* | none | A QSE. |
| *p* | none | A Load Zone Settlement Point. |
| *bltp* | none | A BLT Point. |

(3) For the purpose of Settlement, ERCOT shall treat the energy associated with the Presidio Exception like energy delivered to an ERCOT Load through a BLT Point that is moved from the ERCOT Control Area to a non-ERCOT Control Area, by allowing for compensation of verified costs associated with the energy. After receipt and verification of the invoiced cost associated with the Presidio Exception, ERCOT shall compensate for the energy associated with the Presidio Exception using the monthly verified cost multiplied by the Cost Adder for Block Load Transfer defined in paragraph (1) above. ERCOT shall uplift the cost to QSEs representing Load using the monthly LRS per QSE as defined in Section 7.5.7, Method for Distributing CRR Auction Revenues. Costs associated with the Presidio Exception must be submitted to ERCOT within 90 days of the last day of the month that the costs were incurred.

|  |
| --- |
| ***[NPRR1030: Replace paragraph (3) above with the following upon system implementation:]***(3) For the purpose of Settlement, ERCOT shall treat the energy associated with the Presidio Exception like energy delivered to an ERCOT Load through a BLT Point that is moved from the ERCOT Control Area to a non-ERCOT Control Area, by allowing for compensation of verified costs associated with the energy. After receipt and verification of the invoiced cost associated with the Presidio Exception, ERCOT shall compensate for the energy associated with the Presidio Exception using the monthly verified cost multiplied by the Cost Adder for Block Load Transfer defined in paragraph (1) above. ERCOT shall uplift the cost to QSEs representing Load using the same methodology as defined in Section 7.5.7, Method for Distributing CRR Auction Revenues. Costs associated with the Presidio Exception must be submitted to ERCOT within 90 days of the last day of the month that the costs were incurred. |

(a) The monthly payment to be calculated as follows:

 **MBLTAMT *q, p* = (-1) \* VMEBLTP *q, p*  *\** CABLT**

The above variables are defined as follows:

|  |  |  |
| --- | --- | --- |
| **Variable** | **Unit** | **Definition** |
| MBLTAMT *q, p* | $ | *Monthly Block Load Transfer Amount per QSE per Settlement Point*⎯The payment to QSE *q* for the delivered energy to Load Zone *p* for the month. |
| VMEBLTP *q, p* | $/MWh | *Verified Monthly Energy Cost*⎯The ERCOT verified monthly cost for the energy delivered to an ERCOT Load as determined by an invoice submitted to ERCOT. |
| CABLT | none | *Cost Adder for Block Load Transfer*⎯A multiplier of 1.10. |
| *q* | none | A QSE. |
| *p* | none | A Load Zone Settlement Point. |

(b) The total of the payments to each QSE for all energy delivered to ERCOT Loads through BLT Points for the 15-minute Settlement Interval is calculated as follows:

 **MBLTAMTQSETOT *q* =  MBLTAMT *q, p***

The above variables are defined as follows:

|  |  |  |
| --- | --- | --- |
| **Variable** | **Unit** | **Definition** |
| MBLTAMTQSETOT *q* | $ | *Monthly Block Load Transfer Amount QSE Total per QSE*⎯The total of the payments to QSE *q* for energy delivered into the ERCOT System for the month. |
| MBLTAMT *q, p* | $ | *Monthly Block Load Transfer Amount per QSE per Settlement Point*⎯The payment to QSE *q* for the delivered energy to Load Zone *p* for the month. |
| *q* | none | A QSE. |
| *p* | none | A Load Zone Settlement Point. |

(c) ERCOT shall calculate each QSE’s monthly BLT charge as follows:

 **LAMBLTAMT *q* = (-1) \* MLRS *q*\* MBLTAMTTOT**

 **MBLTAMTTOT =  MBLTAMTQSETOT *q***

The above variables are defined as follows:

|  |  |  |
| --- | --- | --- |
| **Variable** | **Unit** | **Description** |
| MLRS *q* | none | *Monthly Load Ratio Share per QSE*—The LRS calculated for QSE *q* for the peak-Load 15-minute Settlement Interval in the month. See Section 6.6.2.2, QSE Load Ratio Share for a 15-Minute Settlement Interval. |
| MBLTAMTQSETOT *q* | $ | *Monthly Block Load Transfer Amount QSE Total per QSE*⎯The total of the payments to QSE *q* for energy delivered into the ERCOT System for the month. |
| LAMBLTAMT *q* | $ | *Load-Allocated Monthly BLT Amount* *per QSE*—Monthly BLT charge for QSE *q*. |
| MBLTAMTTOT  | $ | *Monthly BLT Amount ERCOT wide Total*—The total monthly BLT charge for all QSEs. |
| *q* | none | A QSE. |

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| ***[NPRR1030: Replace paragraph (c) above with the following upon system implementation:]***(c) ERCOT shall calculate each QSE’s monthly BLT charge as follows:**LAMBLTAMT *q* = (-1) \* (MBLTDC *q* + MBLTNDC *q*)**Where:**MBLTNDC *q* = MLRS *q*\* (MBLTAMTTOT - MBLTDC *q*)****MBLTDC *q* = DCMLRS *q*\* MBLTAMTTOT****MBLTAMTTOT =  MBLTAMTQSETOT *q*** The above variables are defined as follows:

|  |  |  |
| --- | --- | --- |
| **Variable** | **Unit** | **Description** |
| LAMBLTAMT *q* | $ | *Load-Allocated Monthly BLT Amount* *per QSE*— Sum of the monthly BLT charges for Loads and DC Tie exports for QSE *q*. |
| DCMLRS *q* | none | *DC Tie Export Monthly Load Ratio Share per QSE*—The ratio share calculated for QSE *q* with DC Tie Exports for the calendar month. |
| MLRS *q* | none | *Monthly Load Ratio Share per QSE*—The ratio share of Loads excluding DC Tie Exports for QSE *q,* for the peak Load 15-minute Settlement Interval.  |
| MBLTAMTQSETOT *q* | $ | *Monthly Block Load Transfer Amount QSE Total per QSE*⎯The total of the payments to QSE *q* for energy delivered into the ERCOT System for the month. |
| MBLTDC *q* | $ | *Monthly BLT Amount* *for DC Tie Exports* *per QSE*—Monthly BLT amount for DC Tie exports for QSE *q*. |
| MBLTNDC *q* | $ | *Monthly BLT Amount for Non-DC Tie Loads* *per QSE*—Monthly BLT amount for Loads (excluding DC Tie exports) for QSE *q*. |
| MBLTAMTTOT  | $ | *Monthly BLT Amount ERCOT wide Total*—The total monthly BLT payment for all QSEs. |
| *q* | none | A QSE. |

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**6.6.3.6 Real-Time High Dispatch Limit Override Energy Payment**

(1) If ERCOT directs a reduction in a Generation Resource’s real power output by employing a manual High Dispatch Limit (HDL) override and the reduction causes the QSE to suffer a demonstrable financial loss, the QSE may be eligible for a Real-Time High Dispatch Limit Override Energy Payment, as calculated below, upon providing documented proof of that loss. In order to qualify for this payment the QSE must:

(a) Have complied with ERCOT Dispatch Instructions to reduce real power output;

(b) Have received a SCED Base Point equal to the Resource’s HDL override, during the 15-minute Settlement Interval;

(c) Have incurred a demonstrable financial loss associated with variable cost components of DAM obligations or energy purchase or sale provisions of bilateral contracts (as opposed to lost opportunity costs), in consequence of the HDL override; and

(d) File a timely Settlement and billing dispute, including the following items:

(i) An attestation signed by an officer or executive with authority to bind the QSE;

(ii) The dollar amount and calculation of the financial loss by Settlement Interval;

(iii) An explanation of the nature of the loss and how it was attributable to the HDL override; and

(iv) Sufficient documentation to support the QSE’s calculation of the amount of the financial loss.

(2) ERCOT may request additional supporting documentation or explanation with respect to the submitted materials within 15 Business Days of receipt. Additional information requested by ERCOT must be provided by the QSE within 15 business days of ERCOT’s request. ERCOT will provide Notice of its acceptance or rejection of the claim for the High Dispatch Limit Override Energy Payment within 15 Business Days of the updated submission.

(3) The Energy Offer Curve used to calculate the Real-Time High Dispatch Limit Override Energy Payment will be the most recent valid Energy Offer Curve received by ERCOT that was effective for the disputed interval(s) when the HDL override was issued. If no curve exists for the interval being disputed, ERCOT will use the most recent valid Energy Offer Curve received before the HDL override was issued for an interval prior to the disputed interval(s).

The payment shall be calculated as follows:

**HDLOEAMT *q, r, p, i* = (-1) \* Min {HDLOAL *q, r, p, i*, Max(0, ((RTSPP*p, i* – RTRSVPOR *i* – RTRDP *i* – HDLOAIEC*q, r, p, i* ) \* HDLOQTY *q, r, p, i* ))}**

Where:

HDLOQTY *q, r, p, i* = Max(0, (¼ (HDLOBRKP *q, r, p, i* – AVGHDL *q, r, p, i*)))

HDLOBRKP *q, r, p, i* = Min(AVGHASL *q, r, p, i* , HDLOBRKPCP *q, r, p, i* )

The above variables are defined as follows:

| **Variable** | **Unit** | **Definition** |
| --- | --- | --- |
| HDLOAL ***q, r, p, i*** | $ | *High Dispatch Limit override attested losses -* The financial loss to the QSE due to the HDL override as attested by the QSE in accordance with paragraph (1)(d) above. |
| HDLOEAMT ***q, r, p, i*** | $ | *High Dispatch Limit override energy amount per QSE per Generation Resource*—The payment to QSE *q* for an ERCOT-issued HDL override for Generation Resource *r* at Settlement Point *p* for the 15-minute Settlement Interval *i*. For a combined cycle Resource, *r* is a Combined Cycle Train. |
| HDLOBRKP***q, r, p, i*** | MW | *High Dispatch Limit override break point per QSE per Resource*—The point on the Energy Offer Curve corresponding to the lesser of the AVGHASL or the interception between the RTSPP of the Generation Resource *r* represented by QSE *q* minus the Real-Time Reserve Price for On-Line Reserves and the Real-Time On-Line Reliability Deployment Price and the Energy Offer Curve of Generation Resource *r* represented by QSE *q*, for the 15-minute Settlement Interval *i*. For a combined cycle Resource, *r* is a Combined Cycle Train. |
| AVGHDL***q, r, p, i*** | MW | *Average High Dispatch Limit per QSE per Settlement Point per Resource*—The time-weighted average of all 4-second HDL values calculated by the Resource Limit Calculator, subject to the manual HDL override, for the Generation Resource or Controllable Load Resource *r* represented by QSE *q* at Settlement Point *p* within the 15-minute Settlement Interval *i*.  For a Combined Cycle Train, the Resource *r* is a Combined Cycle Generation Resource within the Combined Cycle Train.  |
| AVGHASL ***q, r, p, i*** | MW | *Average High Ancillary Service Limit per QSE per Settlement Point per Resource*—The time-weighted average High Ancillary Service Limit (HASL) calculated every four seconds by the Resource Limit Calculator for the Generation Resource or Controllable Load Resource *r* represented by QSE *q* at Settlement Point *p* within the 15-minute Settlement Interval *i*.  For a Combined Cycle Train, the Resource *r* is a Combined Cycle Generation Resource within the Combined Cycle Train.  |
| HDLOBRKPCP*q, r, p, i* | MW | *High Dispatch Limit override break point at clearing price per QSE per Resource*—The MW value on the Energy Offer Curve corresponding to the Real-Time Settlement Point Price of Generation Resource *r* represented by QSE *q* at Settlement Point *p* minus the Real-Time Reserve Price for On-Line Reserves and the Real-Time On-Line Reliability Deployment Price. For a combined cycle Resource, *r* is a Combined Cycle Train. |
| HDLOAIEC *q, r, p, i* | $/MWh | *High Dispatch Limit override Average Incremental Energy Cost per QSE per Resource—*The average incremental cost (not subject to the cost cap) to operate the Generation Resource *r* represented by QSE *q* at Settlement Point *p* from its AVGHDL to its HDLOBRKP for the 15-minute Settlement Interval *i* and as described in Section 4.6.5, Calculation of “Average Incremental Energy Cost” (AIEC). For a combined cycle Resource, *r* is a Combined Cycle Generation Resource. |
| HDLOQTY *q, r, p, i* | MWh | *High Dispatch Limit override quantity per QSE per Generation Resource—* The difference between the HDLOBRKP and the AVGHDL due to an ERCOT-issued HDL override for Generation Resource *r* represented by QSE *q* at Settlement Point *p* for the 15-minute Settlement Interval *i*. For a combined cycle Resource, *r* is a Combined Cycle Train. |
| RTSPP *p, i* | $/MWh | *Real-Time Settlement Point Price per Settlement Point*—The Real-Time Settlement Point Price at Settlement Point *p*, for the 15-minute Settlement Interval *i*. |
| RTRSVPOR *i* | $/MWh | *Real-Time Reserve Price for On-Line Reserves*⎯The Real-Time Reserve Price for On-Line Reserves for the 15-minute Settlement Interval *i*. |
| RTRDP *i* | $/MWh | *Real-Time On-Line Reliability Deployment Price* ⎯The Real-Time price for the 15-minute Settlement Interval *i*, reflecting the impact of reliability deployments on energy prices that is calculated from the Real-Time On-Line Reliability Deployment Price Adder. |
| *q* | none | A QSE. |
| *r* | none | A Generation Resource. |
| *p* | none | A Resource Node Settlement Point. |
| *i* | none | A 15-minute Settlement Interval. |

(4) The total compensation to each QSE for an HDL override for the 15-minute Settlement Interval is calculated as follows:

**HDLOEAMTQSETOT *q, i*  = HDLOEAMT *q, r, p, i***

The above variables are defined as follows:

| **Variable** | **Unit** | **Definition** |
| --- | --- | --- |
| HDLOEAMT *q, r, p, i* | $ | *High Dispatch Limit override energy amount per QSE per Generation Resource*—The payment to QSE *q* for an ERCOT-issued HDL override for Generation Resource *r* at Settlement Point *p* for the 15-minute Settlement Interval *i*. For a combined cycle Resource, *r* is a Combined Cycle Train. |
| HDLOEAMTQSETOT *q, i* | $ | *High Dispatch Limit override energy amount QSE total per QSE*—The total of the energy payments to QSE *q* as compensation for HDL overrides for this QSE for the 15-minute Settlement Interval *i*. |
| *q* | none | A QSE. |
| *r* | none | A Generation Resource. |
| *p* | none | A Resource Node Settlement Point. |
| *I* | none | A 15-minute Settlement Interval. |

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| [NPRR971 and NPRR1010: Replace applicable portions of Section 6.6.3.7 above with the following upon system implementation for NPRR971; or upon system implementation of the Real-Time Co-Optimization (RTC) project for NPRR1010:]**6.6.3.7 Real-Time High Dispatch Limit Override Energy Payment** (1) If ERCOT directs a reduction in a Generation Resource’s real power output by employing a manual High Dispatch Limit (HDL) override and the reduction causes the QSE to suffer a demonstrable financial loss, the QSE may be eligible for a Real-Time High Dispatch Limit Override Energy Payment, as calculated below, upon providing documented proof of that loss. In order to qualify for this payment the QSE must:(a) Have complied with ERCOT Dispatch Instructions to reduce real power output;(b) Have received a SCED Base Point equal to the Resource’s HDL override, during the 15-minute Settlement Interval;(c) Have incurred a demonstrable financial loss associated with variable cost components of DAM obligations or energy purchase or sale provisions of bilateral contracts (as opposed to lost opportunity costs), in consequence of the HDL override; and(d) File a timely Settlement and billing dispute, including the following items: (i) An attestation signed by an officer or executive with authority to bind the QSE;(ii) The dollar amount and calculation of the financial loss by Settlement Interval;(iii) An explanation of the nature of the loss and how it was attributable to the HDL override; and (iv) Sufficient documentation to support the QSE’s calculation of the amount of the financial loss.(2) ERCOT may request additional supporting documentation or explanation with respect to the submitted materials within 15 Business Days of receipt. Additional information requested by ERCOT must be provided by the QSE within 15 Business Days of ERCOT’s request. ERCOT will provide Notice of its acceptance or rejection of the claim for the High Dispatch Limit Override Energy Payment within 15 Business Days of the updated submission. (3) The Energy Offer Curve used to calculate the Real-Time High Dispatch Limit Override Energy Payment will be the most recent valid Energy Offer Curve received by ERCOT that was effective for the disputed interval(s) when the HDL override was issued. If no curve exists for the interval being disputed, ERCOT will use the most recent valid Energy Offer Curve received before the HDL override was issued for an interval prior to the disputed interval(s).(4) The amount recoverable under this section shall be offset by any Ancillary Service Imbalance revenues received by the QSE that the QSE would not have earned had ERCOT not issued an HDL override. The payment shall be calculated as follows: **HDLOEAMT *q, r, p, i* = (-1) \* Min {HDLOAL *q, r, p, i*, Max(0, ((RTSPP*p, i* – RTRDP *i* – RTEOCOST *q, r, i* ) \* HDLOQTY *q, r, p, i* ))}**Where:HDLOQTY *q, r, p, i* = Max(0, (¼ (HDLOBRKP *q, r, p, i* – AVGHDL *q, r, p, i*)))HDLOBRKP *q, r, p, i* = Min(AVGHSL *q, r, p, i* , HDLOBRKPCP *q, r, p, i* )The above variables are defined as follows:

| **Variable** | **Unit** | **Definition** |
| --- | --- | --- |
| HDLOAL ***q, r, p, i*** | $ | *High Dispatch Limit override attested losses -* The financial loss to the QSE due to the HDL override as attested by the QSE in accordance with paragraph (1)(d) above. |
| HDLOEAMT ***q, r, p, i*** | $ | *High Dispatch Limit override energy amount per QSE per Generation Resource*—The payment to QSE *q* for an ERCOT-issued HDL override for Generation Resource *r* at Settlement Point *p* for the 15-minute Settlement Interval *i*. For a combined cycle Resource, *r* is a Combined Cycle Train. |
| HDLOBRKP***q, r, p, i*** | MW | *High Dispatch Limit override break point per QSE per Resource*—The point on the Energy Offer Curve corresponding to the lesser of the AVGHSL or the interception between the RTSPP of the Generation Resource *r* represented by QSE *q* minus the Real-Time Reliability Deployment Price for Energy and the Energy Offer Curve of Generation Resource *r* represented by QSE *q*, for the 15-minute Settlement Interval *i*. For a combined cycle Resource, *r* is a Combined Cycle Train. |
| AVGHDL***q, r, p, i*** | MW | *Average High Dispatch Limit per QSE per Settlement Point per Resource*—The time-weighted average of all 4-second HDL values calculated by the Resource Limit Calculator, subject to the manual HDL override, for the Generation Resource or Controllable Load Resource *r* represented by QSE *q* at Settlement Point *p* within the 15-minute Settlement Interval *i*.  For a Combined Cycle Train, the Resource *r* is a Combined Cycle Generation Resource within the Combined Cycle Train.  |
| AVGHSL ***q, r, p, i*** | MW | *Average High Sustained Limit per QSE per Settlement Point per Resource*—The time-weighted average High Sustained Limit (HSL) for the Generation Resource or Controllable Load Resource *r* represented by QSE *q* at Settlement Point *p* within the 15-minute Settlement Interval *i*.  For a Combined Cycle Train, the Resource *r* is a Combined Cycle Generation Resource within the Combined Cycle Train.  |
| HDLOBRKPCP*q, r, p, i* | MW | *High Dispatch Limit override break point at clearing price per QSE per Resource*—The MW value on the Energy Offer Curve corresponding to the Real-Time Settlement Point Price of Generation Resource *r* represented by QSE *q* at Settlement Point *p* minus the Real-Time Reliability Deployment Price for Energy. For a combined cycle Resource, *r* is a Combined Cycle Train. |
| RTEOCOST *q, r, i* | $/MWh | *Real-Time Energy Offer Curve Cost Cap—*The Energy Offer Curve Cost Cap for Resource *r* represented by QSE *q*, for the Resource’s generation above the Low Sustained Limit (LSL) for the Settlement Interval *i*. See Section 4.4.9.3.3, Energy Offer Curve Cost Caps. Where for a Combined Cycle Train, the Resource *r* is the Combined Cycle Train. |
| HDLOQTY *q, r, p, i* | MWh | *High Dispatch Limit override quantity per QSE per Generation Resource—* The difference between the HDLOBRKP and the AVGHDL due to an ERCOT-issued HDL override for Generation Resource *r* represented by QSE *q* at Settlement Point *p* for the 15-minute Settlement Interval *i*. For a combined cycle Resource, *r* is a Combined Cycle Train. |
| RTSPP *p, i* | $/MWh | *Real-Time Settlement Point Price per Settlement Point*—The Real-Time Settlement Point Price at Settlement Point *p*, for the 15-minute Settlement Interval *i*. |
| RTRDP *i* | $/MWh | *Real-Time Reliability Deployment Price* *for Energy*⎯The Real-Time price for the 15-minute Settlement Interval *i*, reflecting the impact of reliability deployments on energy prices that is calculated from the Real-Time Reliability Deployment Price Adder for Energy. |
| *q* | none | A QSE. |
| *r* | none | A Generation Resource. |
| *p* | none | A Resource Node Settlement Point. |
| *i* | none | A 15-minute Settlement Interval. |

(5) The total compensation to each QSE for an HDL override for the 15-minute Settlement Interval is calculated as follows:**HDLOEAMTQSETOT *q, i*  = HDLOEAMT *q, r, p, i***The above variables are defined as follows:

| **Variable** | **Unit** | **Definition** |
| --- | --- | --- |
| HDLOEAMT *q, r, p, i* | $ | *High Dispatch Limit override energy amount per QSE per Generation Resource*—The payment to QSE *q* for an ERCOT-issued HDL override for Generation Resource *r* at Settlement Point *p* for the 15-minute Settlement Interval *i*. For a combined cycle Resource, *r* is a Combined Cycle Train. |
| HDLOEAMTQSETOT *q, i* | $ | *High Dispatch Limit override energy amount QSE total per QSE*—The total of the energy payments to QSE *q* as compensation for HDL overrides for this QSE for the 15-minute Settlement Interval *i*. |
| *q* | none | A QSE. |
| *r* | none | A Generation Resource. |
| *p* | none | A Resource Node Settlement Point. |
| *i* | none | A 15-minute Settlement Interval. |

 |

**6.6.3.7 Real-Time High Dispatch Limit Override Energy Charge**

(1) ERCOT shall allocate to QSEs on an LRS basis the total amount of the payment specified in Section 6.6.3.6, Real-Time High Dispatch Limit Override Energy Payment. The charge to each QSE for a given 15-minute Settlement Interval is calculated as follows:

**LAHDLOEAMT *q, i*  = (-1) \* HDLOEAMTTOT \* LRS *q, i***

Where:

HDLOEAMTTOT*i* =  HDLOEAMTQSETOT *q, i*

The above variables are defined as follows:

| **Variable** | **Unit** | **Definition** |
| --- | --- | --- |
| LAHDLOPEAMT *q* | $ | *Load-Allocated High Dispatch Limit override energy amount per QSE*—The charge to QSE *q* for an HDL override, for the 15-minute Settlement Interval. |
| HDLOEAMTTOT *i* | $ | *High Dispatch Limit energy amount total*—The total of payments to all QSEs for HDL overrides, for the 15-minute Settlement Interval *i*. |
| HDLOEAMTQSETOT *q, i* | $ | *High Dispatch Limit override energy amount QSE total per QSE*—The total of the energy payments to QSE *q* as compensation for an HDL override for this QSE for the 15-minute Settlement Interval *i*. |
| LRS *q, i* | none | *The Load Ratio Share* calculated for QSE *q* for the 15-minute Settlement Interval *i*. See Section 6.6.2.2, QSE Load Ratio Share for a 15-Minute Settlement Interval. |
| *q* | none | A QSE. |
| *i* | none | A 15-minute Settlement Interval. |

***6.6.10 Real-Time Revenue Neutrality Allocation***

(1) ERCOT must be revenue-neutral in each Settlement Interval. Each QSE receives an allocated share, on a LRS basis, of the net amount of:

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

(b) Real-Time Energy Imbalance payments or charges under Section 6.6.3.2, Real-Time Energy Imbalance Payment or Charge at a Load Zone;

(c) Real-Time Energy Imbalance payments or charges under Section 6.6.3.3, Real-Time Energy Imbalance Payment or Charge at a Hub;

(d) Real-Time energy payments under Section 6.6.3.4, Real-Time Energy Payment for DC Tie Import;

(e) Real-Time energy payments under Section 6.6.3.5, Real-Time Payment for a Block Load Transfer Point;

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| ***[NPRR917: Insert item (f) below upon system implementation and renumber accordingly:]***(f) Real-Time Energy payments or charges under 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); |

(f) Real-Time congestion payments or charges under Section 6.6.4, Real-Time Congestion Payment or Charge for Self-Schedules; and

(g) Real-Time payments or charges to the Congestion Revenue Right (CRR) Owners under Section 7.9.2, Real-Time CRR Payments and Charges.

(2) The Real-Time Revenue Neutrality Allocation for each QSE for a given 15-minute Settlement Interval is calculated as follows:

**LARTRNAMT *q* = (-1) \* (RTEIAMTTOT + BLTRAMTTOT + RTDCIMPAMTTOT + RTCCAMTTOT + RTOBLAMTTOT / 4 + RTOBLLOAMTTOT / 4) \* LRS *q***

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| ***[NPRR917: Replace the formula “LARTRNAMT q” above with the following upon system implementation:]*****LARTRNAMT *q* = (-1) \* (RTEIAMTTOT + BLTRAMTTOT + RTDCIMPAMTTOT + RTESOGAMTTOT + RTCCAMTTOT + RTOBLAMTTOT / 4 + RTOBLLOAMTTOT / 4) \* LRS *q*** |

Where:

Total Real-Time Energy Imbalance Payment (or Charge) at Settlement Point (or Hub)

RTEIAMTTOT = RTEIAMTQSETOT *q*

Total Real-Time Payment for BLT Resources

BLTRAMTTOT = BLTRAMTQSETOT *q*

Total Real-Time Payment for DC Tie Imports

RTDCIMPAMTTOT = RTDCIMPAMTQSETOT *q*

Total Real-Time Congestion Payment or Charge for Self-Schedules

RTCCAMTTOT = RTCCAMTQSETOT *q*

Total Real-Time Payment or Charge for Point-to-Point (PTP) Obligations

RTOBLAMTTOT = RTOBLAMTQSETOT *q*

Total Real-Time Payment for PTP Obligations with Links to Options

RTOBLLOAMTTOT = RTOBLLOAMTQSETOT *q*

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| ***[NPRR917: Insert the language below upon system implementation:]***Total Real-Time Payment or Charge for energy from SODGs and SOTGs RTESOGAMTTOT =  RTESOGAMTQSETOT *q* |

The above variables are defined as follows:

| **Variable** | **Unit** | **Description** |
| --- | --- | --- |
| LARTRNAMT *q* | $ | *Load-Allocated Real-Time Revenue Neutrality Amount per QSE*—The QSE *q*’s share of the total Real-Time revenue neutrality amount, for the 15-minute Settlement Interval. |
| RTEIAMTTOT *q*  | $ | *Real-Time Energy Imbalance Amount Total*—The total net payments and charges for Real-Time Energy Imbalance Service at all Settlement Points (Resource, Load Zone or Hub) for the 15-minute Interval. |
| BLTRAMTTOT | $ | *Block Load Transfer Resource Amount Total*⎯The total of payments for energy delivered into the ERCOT Region through BLT points for the 15-minute Settlement Interval. |
| RTDCIMPAMTTOT | $ | *Real-Time DC Import Amount Total*—The summation of payments for DC Tie imports for the 15-minute Settlement Interval. |
|  |  |  |
| RTCCAMTTOT  | $ | *Real-Time Energy Congestion Cost Amount Total*—The total net congestion payments and charges for all Self-Schedules for the 15-minute Settlement Interval. |
| RTOBLAMTTOT | $ | *Real-Time Obligation Amount Total*—The sum of all payments and charges for PTP Obligations settled in Real-Time for the hour that includes the 15-minute Settlement Interval. |
| RTOBLLOAMTTOT | $ | *Real-Time Obligation with Links to an Option Amount Total*—The sum of all payments for PTP Obligations with Links to an Option settled in Real-Time for the hour that includes the 15-minute Settlement Interval. |
| RTEIAMTQSETOT *q* | $ | *Real-Time Energy Imbalance Amount QSE Total per QSE*⎯The total net payments and charges to QSE *q* for Real-Time Energy Imbalance at all Resource Node Settlement Points for the 15-minute Settlement Interval. |
| RTCCAMTQSETOT *q* | $ | *Real-Time Congestion Cost Amount QSE Total per QSE*⎯The total net congestion payments and charges to QSE *q* for its Self-Schedules for the 15-minute Settlement Interval. |
| BLTRAMTQSETOT *q* | $ | *Block Load Transfer Resource Amount QSE Total per QSE*⎯The total of the payments to QSE *q* for energy delivered into the ERCOT Region through BLT points for the 15-minute Settlement Interval. |
| RTDCIMPAMTQSETOT *q* | $ | *Real-Time DC Import Amount QSE Total per QSE*⎯The total of the payments to QSE *q* for energy imported into the ERCOT Region through DC Ties for the 15-minute Settlement Interval. |
|  |  |  |
| RTOBLAMTQSETOT q | $ | *Real-Time Obligation Amount QSE Total per QSE*—The net total payment or charge to QSE *q* of all its PTP Obligations settled in Real-Time for the hour that includes the 15-minute Settlement Interval. See paragraph (2) of Section 7.9.2.1, Payments and Charges for PTP Obligations Settled in Real-Time. |
| RTOBLLOAMTQSETOT *q* | $ | *Real-Time Obligation with Links to an Option Amount QSE Total per QSE*—The total payment to QSE *q* for all of its PTP Obligations with Links to an Option settled in Real-Time for the hour that includes the 15-minute Settlement Interval. See paragraph (2) of Section 7.9.2.1. |
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| --- | --- | --- | --- | --- | --- | --- |
| ***[NPRR917: Insert the variables “RTESOGAMTQSETOT q” and “RTESOGAMTTOT” below upon system implementation:]***

|  |  |  |
| --- | --- | --- |
| RTESOGAMTQSETOT *q* | $ | *Real-Time Energy Payment or Charge per QSE for Energy from SODGs and SOTGs* —The payment or charge to QSE *q* for Real-Time energy from SODGs and SOTGs, for the 15-minute Settlement Interval. |
| RTESOGAMTTOT | $ | *Real-Time Energy Amount Total for Energy from all SODGs and SOTGs* —The total net payments and charges to all QSEs for Real-Time energy from SODGs and SOTGs, for the 15-minute Settlement Interval. |

 |

 |
| LRS *q* | none | The LRS calculated for QSE *q* for the 15-minute Settlement Interval. See Section 6.6.2.2, QSE Load Ratio Share for a 15-Minute Settlement Interval. |
| *q* | none | A QSE. |
| *o* | none | A CRR owner. |

(3) In the event that ERCOT is unable to execute the DAM, the Real-Time Revenue Neutrality Allocation for each QSE for a given 15-minute Settlement Interval is calculated as follows:

**LARTRNAMT *q* = (-1) \* (RTEIAMTTOT + BLTRAMTTOT + RTDCIMPAMTTOT + RTCCAMTTOT + NDRTOBLAMTTOT / 4 + NDRTOPTAMTTOT / 4 + NDRTOPTRAMTTOT / 4 + NDRTOBLRAMTTOT / 4) \* LRS *q***

|  |
| --- |
| ***[NPRR917: Replace the formula “LARTRNAMT q” above with the following upon system implementation:]*****LARTRNAMT *q* = (-1) \* (RTEIAMTTOT + BLTRAMTTOT + RTDCIMPAMTTOT + RTESOGAMTTOT + RTCCAMTTOT + NDRTOBLAMTTOT / 4 + NDRTOPTAMTTOT / 4 + NDRTOPTRAMTTOT / 4 + NDRTOBLRAMTTOT / 4) \* LRS *q*** |

Where:

Total Real-Time Energy Imbalance Payment (or Charge) at Settlement Point (or Hub)

RTEIAMTTOT = RTEIAMTQSETOT *q*

Total Real-Time Payment for BLT Resources

BLTRAMTTOT = BLTRAMTQSETOT *q*

Total Real-Time Payment for DC Tie Imports

RTDCIMPAMTTOT = RTDCIMPAMTQSETOT *q*

Total Real-Time Congestion Payment or Charge for Self Schedules

RTCCAMTTOT = RTCCAMTQSETOT *q*

Total Real-Time Payment or Charge for PTP Obligations when ERCOT is unable to execute the DAM

NDRTOBLAMTTOT =  NDRTOBLAMTOTOT *o*

Total Real-Time Payment for PTP Options when ERCOT is unable to execute the DAM

NDRTOPTAMTTOT =  NDRTOPTAMTOTOT *o*

Total Real-Time Payment for PTP Options with Refund when ERCOT is unable to execute the DAM

NDRTOPTRAMTTOT = NDRTOPTRAMTOTOT *o*

Total Real-Time Payment or Charge for PTP Obligations with Refund when ERCOT is unable to execute the DAM

NDRTOBLRAMTTOT =  NDRTOBLRAMTOTOT *o*

|  |
| --- |
| ***[NPRR917: Insert the language below upon system implementation:]***Total Real-Time Payment or Charge for energy from SODGs and SOTGsRTESOGAMTTOT = RTESOGAMTQSETOT *q* |

The above variables are defined as follows:

| **Variable** | **Unit** | **Description** |
| --- | --- | --- |
| LARTRNAMT *q* | $ | *Load-Allocated Real-Time Revenue Neutrality Amount per QSE*—The QSE *q*’s share of the total Real-Time revenue neutrality amount for the 15-minute Settlement Interval. |
| RTEIAMTTOT | $ | *Real-Time Energy Imbalance Amount Total*—The total net payments and charges for Real-Time Energy Imbalance at all Settlement Points (Resource, Load Zone, or Hub) for the 15-minute Interval. |
| BLTRAMTTOT | $ | *Block Load Transfer Resource Amount Total*⎯The total of the payments for energy delivered into the ERCOT Region through BLT points for the 15-minute Settlement Interval. |
| RTDCIMPAMTTOT | $ | *Real-Time DC Import Amount Total*—The summation of payments for DC Tie imports for the 15-minute Settlement Interval. |
|  |  |  |
| RTCCAMTTOT  | $ | *Real-Time Energy Congestion Cost Amount Total*—The total net congestion payments and charges for all Self-Schedules for the 15-minute Settlement Interval. |
| NDRTOBLAMTTOT | $ | *No DAM Real-Time Obligation Amount Total*—The sum of all payments and charges for PTP Obligations settled in Real-Time, when ERCOT is unable to execute the DAM, for the hour that includes the 15-minute Settlement Interval. |
| NDRTOPTAMTTOT | $ | *No DAM Real-Time Option Amount Total*—The sum of all payments for PTP Options settled in Real-Time, when ERCOT is unable to execute the DAM, for the hour that includes the 15-minute Settlement Interval. |
| NDRTOPTRAMTTOT | $ | *No DAM Real-Time Option with Refund Amount Total*—The sum of all payments for PTP Options with Refund settled in Real-Time, when ERCOT is unable to execute the DAM, for the hour that includes the 15-minute Settlement Interval. |
| NDRTOBLRAMTTOT | $ | *No DAM Real-Time Obligation with Refund Amount Total*— The sum of all payments for PTP Obligations with Refund settled in Real-Time, when ERCOT is unable to execute the DAM, for the hour that includes the 15-minute Settlement Interval. |
| RTEIAMTQSETOT *q* | $ | *Real-Time Energy Imbalance Amount QSE Total per QSE*⎯The total net payments and charges to QSE *q* for Real-Time Energy Imbalance Service at all Resource Node Settlement Points for the 15-minute Settlement Interval. |
| RTCCAMTQSETOT *q* | $ | *Real-Time Congestion Cost Amount QSE Total per QSE*⎯The total net congestion payments and charges to QSE *q* for its Self-Schedules for the 15-minute Settlement Interval. |
| BLTRAMTQSETOT *q* | $ | *Block Load Transfer Resource Amount QSE Total per QSE*⎯The total of the payments to QSE *q* for energy delivered into the ERCOT Region through BLT points for the 15-minute Settlement Interval. |
| RTDCIMPAMTQSETOT *q* | $ | *Real-Time DC Import Amount QSE Total per QSE*⎯The total of the payments to QSE *q* for energy imported into the ERCOT Region through DC Ties for the 15-minute Settlement Interval. |
|  |  |  |
| NDRTOBLAMTOTOT *o* | $ | *No DAM Real-Time Obligation Amount Owner Total per CRR Owner*—The net total payment or charge to CRR owner *o* of all its PTP Obligations settled in Real-Time when ERCOT is unable to execute the DAM, for the hour. |
| NDRTOPTAMTOTOT *o* | $ | *No DAM Real-Time Option Amount Owner Total per CRR Owner*—The total payment to CRR owner *o* for all its PTP Options settled in Real-Time when ERCOT is unable to execute the DAM, for the hour. |
| NDRTOPTRAMTOTOT *o* | $ | *No DAM Real-Time Option with Refund Amount Owner Total per CRR Owner*—The total payment to NOIE CRR owner *o* for all its PTP Options with Refund settled in Real-Time when ERCOT is unable to execute the DAM, for the hour. |
| NDRTOBLRAMTOTOT *o* | $ | *No DAM Real-Time Obligation with Refund Amount Owner Total per CRR Owner*—The net total payment or charge to CRR owner *o* for all its PTP Obligations with Refund settled in Real-Time, when ERCOT is unable to execute the DAM, for the hour. |
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| ***[NPRR917: Insert the variables “RTESOGAMTQSETOT q” and “RTESOGAMTTOT” below upon system implementation:]***

|  |  |  |
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| RTESOGAMTQSETOT *q* | $ | *Real-Time Energy Payment or Charge per QSE for Energy from SODGs and SOTGs* —The payment or charge to QSE *q* for Real-Time energy from SODGs and SOTGs, for the 15-minute Settlement Interval. |
| RTESOGAMTTOT | $ | *Real-Time Energy Amount Total for Energy from all SODGs and SOTGs* —The total net payments and charges to all QSEs for Real-Time energy from SODGs and SOTGs, for the 15-minute Settlement Interval. |

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 |
| LRS *q* | none | The LRS calculated for QSE *q* for the 15-minute Settlement Interval. See Section 6.6.2.2, QSE Load Ratio Share for a 15-Minute Settlement Interval. |
| *q* | none | A QSE. |
| *o* | none | A CRR Owner. |

***7.5.7 Method for Distributing CRR Auction Revenues***

(1) ERCOT shall determine, for each month, the CRR Monthly Revenues (CMRs). The CMR is the sum of:

(a) Monthly CRR revenue for that month; and

(b) PCRR revenues.

(2) ERCOT shall credit the net CRR Auction revenue (including PCRR revenue) produced from CRRs cleared in each CRR Auction that source from a Settlement Point located within a 2003 ERCOT CMZ and sink at a Settlement Point located within the same 2003 ERCOT CMZ to Qualified Scheduling Entities (QSEs) in the 2003 ERCOT CMZ on a zonal Load Ratio Share (LRS) basis.  All other net CRR Auction revenues must be allocated to QSEs on an ERCOT-wide LRS basis. For these allocation purposes, any Non-Opt-In Entity (NOIE) Load Zone is considered to be located entirely within the 2003 ERCOT CMZ that represented the largest Load for that NOIE or group of NOIEs in 2003.

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| ***[NPRR1030: Replace paragraph (2) above with the following upon system implementation:]***(2) ERCOT shall credit the net CRR Auction revenue (including PCRR revenue) produced from CRRs cleared in each CRR Auction that source from a Settlement Point located within a 2003 ERCOT CMZ and sink at a Settlement Point located within the same 2003 ERCOT CMZ to Qualified Scheduling Entities (QSEs) in the 2003 ERCOT CMZ on a zonal ratio share basis.  All other net CRR Auction revenues must be allocated to QSEs on an ERCOT-wide ratio share basis. For these allocation purposes, any Non-Opt-In Entity (NOIE) Load Zone is considered to be located entirely within the 2003 ERCOT CMZ that represented the largest Load for that NOIE or group of NOIEs in 2003. |

(3) For initial distribution of CMRs, revenues shall be paid to each QSE based on that QSE’s LRS in the interval coincident with the ERCOT-wide peak 15-minute Settlement Interval for the month.

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| ***[NPRR1030: Replace paragraph (3) above with the following upon system implementation:]***(3) For initial distribution of CMRs, revenues shall be paid to each QSE based on that QSE’s DC Tie ratio share for the month. Remaining revenues shall be paid to each QSE based on that QSE’s ratio share, excluding DC Tie exports, in the interval coincident with the ERCOT-wide peak 15-minute Settlement Interval for the month. |

(4) ERCOT shall true up the distribution of CMRs based on that QSE’s LRS in the interval coincident with the ERCOT-wide peak 15-minute Settlement Interval for the month.

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| ***[NPRR905 and NPRR1030: Replace applicable portions of paragraph (4) above with the following upon system implementation:]***(4) ERCOT shall true up the distribution of CMRs, in accordance with paragraph (2) of Section 9.10, CRR Auction Revenue Distribution Invoices, based on that QSE’s DC Tie ratio share for the month. Remaining revenues shall be paid to each QSE based on that QSE’s ratio share, excluding DC Tie exports, in the interval coincident with the ERCOT-wide peak 15-minute Settlement Interval for the month. |

(5) The net CRR Auction revenue produced from CRRs cleared and paid for in each CRR Auction that source from a Settlement Point within a 2003 ERCOT CMZ and sink at a Settlement Point located within the same 2003 ERCOT CMZ shall be distributed on a zonal LRS basis. The portion of the net monthly CRR Auction revenue to be distributed to each QSE with Load in that zone for a given month is calculated as follows:

**LACMRZAMT *z, q*= (-1) \* (CRRZREV *z, a* + PCRRZREV *z, a*) \* MLRSZ *z, q***

The above variables are defined as follows:

| **Variable** | **Unit** | **Definition** |
| --- | --- | --- |
| LACMRZAMT *z, q* | $ | *Load-Allocated CRR Monthly Revenue Zonal Amount per zone per QSE*—The payment to QSE *q* of the revenues resulted from the CRRs that source and sink in CMZ *z*, for the month. |
| CRRZREV *z, a* | $ | *CRR Zonal Revenue per zone per CRR Auction*—The revenue resulted from the CRRs that source and sink in CMZ *z*, cleared through CRR Auction Offers and CRR Auction Bids in CRR Auction *a*, for the month. |
| PCRRZREV *z, a* | $ | *PCRR Zonal Revenue per zone per CRR Auction*—The revenue resulted from the PCRRs that source and sink in CMZ *z*, pertaining to CRR Auction *a*, for the month. |
| MLRSZ *q, z* | none | *Monthly Load Ratio Share Zonal per QSE per zone*—The LRS of QSE *q* for its Load in CMZ *z*, for the peak-Load 15-minute Settlement Interval in the month. |
| *q* | none | A QSE. |
| *z* | none | A 2003 ERCOT CMZ. |
| *a* | none | A CRR Auction. |

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| ***[NPRR1030: Replace paragraph (5) above with the following upon system implementation:]***(5) The net CRR Auction revenue produced from CRRs cleared and paid for in each CRR Auction that source from a Settlement Point within a 2003 ERCOT CMZ and sink at a Settlement Point located within the same 2003 ERCOT CMZ shall be distributed on a zonal ratio share basis. The portion of the net monthly CRR Auction revenue to be distributed to each QSE with Load in that zone for a given month is calculated as follows:**LACMRZAMT *z, q* = (-1) \* (CMRZDC *z, q* + CMRZNDC *z, q*)**Where:**CMRZNDC *z, q* = ((CRRZREV *z, a* + PCRRZREV *z, a*) – CMRZDC *z, q*) \* MLRSZ *z, q*****CMRZDC *z, q* = (CRRZREV *z, a* + PCRRZREV *z, a*) \* DCMLRSZ *z, q***The above variables are defined as follows:

| **Variable** | **Unit** | **Definition** |
| --- | --- | --- |
| LACMRZAMT *z, q* | $ | *Load-Allocated CRR Monthly Revenue Zonal Amount per zone per QSE*—The sum payment to QSE *q* representing Loads and DC Tie exports of the revenues resulted from the CRRs that source and sink in CMZ *z*, for the month. |
| CMRZDC *z, q* | $ | *CRR Monthly Revenue Zonal Amount for DC Tie Exports per zone per QSE*—The amount due to QSE *q* representing DC Tie Exports of the revenues resulted from the CRRs that source and sink in CMZ *z*, for the month. |
| CMRZNDC *z, q* | $ | *CRR Monthly Revenue Zonal Amount for Non-DC Tie Loads per zone per QSE*—The amount due to QSE *q* representing Loads (excluding DC Tie exports) of the revenues resulted from the CRRs that source and sink in CMZ *z*, for the month. |
| CRRZREV *z, a* | $ | *CRR Zonal Revenue per zone per CRR Auction*—The revenue resulted from the CRRs that source and sink in CMZ *z*, cleared through CRR Auction Offers and CRR Auction Bids in CRR Auction *a*, for the month. |
| PCRRZREV *z, a* | $ | *PCRR Zonal Revenue per zone per CRR Auction*—The revenue resulted from the PCRRs that source and sink in CMZ *z*, pertaining to CRR Auction *a*, for the month. |
| DCMLRSZ *q, z* | none | *DC Tie Exports Monthly Load Ratio Share Zonal per QSE per zone*—The ratio share calculated for QSE *q* with DC Tie Exports in CMZ *z*, for the month. See Section 6.6.2.8, QSE DC Tie Export Load Ratio Share by Congestion Management Zone for a Month. |
| MLRSZ *q, z* | none | *Monthly Load Ratio Share Zonal per QSE per zone*—The ratio share of QSE *q* for its Load excluding DC Tie Exports in CMZ *z*, for the peak Load 15-minute Settlement Interval in the month.  |
| *q* | none | A QSE. |
| *z* | none | A 2003 ERCOT CMZ. |
| *a* | none | A CRR Auction. |

 |

(6) The net CRR Auction revenue produced from CRRs cleared and paid for in each CRR Auction that do not source from a Settlement Point within a 2003 ERCOT CMZ and sink at a Settlement Point located within the same 2003 ERCOT CMZ shall be distributed on an ERCOT-wide LRS basis. The portion of the net monthly CRR Auction Revenue Amount (from CRRs with paths that cross the 2003 ERCOT CMZ boundaries) to be distributed for a given month is calculated as follows:

**LACMRNZAMT *q* = (-1) \* (CRRNZREV *a* + PCRRNZREV *a*) \* MLRS *q***

The above variables are defined as follows:

|  |  |  |
| --- | --- | --- |
| **Variable** | **Unit** | **Definition** |
| LACMRNZAMT *q* | $ | *Load-Allocated CRR Monthly Revenue Non-Zonal Amount per QSE*—The payment to QSE *q* of the revenues resulted from the CRRs that source and sink in different CMZs, for the month. |
| CRRNZREV *a* | $ | *CRR Zonal Revenue per CRR Auction*—The revenue resulted from the CRRs that source and sink in different CMZs, cleared through CRR Auction Offers and CRR Auction Bids in CRR Auction *a*, for the month. |
| PCRRNZREV *a* | $ | *PCRR Zonal Revenue per CRR Auction*—The revenue resulted from the PCRRs that source and sink in different CMZs, pertaining to CRR Auction *a*, for the month. |
| MLRS *q* | none | *Monthly Load Ratio Share per QSE*—The LRS calculated for QSE *q* for the peak-Load 15-minute Settlement Interval in the month. See Section 6.6.2.2, QSE Load Ratio Share for a 15-Minute Settlement Interval. |
| *q* | none | A QSE. |
| *a* | none | A CRR Auction. |

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| ***[NPRR1030: Replace paragraph (6) above with the following upon system implementation:]***(6) The net CRR Auction revenue produced from CRRs cleared and paid for in each CRR Auction that do not source from a Settlement Point within a 2003 ERCOT CMZ and sink at a Settlement Point located within the same 2003 ERCOT CMZ shall be distributed on an ERCOT-wide ratio share basis. The portion of the net monthly CRR Auction Revenue Amount (from CRRs with paths that cross the 2003 ERCOT CMZ boundaries) to be distributed for a given month is calculated as follows:**LACMRNZAMT *q* = (-1) \* (CMRNZDC *q* + CMRNZNDC *q*)**Where:**CMRNZNDC *q* = ((CRRNZREV *a* + PCRRNZREV *a*) - CMRNZDC *q*) \* MLRS *q*****CMRNZDC *q* = (CRRNZREV *a* + PCRRNZREV *a*) \* DCMLRS *q*** The above variables are defined as follows:

|  |  |  |
| --- | --- | --- |
| **Variable** | **Unit** | **Definition** |
| LACMRNZAMT *q* | $ | *Load-Allocated CRR Monthly Revenue Non-Zonal Amount per QSE*—The sum payment to QSE *q* representing Loads and DC Tie exports of the revenues resulted from the CRRs that source and sink in different CMZs, for the month. |
| CMRNZDC *q* | $ | *CRR Monthly Revenue Non-Zonal Amount for DC Tie Exports per QSE*—The amount due to QSE *q* representing DC Tie Exports of the revenues resulted from the CRRs that source and sink in different CMZs, for the month. |
| CMRNZNDC *q* | $ | *CRR Monthly Revenue Non-Zonal Amount for Non-DC Tie Loads per QSE*—The amount due to QSE *q* representing Loads (excluding DC Tie exports) of the revenues resulted from the CRRs that source and sink in different CMZs, for the month. |
| CRRNZREV *a* | $ | *CRR Zonal Revenue per CRR Auction*—The revenue resulted from the CRRs that source and sink in different CMZs, cleared through CRR Auction Offers and CRR Auction Bids in CRR Auction *a*, for the month. |
| PCRRNZREV *a* | $ | *PCRR Zonal Revenue per CRR Auction*—The revenue resulted from the PCRRs that source and sink in different CMZs, pertaining to CRR Auction *a*, for the month. |
| DCMLRS *q* | none | *DC Tie Monthly Load Ratio Share per QSE*—The ratio share calculated for QSE *q* with DC Tie Exports for the calendar month. See Section 6.6.2.6, QSE DC Tie Export Load Ratio Share for a Month.  |
| MLRS *q* | none | *Monthly Load Ratio Share per QSE* —The ratio share of Loads excluding DC Tie exports for QSE *q* for the peak Load 15-minute Settlement Interval.  |
| *q* | none | A QSE. |
| *a* | none | A CRR Auction. |

 |

**7.9.3.5 CRR Balancing Account Closure**

(1) After the calculation of refunds described in Section 7.9.3.4, Monthly Refunds to Short-Paid CRR Owners, any CRR Balancing Account and CRR Auction PTP Option Award Charge Total in excess of the refunds described in Section 7.9.3.4 will first be used to fund the CRR Balancing Account Fund if the prior month’s CRR Balancing Account Fund Balance is less than the CRR Balancing Account Fund Cap. Any surplus that remains from the CRR Balancing Account and CRR Auction PTP Option Award Charge Total above the CRR Balancing Account Fund cap is paid to the QSEs representing Load Serving Entities (LSEs) based on a monthly Load Ratio Share (LRS). The monthly LRS is the 15-minute LRS calculated for the peak-Load Settlement Interval during the month. The CRR Balancing Account Fund Cap is $10 million.

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| ***[NPRR1030: Replace paragraph (1) above with the following upon system implementation:]***(1) After the calculation of refunds described in Section 7.9.3.4, Monthly Refunds to Short-Paid CRR Owners, any CRR Balancing Account and CRR Auction PTP Option Award Charge Total in excess of the refunds described in Section 7.9.3.4 will first be used to fund the CRR Balancing Account Fund if the prior month’s CRR Balancing Account Fund Balance is less than the CRR Balancing Account Fund Cap. Any surplus that remains from the CRR Balancing Account and CRR Auction PTP Option Award Charge Total above the CRR Balancing Account Fund cap is paid to the QSEs representing Load Serving Entities (LSEs) based on the QSEs ratio shares. The CRR Balancing Account Fund Cap is $10 million. |

(2) The credit to each QSE representing LSEs for a given month is calculated as follows:

**LACRRAMT *q* = (-1) \* Max ((CRRBACRTOT + CRRFEETOT + CRRRAMTTOT) - (FUNDCAP- CRRBAFBBAL),0) \* MLRS *q***

Where:

CRRRAMTTOT = CRRRAMT *o*

The above variables are defined as follows:

| **Variable** | **Unit** | **Definition** |
| --- | --- | --- |
| LACRRAMT *q* | $ | *Load-Allocated CRR Amount per QSE*—The allocated surplus from the CRR Balancing Account and CRR Auction PTP Option Award Charge Total at the end of the month to QSE *q*, based on LRS for the month. |
| CRRBAFBBAL | $ | *CRR Balancing Account Fund Beginning Balance*—The amount in the CRR Balancing Account Fund at the end of the previous month. |
| FUNDCAP | $ | *CRR Balancing Account Fund Cap*—The threshold amount in the CRR Balancing Account Fund above which funds are available to allocate to QSEs representing Load. |
| CRRBACRTOT | $ | *CRR Balancing Account Credit Total*—The total credit accumulated in the CRR Balancing Account during the month. See its calculation in Section 7.9.3.4. |
| CRRFEETOT | $ | *CRR Auction PTP Option Award Charge Total*—The sum of the PTP Option Award Charges to all CRR Account Holders in single-month or multi-month CRR Auctions for the month. |
| CRRRAMTTOT | $ | *CRR Refund Amount Total*—The total refund to all the previously short-paid CRR Owners at the end of the month. |
| CRRRAMT *o* | $ | *CRR Refund Amount per owner*—The refund credited to the CRR Owner *o* at the end of the month. |
| MLRS *q* | none | *Monthly Load Ratio Share per QSE*—The LRS calculated for QSE *q* for the 15-minute monthly peak-load Settlement Interval. See Section 6.6.2.2, QSE Load Ratio Share for a 15-Minute Settlement Interval, for the calculation of LRS for a 15-minute Settlement Interval. |
| *m* | none | A month. |
| *q* | none | A QSE. |
| *o* | none | A CRR Owner. |

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| ***[NPRR1030: Replace paragraph (2) above with the following upon system implementation:]***(2) The credit to each QSE representing LSEs for a given month is calculated as follows:**LACRRAMT *q* = (-1) \* (CRRDC *q* + CRRNDC *q*)**Where:**CRRNDC *q* = (CRRALLOCTOT –CRRDC *q* ) \* MLRS *q*****CRRDC *q* = CRRALLOCTOT \* DCMLRS *q*****CRRALLOCTOT= Max ((CRRBACRTOT + CRRFEETOT + CRRRAMTTOT) – (FUNDCAP – CRRBAFBBAL), 0)**CRRRAMTTOT =CRRRAMT *o*The above variables are defined as follows:

| **Variable** | **Unit** | **Definition** |
| --- | --- | --- |
| LACRRAMT *q* | $ | *Load-Allocated CRR Amount per QSE*—The allocated surplus from the CRR Balancing Account and CRR Auction PTP Option Award Charge Total at the end of the month to QSE *q* with Loads and Direct Current Tie (DC Tie) exports. |
| CRRDC *q* | $ | *CRR Amount for DC Tie Exports per QSE*—The allocated surplus from the CRR Balancing Account and CRR Auction PTP Option Award Charge Total at the end of the month to QSE *q* for DC Tie Exports based on DC Tie ratio shares for the month. |
| CRRNDC *q* | $ | *CRR Amount for Non-DC Tie Loads per QSE*—The allocated surplus from the CRR Balancing Account and CRR Auction PTP Option Award Charge Total at the end of the month to QSE *q* for Load (excluding DC Tie exports), based on ratio share for the peak Load 15-minute Settlement Interval for the month. |
| CRRBAFBBAL | $ | *CRR Balancing Account Fund Beginning Balance*—The amount in the CRR Balancing Account Fund at the end of the previous month. |
| FUNDCAP | $ | *CRR Balancing Account Fund Cap*—The threshold amount in the CRR Balancing Account Fund above which funds are available to allocate to QSEs representing Load. |
| CRRBACRTOT | $ | *CRR Balancing Account Credit Total*—The total credit accumulated in the CRR Balancing Account during the month. See its calculation in Section 7.9.3.4. |
| CRRFEETOT | $ | *CRR Auction PTP Option Award Charge Total*—The sum of the PTP Option Award Charges to all CRR Account Holders in single-month or multi-month CRR Auctions for the month. |
| CRRALLOCTOT | $ | *CRR Allocation Amount Total –* The surplus from the CRR Balancing Account and CRR Auction PTP Option Award Charge Total at the end of the month. |
| CRRRAMTTOT | $ | *CRR Refund Amount Total*—The total refund to all the previously short-paid CRR Owners at the end of the month. |
| CRRRAMT *o* | $ | *CRR Refund Amount per owner*—The refund credited to the CRR Owner *o* at the end of the month. |
| DCMLRS *q* | none | *DC Tie Monthly Load Ratio Share per QSE*—The ratio share calculated for QSE *q* with DC Tie exports for the calendar month. See Section 6.6.2.6, QSE DC Tie Export Load Ratio Share for a Month. |
| MLRS *q* | none | *Monthly Load Ratio Share per QSE* — The ratio share of Loads excluding DC Tie exports for QSE *q,* for the peak Load 15-minute Settlement Interval in the month. |
| *q* | none | A QSE. |
| *o* | none | A CRR Owner. |

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***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 High Dispatch Limit Override Energy Payment;

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

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

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

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

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

(s) Section 6.6.5.4, Base Point Deviation Payment;

(t) Section 6.6.6.1, RMR Standby Payment;

(u) Section 6.6.6.2, RMR Payment for Energy;

(v) Section 6.6.6.3, RMR Adjustment Charge;

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

(x) Section 6.6.6.5, RMR Service Charge;

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

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

(aa) Paragraph (4) of Section 6.6.7.1;

(bb) Section 6.6.7.2, Voltage Support Charge;

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

(dd) Section 6.6.8.2, Black Start Capacity Charge;

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

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

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

(hh) 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);

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

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

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

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

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

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

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

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

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

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

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

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

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

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

(ww) Paragraph (3) of Section 6.7.4;

(xx) Paragraph (4) of Section 6.7.4;

(yy) Paragraph (5) of Section 6.7.4;

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

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

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

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

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

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

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

(ggg) Section 9.16.1, ERCOT System Administration Fee.

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| ***[NPRR841, NPRR863, NPRR885, NPRR917, NPRR963, NPRR1012, and NPRR1014: Replace applicable portions of paragraph (1) above with the following upon system implementation for NPRR841, NPRR863, NPRR885, NPRR963, or NPRR1014; 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 6.6.3.9, Real-Time Payment or Charge for Energy from a Settlement Only Distribution Generator (SODG) or a Settlement Only Transmission Generator (SOTG); (p) Section 6.6.4, Real-Time Congestion Payment or Charge for Self-Schedules;(p) Section 6.6.5.1.1.1, Set Point Deviation Charge for Over Generation; (r) Section 6.6.5.1.1.2, Set Point Deviation Charge for Under Generation; (s) Section 6.6.5.1.1.3, Controllable Load Resource Set Point Deviation Charge for Over Consumption; (t) Section 6.6.5.1.1.4, Controllable Load Resource Set Point Deviation Charge for Under Consumption;(u) Section 6.6.5.2, IRR Generation Resource Set Point Deviation Charge; (v) Section 6.6.5.3, Controllable Load Resource Set Point Deviation Charge for Over Consumption; (w) Section 6.6.5.3.1, Controllable Load Resource Set Point Deviation Charge for Under Consumption; (x) Section 6.6.5.4, Set Point Deviation Payment;(y) Section 6.6.5.5, Energy Storage Resource Set Point Deviation Charge for Over Performance; (z) Section 6.6.5.5.1, Energy Storage Resource Set Point Deviation Charge for Under Performance; (aa) Section 6.6.6.1, RMR Standby Payment;(bb) Section 6.6.6.2, RMR Payment for Energy;(cc) Section 6.6.6.3, RMR Adjustment Charge;(dd) Section 6.6.6.4, RMR Charge for Unexcused Misconduct;(ee) Section 6.6.6.5, RMR Service Charge;(ff) Section 6.6.6.6, Method for Reconciling RMR Actual Eligible Costs, RMR and MRA Contributed Capital Expenditures, and Miscellaneous RMR Incurred Expenses;(gg) Section 6.6.6.7, MRA Standby Payment;(hh) Section 6.6.6.8, MRA Contributed Capital Expenditures Payment;(ii) Section 6.6.6.9, MRA Payment for Deployment Event;(jj) Section 6.6.6.10, MRA Variable Payment for Deployment; (kk) Section 6.6.6.11, MRA Charge for Unexcused Misconduct;(ll) Section 6.6.6.12, MRA Service Charge;(mm) Paragraph (3) of Section 6.6.7.1, Voltage Support Service Payments;(nn) Paragraph (5) of Section 6.6.7.1;(oo) Section 6.6.7.2, Voltage Support Charge;(pp) Section 6.6.8.1, Black Start Hourly Standby Fee Payment;(qq) Section 6.6.8.2, Black Start Capacity Charge;(rr) Section 6.6.9.1, Payment for Emergency Operations Settlement;(ss) Section 6.6.9.2, Charge for Emergency Operations Settlement;(tt) Section 6.6.10, Real-Time Revenue Neutrality Allocation;(uu) Section 6.6.11.1, Emergency Response Service Capacity Payments; (vv) Section 6.6.11.2, Emergency Response Service Capacity Charge; (ww) Section 6.7.4, Real-Time Settlement for Updated Day-Ahead Market Ancillary Service Obligations;(xx) Section 6.7.5.2, Regulation Up Service Payments and Charges;(yy) Section 6.7.5.3, Regulation Down Service Payments and Charges;(zz) Section 6.7.5.4, Responsive Reserve Payments and Charges;(aaa) Section 6.7.5.5 , Non-Spinning Reserve Payments and Charges;(bbb) Section 6.7.5.6 , ERCOT Contingency Reserve Service Payments and Charges;(ccc) Section 6.7.5.7 , Real-Time Derated Ancillary Service Capability Payment;(ddd) Section 6.7.5.8 , Real-Time Derated Ancillary Service Capability Charge;(eee) Section 6.7.6, Real Time Ancillary Service Revenue Neutrality Allocation;(fff) Section 7.9.2.1, Payments and Charges for PTP Obligations Settled in Real-Time; and(ggg) 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.

**11.4.6.1 Calculation of ERCOT-Wide Unaccounted For Energy**

(1) The DAS will calculate ERCOT-wide UFE as the difference between the total ERCOT generation and the total Load, adjusted for losses in ERCOT during each Settlement Interval. UFE may be positive or negative in any single Settlement Interval.

**UFE *i* (MWh) = ERCOT Generation *i Total*– ERCOT Net Loss Adjusted Load *i Total***

The above variables are defined as follows:

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| --- | --- | --- |
| **Variable** | **Unit** | **Description** |
| UFE i | MWh | Total ERCOT system UFE per interval. |
| ERCOT Generation *i Total* | MWh | Total ERCOT internal generation plus sum of approved ERCOT DC Tie imports. |
| ERCOT Net Loss Adjusted Load *i Total* | MWh | Total ERCOT load plus Block Load Transfer (BLT) exports plus sum of approved DC Tie exports, adjusted for distribution and transmission losses.  |
| *i* |  | Interval |

***16.11.4.3.2 Real-Time Liability Estimate***

(1) ERCOT shall estimate RTL for an Operating Day as the sum of estimates for the following RTM Settlement charges and payments:

(a) Section 6.6.3.1, Real-Time Energy Imbalance Payment or Charge at a Resource Node, using Real-Time Metered Generation (RTMG) as generation estimate;

(b) Section 6.6.3.2, Real-Time Energy Imbalance Payment or Charge at a Load Zone, using 14 day or seven day old LRS for Load estimate;

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| ***[NPRR829: Replace item (b) above with the following upon system implementation:]*** (b) Section 6.6.3.2, Real-Time Energy Imbalance Payment or Charge at a Load Zone, using 14 day or seven day old LRS for Load estimate and Real-Time telemetry of net generation as the generation estimate; |

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

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

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| ***[NPRR917: Insert item (e) below upon system implementation and renumber accordingly:]*** (e) 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), using the Real-Time telemetry, if provided, of net generation as the outflow estimate and the Real-Time Price for each SODG or SOTG site; |

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

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| [NPRR1013: Insert items (f)-(j) below upon system implementation of the Real-Time Co-Optimization (RTC) project and renumber accordingly:] (f) Section 6.7.5.1, Regulation Up Payments and Charges; (g) Section 6.7.5.2, Regulation Down Payments and Charges; (h) Section 6.7.5.3, Responsive Reserve Payments and Charges; (i) Section 6.7.5.4, Non-Spinning Reserve Payments and Charges; and(j) Section 6.7.5.5, ERCOT Contingency Reserve Service Payments and Charges. |

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