**ERCOT Nodal Protocols**

**Section 7: Congestion Revenue Rights**

**April 1, 2025**

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# Congestion Revenue Rights

7.1 Function of Congestion Revenue Rights

(1) A Congestion Revenue Right (CRR) is a financial instrument that entitles the CRR Owner to be charged or to receive compensation for congestion rents that arise when the ERCOT Transmission Grid is congested in the Day-Ahead Market (DAM) or in Real-Time. CRRs do not represent a right to receive, or obligation to deliver, physical energy. Most CRRs are tradable in the CRR Auction, in the DAM, or bilaterally, as described in more detail in this Section.

(2) CRRs may be acquired as follows:

(a) CRR Auction – ERCOT shall conduct periodic auctions to allow eligible CRR Account Holders to acquire CRRs. The auction also allows CRR Owners an opportunity to sell CRRs that they hold.

(b) PCRR Allocations – ERCOT shall allocate CRRs (known as Pre-Assigned Congestion Revenue Rights (PCRRs)) to eligible Municipally Owned Utilities (MOUs) and Electric Cooperatives (ECs) under Section 7.4, Preassigned Congestion Revenue Rights Overview.

(c) Bilateral Market – CRR Account Holders may trade Point-to-Point (PTP) Options and PTP Obligations bilaterally. PTP Options with Refund and PTP Obligations with Refund are not bilaterally tradable. Bilateral trading may be done privately or through ERCOT. ERCOT shall facilitate trading on the Market Information System (MIS) Certified Area of existing CRRs between CRR Account Holders, subject to credit requirements. ERCOT shall settle CRRs with the CRR Account Holder shown on ERCOT records.

(d) DAM – Qualified Scheduling Entities (QSEs) may bid for PTP Obligations in the DAM.

(3) Each CRR is one of these types:

(a) PTP Option, some of which may be PCRRs;

(b) PTP Obligation, some of which may be PCRRs;

(c) PTP Option with Refund, all of which are PCRRs;

(d) PTP Obligation with Refund, all of which are PCRRs; and

(e) Flowgate Right (FGR).

7.2 Characteristics of Congestion Revenue Rights

(1) Each CRR has the following characteristics:

(a) Quantities are measured in MWs with granularity of tenths of MWs (0.1 MW);

(b) A duration of one hour;

(c) An ability to be fully tradable financial instruments except in specified time-of-use blocks for a PTP Option with Refund and a PTP Obligation with Refund; and

(d) A designated source (injection point) that is a Settlement Point and a designated sink (withdrawal point) that is a different Settlement Point, except for a Flowgate Right (FGR), which has a designated directional network element, or a bundle of directional network elements, instead.

7.2.1 CRR Naming Convention

(1) The appropriate TAC subcommittee shall establish a task force that is open to Market Participants, comprised of technical experts, to develop a naming convention for CRRs consistent with the requirements of the Protocols. The naming convention must be approved by TAC before implementation.

7.3 Types of Congestion Revenue Rights to Be Auctioned

(1) ERCOT shall auction the following types of Congestion Revenue Rights (CRRs):

(a) Point-to-Point (PTP) Options;

(b) PTP Obligations; and

(c) Flowgate Rights (FGRs) that are defined in Section 7.3.1, Flowgates.

(2) PTP Options are evaluated hourly in each CRR Auction as the positive power flows on all directional network elements created by the injection and withdrawal at the specified source and sink points in the quantity represented by the CRR bid or offer (MW), excluding all negative flows on all directional network elements.

(3) PTP Obligations are evaluated hourly in each CRR Auction as the positive and negative power flows on all directional network elements created by the injection and withdrawal at the specified source and sink points of the quantity represented by the CRR bid or offer (MW).

(4) PTP Options can only result in payments from ERCOT to the CRR Owner of record. A PTP Obligation may result in either a payment or a charge to the CRR Owner of record.

(5) CRRs must be auctioned in the following Time Of Use (TOU) blocks (having the same MW amount for each hour within the block):

(a) 5x16 blocks for hours ending 0700-2200, Monday through Friday (excluding North American Electric Reliability Corporation (NERC) holidays), in one-month strips;

(b) 2x16 blocks for hours ending 0700-2200, Saturday and Sunday, and NERC holidays in one-month strips; and

(c) 7x8 blocks for hours ending 0100-0600 and hours ending 2300-2400 Sunday through Saturday, in one-month strips.

(6) CRR Auction bids and Pre-Assigned Congestion Revenue Right (PCRR) nominations must specify a TOU block.

(7) For the CRR Monthly Auction only, a single block bid may be submitted for all hours in a calendar month, which represents a linked-offer for all three TOU blocks described above in paragraph (5).

7.3.1 Flowgates

7.3.1.1 Process for Defining Flowgates

(1) Flowgates where ERCOT offers FGRs may only be created by an amendment to Section 7.3.1.2, Defined Flowgates. ERCOT shall post the list of all flowgates available for FGRs on the ERCOT website. If there is any change in the designation of flowgates, ERCOT shall provide notice to all Market Participants as soon as practicable.

7.3.1.2 Defined Flowgates

(1) There are currently no defined flowgates.

7.4 Pre-Assigned Congestion Revenue Rights Overview

(1) ERCOT shall allocate a portion of available Congestion Revenue Rights (CRRs) as Pre-Assigned Congestion Revenue Rights (PCRRs) to Non-Opt-In Entities (NOIEs) that either have established ownership prior to September 1, 1999 in a specific Generation Resource or have a long-term (greater than five years) contractual commitment for annual capacity and energy that was entered into prior to September 1, 1999 from specific Generation Resources. For purposes of this Section 7.4, such Generation Resources shall be referred to as “pre-September 1, 1999 Generation Resources.” An existing Generation Resource that interconnected to the ERCOT Transmission Grid on or after June 1, 2021, pursuant to paragraph (3) of Section 1.6.5, Interconnection of New or Existing Generation, cannot qualify as a pre-September 1, 1999 Generation Resource for PCRR purposes.

(2) NOIEs are the only Entities eligible for an allocation of PCRRs. NOIEs may designate an agent to manage their PCRRs, provided that ERCOT’s relationship is with the NOIE and that an agent shall be subject to all PCRR rules applicable to the NOIE. ERCOT will rely exclusively on documentation provided or confirmed by the NOIE to determine the continued eligibility for allocation of PCRRs.

(3) ERCOT shall publish a list of NOIEs who are eligible for allocation of PCRRs on the ERCOT website. The list shall include each NOIE’s ownership and/or contractual amount of capacity related to pre-September 1, 1999 Generation Resources. The list shall further include the eligible PCRR amounts capped at the net max sustainable rating (MW) of pre-September 1, 1999 Generation Resources as established by 2010 registration data. ERCOT shall update the list as necessary to reflect current NOIE eligibility for allocation of PCRRs.

7.4.1 PCRR Allocation Eligibility

7.4.1.1 PCRR Criteria for NOIE Allocation Eligibility

(1) PCRRs shall be limited to pre-September 1, 1999 Generation Resources utilized by a NOIE to serve the Load in its service territory. The following criteria shall apply for NOIE eligibility for allocation of PCRRs:

(a) A Generation Resource owned by the NOIE nominating the PCRR(s) that meets the following:

(i) The NOIE owned the Generation Resource prior to September 1, 1999 and has maintained uninterrupted ownership since September 1, 1999;

(ii) The Generation Resource has remained in service on an uninterrupted basis except for Maintenance Outages, Forced Outages, Opportunity Outages or Planned Outages (including a Mothballed Generation Resource that operates under a Seasonal Operation Period) subsequent to September 1, 1999; and

(iii) The NOIE utilizes the Generation Resource to meet its electric service obligations within its service territory in an amount at least equal to the nominated PCRR amount.

(b) A Generation Resource that is the subject of a long-term contract between the NOIE nominating the PCRR(s) and another Entity that owns or controls the Generation Resource, provided that the long-term contract meets the following criteria:

(i) The contract was entered into prior to September 1, 1999 and has remained in effect on an uninterrupted basis since September 1, 1999;

(ii) The contract term is greater than five years. Contracts with automatic renewal provisions (evergreen clauses), the operation of which extends beyond the term of the contract to more than the cumulative five years, shall meet this requirement, provided that the automatic renewal provision was in place prior to September 1, 1999;

(iii) The NOIE is entitled to capacity from specific Generation Resource(s) pursuant to the long-term contract; long-term contracts that are not backed by specific Generation Resources are not eligible for PCRRs;

(iv) The Generation Resource(s) that is/are the subject of the long-term contract has/have remained in service on an uninterrupted basis except for Maintenance Outages, Forced Outages, Opportunity Outages or Planned Outages (including a Mothballed Generation Resource that operates under a Seasonal Operation Period) since September 1, 1999; and

(v) The Generation Resource(s) that is/are the subject of the long-term contract is/are utilized by the NOIE to meet its electric service obligations within its service territory in an amount at least equal to the nominated PCRR amount.

(c) A federally-owned hydroelectric Generation Resource that is the subject of a series of sequential long-term contracts between the NOIE nominating the PCRR(s) and the federal government based upon a long-term (greater than five years) allocation from the federal government for annual capacity and energy produced at such federally-owned hydroelectric Generation Resource, and that allocation was in place prior to September 1, 1999.

(d) Multiple Generation Resources that are the subject of portfolio supply contracts that meet the requirements of paragraphs (1)(b)(i)-(ii) and (1)(b)(iv)-(v) above and are between a NOIE nominating the PCRR(s) and another non-NOIE. For the purposes of this Section 7.4.1.1, portfolio supply contract shall mean an agreement under which multiple NOIEs receive wholesale capacity from another non-NOIE pursuant to a portfolio of specific Generation Resources. Each NOIE who is eligible for PCRRs and is a party to a portfolio supply contract shall be allocated PCRRs based on its 2003 4-Coincident Peak (4-CP) ratio share of each Generation Resource in the portfolio. The 2003 4-CP ratio share shall be calculated as the 4-CP of each NOIE divided by the total 4-CP of all NOIEs who were supplied by that portfolio of Generation Resources in 2003. Each NOIE’s capacity entitlement shall be its 2003 4-CP ratio share multiplied by the net max sustainable rating from the 2010 registration data for each PCRR eligible Generation Resource in the portfolio.

(e) The Direct Current Tie (DC Tie) is considered a PCRR-eligible Generation Resource for contracts of Tex-La Electric Cooperative of Texas, Inc. with supply resources located outside the ERCOT Region that meet the requirements of paragraphs (b)(i)-(ii) and (iv)-(v) above.

(f) A Generation Resource that was the subject of a pre-September 1, 1999 long-term contract between the NOIE nominating the PCRR(s) and another Entity that owned or controlled the Generation Resource prior to September 1, 1999, and that has been acquired by the NOIE after September 1, 1999, shall be deemed for all purposes as a NOIE-owned pre-September 1, 1999 Generation Resource for purposes of paragraph (1) of Section 7.4.1.3.1, PCRR Disqualifying Events, provided that an option for the NOIE to acquire the Generation Resource was in place in the long-term contract prior to September 1, 1999.

7.4.1.2 NOIE Allocation Eligibility for PCRRs Impacted By Long-Term Outages of Generation Resources and Mothballed Generation Resources

(1) A NOIE maintains allocation eligibility for PCRRs associated with a pre-September 1, 1999 Generation Resource that may be out of service for greater than 12 consecutive months if the Generation Resource is out of service pursuant to a Forced Outage and the time necessary to address the relevant Outage extends beyond 12 months, provided that the NOIE must demonstrate to ERCOT’s satisfaction that the Outage continues to be necessary and does not require the Resource Entity to cease or suspend operation of the Generation Resource pursuant to Section 3.14.1.1, Notification of Suspension of Operations.

(a) For a PCRR Nomination Year in which a PCRR-eligible Generation Resource is expected to return to service after a long-term Forced Outage (greater than 12 consecutive months), the NOIE is only eligible to receive PCRRs for the months in which the Generation Resource is expected to be in service for the entirety of the month.

(b) If the NOIE nominated and was awarded PCRRs during the annual PCRR allocation process for future months based on an anticipated return to service of a PCRR-eligible Generation Resource from a long-term Forced Outage (greater than 12 consecutive months), the NOIE shall notify ERCOT in writing of the intentions of the Resource Entity to return the Generation Resource to service no less than 60 days prior to the first day of the month in which the Generation Resource is scheduled to return to service. This notice requirement to retain allocated PCRRs is separate and distinct from the return to service requirement in Section 3.14.1.9, Generation Resource Status Updates. If the Generation Resource will not be returned to service for the entirety of a month for which PCRRs were allocated, the associated CRRs will be voided for each impacted month and ERCOT will follow the appropriate option described in Section 7.4.1.3.2, Effect of PCRR Disqualification, in order to maximize the available transmission capacity for future monthly CRR Auctions. To determine if the NOIE will retain any allocated PCRRs for future months, the NOIE shall provide to ERCOT a new expected return to service date and must follow the notice requirement and timeline in this paragraph above.

 (2) A NOIE maintains allocation eligibility for PCRRs associated with a pre-September 1, 1999 Generation Resource if the Generation Resource becomes a Mothballed Generation Resource pursuant to Section 3.14.1.1, Notification of Suspension of Operations, regardless of whether ERCOT determines that the Generation Resource is necessary for Reliability Must-Run (RMR) Service.

(a) However, because the Generation Resource will not provide any capacity or energy to serve the NOIE’s Load in its service territory for the period in which it is designated as a Mothballed Generation Resource, a NOIE does not have an exclusive right to retain any allocated PCRRs during this period. For any retained PCRRs, the NOIE shall follow the process detailed in Section 7.4.1.3.2, Effect of PCRR Disqualification.

(b) For a PCRR Nomination Year in which a PCRR-eligible Mothballed Generation Resource is expected to return to service (including a Mothballed Generation Resource that operates under a Seasonal Operation Period), the Generation Resource is only eligible for PCRRs for the months it is expected to be in service for the entirety of the month.

(c) If the NOIE nominated and was awarded PCRRs during the annual PCRR allocation process for future months based on an anticipated return to service of a PCRR-eligible Mothballed Generation Resource, the NOIE shall notify ERCOT in writing of the intentions of the Resource Entity to return the Mothballed Generation Resource to service no less than 60 days prior to the first day of the month in which the Generation Resource is scheduled to return to service. This notice requirement to retain allocated PCRRs is separate and distinct from the return to service requirement in Section 3.14.1.9. If the Mothballed Generation Resource will not be returned to service for the entirety of a month for which PCRRs were allocated, the associated CRRs will be voided for each impacted month and ERCOT will follow the appropriate option described in Section 7.4.1.3.2 in order to maximize the available transmission capacity for future monthly CRR Auctions. To determine if the NOIE will retain any allocated PCRRs for future months, the NOIE shall provide to ERCOT a new expected return to service date and must follow the notice requirement and timeline in this paragraph.

7.4.1.3 PCRR Disqualification

7.4.1.3.1 PCRR Disqualifying Events

(1) A NOIE that owns a pre-September 1, 1999 Generation Resource shall no longer be eligible for allocation of PCRRs associated with that Generation Resource under the following conditions:

(a) The Generation Resource is designated as decommissioned and retired pursuant to Section 3.14.1.1, Notification of Suspension of Operations, regardless of whether ERCOT determines that the Generation Resource is necessary for RMR Service.

(b) The Generation Resource is sold by the NOIE to another Entity, regardless of whether the NOIE later enters into a long-term supply contract with that Entity to serve the NOIE’s Load in its service territory. The selling of a Generation Resource shall include the transfer of ownership of the Generation Resource and/or the sale of the energy and/or capacity of the Generation Resource pursuant to a contractual agreement. However, a transfer of the Generation Resource to an Affiliate of the NOIE or to a generation and transmission Electric Cooperative (EC) for the benefit of the NOIE shall not serve as a disqualifying event as long as all other PCRR eligibility requirements remain in place.

(2) A NOIE that has a long-term contract with a pre-September 1, 1999 Generation Resource under paragraph (1)(b) of Section 7.4.1.1, PCRR Criteria for NOIE Allocation Eligibility, shall no longer be eligible for allocation of PCRRs associated with that Generation Resource upon termination of the long-term contract. For purposes of this Section 7.4.1.3.1, termination of the relevant long-term contract shall include:

(a) The Generation Resource is designated as decommissioned and retired pursuant to Section 3.14.1.1, regardless of whether ERCOT determines that the Generation Resource is necessary for RMR Service.

(b) Any change in control of the capacity under the contract, including, but not limited to, assignment of the contract to another Entity. The foregoing notwithstanding, a NOIE shall still be eligible to receive PCRRs if the capacity under the contract is transferred to another Entity or a generation and transmission EC for the benefit of the NOIE, the Entity or the generation and transmission EC continues to supply the NOIE under the same terms and conditions of the long-term contract, and the contract continues to meet all other relevant PCRR eligibility requirements.

(c) Any change in the designation of Generation Resources backing a long-term contract after September 1, 1999, shall disqualify the long-term contract.

(d) If the termination of a long-term contract applies to less than 100% of the capacity entitlement, the remaining capacity entitlement shall continue to qualify for PCRRs for the MW amount under the portion of the long-term contract that is not terminated, provided that the long-term contract otherwise continues to meet all other PCRR eligibility requirements.

(3) A NOIE that has a long-term portfolio supply contract under paragraph (1)(d) of Section 7.4.1.1 shall no longer be eligible for allocation of PCRRs associated with these pre-September 1, 1999 Generation Resources upon termination of the portfolio supply contract. For the purposes of this subsection, termination shall have the same meaning as defined in paragraph (2) above. Following termination of a portfolio supply contract(s) for a NOIE or group of NOIEs, the capacity entitlements remaining under the existing portfolio supply contract(s) shall continue to reflect the 2003 4-CP ratio share values, as described in paragraph (1)(d) of Section 7.4.1.1.

(4) A NOIE that has a long-term contract across the DC Tie with supply resources located outside the ERCOT Region pursuant to paragraph (1)(e) of Section 7.4.1.1 shall no longer be eligible for allocation of PCRRs upon termination of the relevant external supply contract(s). For purposes of this Section 7.4.1.3.1, termination shall have the same meaning as defined in paragraph (2) above. If the termination of the external supply contract(s) applies to less than 100% of the capacity entitlement, the remaining capacity entitlement shall continue to qualify for PCRRs for the MW amount under the portion of the external supply contract(s) that is not terminated, provided that the external supply contract(s) continues to meet all other PCRR eligibility requirements.

(5) A NOIE that has long-term contracts pursuant to paragraph (1)(b) of Section 7.4.1.1, portfolio supply contracts pursuant to paragraph (1)(d) of Section 7.4.1.1 or long-term contracts pursuant to paragraph (1)(e) of Section 7.4.1.1 that did not contain automatic renewal provisions (evergreen clauses) in the original contracts and were subsequently revised to extend the term of the relevant contracts after September 1, 1999, shall not be eligible for allocation of PCRRs upon expiration of the original terms of the contracts (*i.e*. the date the contract would have expired but for extension of the term pursuant to post-September 1, 1999 contract modifications). Disqualification pursuant to this Section 7.4.1.3.1 applies to any type of term extension modifications after September 1, 1999, whether they are automatic renewal provisions (evergreen clauses) or other renewal and extension provisions.

(6) A NOIE shall no longer be eligible for allocation of PCRRs after it opts into competition, with the exception of South Texas Electric Cooperative Inc. (STEC). STEC may be eligible for allocation of PCRRs for up to three years after the date it enters into competition.

7.4.1.3.2 Effect of PCRR Disqualification

(1) Once a disqualifying event occurs under Section 7.4.1.3.1, PCRR Disqualifying Events, the PCRRs associated with the pre-September 1, 1999 Generation Resource shall be voided by ERCOT from the date of the disqualifying event. Further, the NOIE will no longer be eligible for allocation of future PCRRs associated with the pre-September 1, 1999 Generation Resource.

(2) However, if a disqualifying event occurs during the effective term of the PCRRs, the NOIE who was allocated the PCRRs shall select one of the options below to address the remaining allocated PCRRs.

(a) If the NOIE maintains PCRR-related CRRs in its CRR Account, then the CRRs associated with the PCRR allocation shall either:

(i) Be voided by ERCOT at the time of the disqualifying event and ERCOT shall refund the NOIE the discounted purchase price of the CRR as soon as practicable; or

(ii) Be retained by the NOIE and the NOIE pays ERCOT the price differential between the discounted CRR price and the full CRR Auction price in which the CRR was acquired.

(b) If the NOIE no longer maintains PCRR-related CRRs (sale, transfer, etc.), then the NOIE pays ERCOT the price differential between the discounted CRR price and the full CRR Auction price in which the CRR was acquired.

(c) If the NOIE obtained PCRR-related CRRs through the Refund option (allocated at no charge), then ERCOT will void the CRRs at the time of the disqualifying event and no financial exchange is necessary.

7.4.2 PCRR Allocation and Nomination Terms and Conditions

7.4.2.1 PCRR Allocation and Nomination Amounts

(1) PCRR allocations shall be limited to the Seasonal net max sustainable rating (MW) of eligible pre-September 1, 1999 Generation Resources, but shall in no event exceed the net max sustainable rating (MW) of these pre-September 1, 1999 Generation Resources as established by 2010 registration data. If a Generation Resource is repowered by the addition of new equipment, the PCRR MW amount is limited to the original specific turbine/generator set(s) from the pre-September 1, 1999 Generation Resource. New or upgraded components that increase the capacity of pre-September 1, 1999 Generation Resources are not eligible for increased PCRR MW amounts.

(2) PCRR nominations shall be based on forecasted peak Demand, subject to the relevant PCRR allocation MW capacity limit of the specific Generation Resources.

(3) The PCRR allocation amounts for individual NOIEs relative to multiple Generation Resources under a portfolio supply contract shall be based on the following:

(a) If the portfolio supply contract specifically describes the NOIE capacity entitlement from each specific Generation Resource, the PCRR allocation amount from each Generation Resource shall be based on the contractual rights.

(b) If the portfolio supply contract does not specifically describe the NOIE capacity entitlement from each specific Generation Resource, the PCRR allocation amount shall be based on the NOIE’s 2003 4-Coincident Peak (4-CP) ratio share of each Generation Resource in the portfolio. The 2003 4-CP ratio share shall be calculated as the 4-CP of each NOIE divided by the total 4-CP of all NOIEs who were supplied by that portfolio of Generation Resources in 2003. Each NOIE’s capacity entitlement shall be its 2003 4-CP ratio share multiplied by the net max sustainable rating from the 2010 registration data for each PCRR eligible Generation Resource in the portfolio.

(4) If a NOIE serves Load in more than one Load Zone, it shall nominate PCRRs to each Load Zone in an amount equal to the explicit contractual rights to each Load Zone, if any, or in proportion to the peak Load served in each relevant Load Zone, based on the aggregated monthly Load data from the corresponding prior 12 months.

7.4.2.2 PCRR Allocations and Nominations

(1) ERCOT shall allocate CRRs under the following terms and conditions:

(a) ERCOT shall conduct studies to evaluate whether the nominated PCRRs comply with feasibility constraints using the simultaneous feasibility test described in Section 7.5.5.4, Simultaneous Feasibility Test. A PCRR nomination is a request for one-month strips of a NOIE-specified CRR type for amounts and blocks specified by the NOIE for each month of the PCRR Nomination Year as described in paragraph (c) below. The Simultaneous Feasibility Test (SFT) evaluation to determine the feasible PCRR allocation amount for each month being evaluated uses 100% of that month’s expected network topology, which may result in different amounts allocated in different months. If the SFT evaluation indicates that the nominated PCRR amounts are not feasible, then ERCOT shall proportionately reduce the requested PCRRs by their Impact Ratio on violated constraints. The “Impact Ratio” is the amount of a particular PCRR’s impact divided by the total impact of all PCRRs in the same direction on a violated constraint. The price that a NOIE must pay for an allocated PCRR is based on the corresponding CRR clearing price in the CRR First Offering. The invoicing and payment for a PCRR allocated according to the process in this paragraph follows the same process and timeline as the invoicing and payment of CRR bids cleared in the CRR First Offering.

(b) ERCOT shall allocate all PCRRs in quantities truncated to the nearest tenth MW (0.1 MW).

(c) Each eligible NOIE may nominate and ERCOT shall allocate to that NOIE as so nominated, subject to the limitation of paragraph (a) above, PCRRs up to 100% of the amount allowed pursuant to Section 7.4.2.1, PCRR Allocation and Nomination Amounts, for each eligible Resource, except as noted below in paragraph (d). Prior to the first CRR Long-Term Auction Sequence held in any given calendar year, the NOIE must nominate PCRRs for each month of the PCRR Nomination Year. Nominations must be received at ERCOT no later than 30 Business Days prior to the commencement of the CRR Long-Term Auction Sequence. ERCOT shall allocate PCRRs to the NOIE no later than 25 Business Days prior to the CRR Long-Term Auction Sequence. There shall not be any PCRR nomination process leading up to the second CRR Long-Term Auction Sequence (if any) in a calendar year.

(d) Prior to each CRR Monthly Auction, if there existed any PCRR nominations for the month being auctioned that ERCOT determined were not feasible at the time of the CRR Long-Term Auction Sequence in which they were originally considered, resulting in proportionally reduced PCRR allocations, then ERCOT shall re-evaluate the full nomination and allocate additional PCRRs, if feasible, up to the original nomination amount. The price that a NOIE must pay for a PCRR allocated by the process in this paragraph is based on the corresponding CRR clearing price in the CRR Monthly Auction according to the pricing methodology in item (h) below, and the invoicing and payment for such a PCRR follows the same process and timeline as the invoicing and payment of CRR bids cleared in the CRR Monthly Auction.

(e) A NOIE must designate whether to accept the refund option or the capacity option for its eligible non-solid fuel and non-combined-cycle Resources before the allocation of PCRRs. The designated option (refund or capacity) will be the same for every month of the allocation year for that Resource. A NOIE cannot designate a combination of both options for the same Resource in a given allocation year. These options are described in items (i) and (ii) below. NOIEs, or a group of NOIEs linked by common pre-1999 power supply arrangements, which had a 2003 NOIE peak Load in excess of 2,300 MW must use the capacity option (ii) for their eligible non-solid-fuel and non-combined-cycle Resources. NOIEs that receive PCRRs representing gas steam Resources, hydro, wind, simple cycle or other similar Resources across high voltage DC Ties must use the capacity option (ii) for those eligible non-solid-fuel and non-combined-cycle Resources:

(i) Refund option – The eligible NOIE may nominate up to 100% of the lesser of the net unit capacity or contractual amount for those Resource amounts allowed pursuant to Section 7.4.2.1. The eligible NOIE shall refund to ERCOT any congestion revenues received above those congestion revenues flowing to the NOIE for its Output Schedule of the Resource at the PCRR source. PCRR settlement will reflect the MW value of the Output Schedule of the Resource at the PCRR source, regardless of what MW value of actual output occurred during that interval if that change in output is in response to Dispatch Instructions. The refund for any Settlement Interval is equal to the difference between the PCRR MW amount and the time-weighted average of the Output Schedules of the Resource at the PCRR source multiplied by the value of that PCRR. PCRRs allocated under the refund option are not transferable and may only be used by the NOIE to which they are allocated.

(ii) Capacity option – The eligible NOIE may nominate up to 100% of the lesser of the net unit capacity or contractual amount for those Resource amounts allowed pursuant to Section 7.4.2.1 at a capacity factor no greater than 40% over each calendar year. ERCOT shall allocate PCRRs in accordance with the NOIE nominations subject to the SFT.

(A) During the nomination process, the NOIE must nominate the months (designating CRR amounts as defined by the criteria specified in item (5) of Section 7.3, Types of Congestion Revenue Rights to Be Auctioned) for which it will use its PCRRs (i.e., the NOIE may shape the PCRRs representing up to 100% of the capacity for each Resource at a capacity factor no greater than 40% over each calendar year).

(B) If a Resource eligible for PCRRs is shut down due to a Force Majeure Event, then, to the extent feasible, the NOIE may reallocate its PCRRs across its PCRR-eligible facilities before the CRR Monthly Auction. This change is effective no later than the date of the CRR Monthly Auction, and the redesignation may be requested for each CRR Monthly Auction during the Force Majeure Event. Any price difference in the reconfigured rights must be paid by (or paid to) the NOIE.

(f) The CRR type, either Point-to-Point (PTP) Option, PTP Obligation, or a combination, must be specified by the eligible NOIE before the PCRR allocation and is binding for purchase. Once the allocation process is complete, the eligible NOIE may not change the CRR type.

(g) After the allocation process, and the subsequent applicable CRR Auction, PCRRs other than those described in item (iii) below must be priced as a percentage of the applicable CRR Auction clearing price for the applicable CRR, as follows:

(i) PTP Option PCRRs:

(A) **Nuclear, coal, lignite or combined-cycle Resources:** 10% of the applicable CRR Auction clearing prices;

(B) **Gas steam Resources:** 15% of the applicable CRR Auction clearing prices; or

(C) **Hydro, wind, simple cycle, or other Resources not included in (A) or (B):** 20% of the applicable CRR Auction clearing prices.

(ii) PTP Obligation PCRRs:

(A) **Nuclear, coal, lignite or combined-cycle Resources**: 5% of the applicable CRR Auction clearing price if it is positive; 100% of the applicable CRR Auction clearing price if it is negative;

(B) **Gas steam Resources:** 7.5% of the applicable CRR Auction clearing price if such price is positive; 100% of the applicable CRR Auction clearing price if it is negative; or

(C) **Hydro, wind, simple cycle, or other Resources not included in (A) or (B):** 10% of the applicable CRR Auction clearing prices if it is positive; 100% of the applicable CRR Auction clearing prices if it is negative.

(iii) For a NOIE that has chosen the refund option, the allocated number of PCRRs for Resources other than solid-fuel and combined-cycle Resources are provided at no charge.

(h) PCRRs shall not be able to be bilaterally traded through ERCOT systems prior to the completion of the CRR Auction used to determine their value.

7.5 CRR Auctions

7.5.1 Nature and Timing

(1) The Congestion Revenue Right (CRR) Auction auctions the available network capacity of the ERCOT transmission system not allocated as described in Section 7.4, Preassigned Congestion Revenue Rights Overview, or sold in a previous auction. The CRR Auction also allows CRR Owners an opportunity to offer for sale CRRs that they hold. Each CRR Auction allows for the purchase of CRR products as described in paragraph (5) of Section 7.3, Types of Congestion Revenue Rights to Be Auctioned, in strips of one or more consecutive months and allows for the reconfiguration of all CRR blocks that were previously awarded for the months covered by that CRR Auction.

(2) The CRR Network Model must be based on, but is not the same as, the Network Operations Model. For the purposes of CRR Network Model construction for a CRR Long-Term Auction Sequence, ERCOT may, at its sole discretion, utilize the same or similar CRR Network Model inputs for multiple consecutive months. The CRR Network Model must, to the extent practicable, include the same topology, contingencies, and operating procedures as used in the Network Operations Model as reasonably expected to be in place for each month. The expected network topology used in the CRR Network Model for any month or set of months must include all Outages from the Outage Scheduler and identified by ERCOT as expected to have a significant impact upon transfer capability during that time. These Outages included in the CRR Network Model shall be posted on the Market Information System (MIS) Secure Area consistent with model posting requirements by ERCOT with accompanying cause and duration information, as indicated in the Outage Scheduler. Transmission system upgrades and changes must be accounted for in the CRR Network Model for CRR Auctions held after the month in which the element is placed into service.

(a) ERCOT shall use Dynamic Ratings in the CRR Network Model as required under Section 3.10.8, Dynamic Ratings.

(b) The CRR Network Model must use the peak Load conditions of the month or set of months being modeled.

(c) ERCOT’s criteria for determining if an Outage should be in the CRR Network Model shall be in accordance with these Protocols and described in the Operating Guides.

(3) ERCOT shall model bids and offers into the CRR Auction as flows based on the MW offer and defined source and sink. When the Simultaneous Feasibility Test (SFT) is run, the model must weight the power flow buses and Hub Buses included in a Hub or Load Zone appropriately to determine the system impacts of the CRRs.

(a) To distribute injections and withdrawals to buses within a Hub, ERCOT shall use distribution factors specified in Section 3.5.2, Hub Definitions.

(b) To distribute injections and withdrawals to power flow buses in Load Zones, ERCOT shall use the Load-weighted distribution factors for On-Peak Hours in each Load Zone. For a CRR Monthly Auction, ERCOT shall derive CRR Auction Load distribution factors with the set of Load distribution factors constructed in accordance with the ERCOT Load distribution factor methodology specified in paragraph (5) of Section 4.5.1, DAM Clearing Process, for use in the Day-Ahead Market (DAM). For a CRR Long-Term Auction Sequence, ERCOT shall derive CRR Auction Load distribution factors from the corresponding planning model or with the set of Load distribution factors constructed in accordance with the ERCOT Load distribution factor methodology specified in paragraph (5) of Section 4.5.1, for use in the DAM. ERCOT shall notify the market as to which method was used for each CRR Network Model in a CRR Long-Term Auction Sequence in the corresponding auction notice. ERCOT shall post the CRR Auction Load distribution factors as part of the CRR Network Model pre-auction posting. Private Use Network net Load will be redacted from this posting.

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| ***[NPRR1004: Replace paragraph (b) above with the following upon system implementation:]***(b) To distribute injections and withdrawals to power flow buses in Load Zones, ERCOT shall use the Load-weighted distribution factors for On-Peak Hours in each Load Zone. For CRR Auctions and allocations, ERCOT shall derive Load distribution factors with the set of Load distribution factors constructed in accordance with the ERCOT Load distribution factor methodology specified in paragraph (c) of Section 3.12, Load Forecasting. ERCOT shall post the CRR Auction Load distribution factors as part of the CRR Network Model pre-auction posting. Private Use Network net Load will be redacted from this posting.  |

(4) ERCOT shall conduct CRR Auctions as follows:

(a) The CRR Monthly Auction, held once per calendar month, shall include the sale of one-month terms of Point-to-Point (PTP) Options and PTP Obligations for the month immediately following the month during which the CRR bid submission window closes.

(b) Twice per year, a CRR Long-Term Auction Sequence shall be held, selling PTP Options and PTP Obligations, subject to the following constraints:

(i) Each CRR Long-Term Auction Sequence shall consist of six successive CRR Auctions, each of which offers for sale CRRs spanning a term of six consecutive calendar months (either January through June, or July through December). In each such CRR Auction, CRRs shall be offered in one-month strips or in strips of up to six consecutive months within the term covered by the auction.

(ii) The CRR Long-Term Auction Sequence shall operate in chronological order, first providing a CRR Auction covering the next six-month (January through June, or July through December) period that has not yet commenced, and then five successive CRR Auctions for the five six-month periods thereafter.

(c) No later than April 1 of each calendar year, ERCOT shall publish an update to the CRR activity calendar on the ERCOT website, with the following requirements:

(i) The calendar shall include activity dates for all CRR Monthly Auctions, all CRR Auctions that are part of a CRR Long-Term Auction Sequence, and all Pre-Assigned Congestion Revenue Right (PCRR) annual allocations for the remainder of the current calendar year and for the two subsequent calendar years.

(ii) Any posted date on the CRR activity calendar shall only be modified if ERCOT determines that the successful execution of the auction would be jeopardized without such modification. If a delay in completion of a CRR Auction that is part of a CRR Long-Term Auction Sequence results in a condition whereby an overlap of credit posting requirements for consecutive CRR Auctions within that sequence would occur, subsequent CRR Auctions within the sequence shall be delayed by the minimum amount of time required to relieve such overlap. For any changes to the posted auction activity dates, ERCOT will send a Market Notice to provide the new date(s) and to explain the need for the change.

(iii) The CRR activity calendar must be approved by the Wholesale Market Subcommittee (WMS) prior to the annual posting.

(5) For each CRR Auction, the CRR Auction Capacity shall be defined as follows:

(a) For the CRR Monthly Auction, 90%.

(b) For any CRR Auction that is part of a CRR Long-Term Auction Sequence, 70%, 55%, 40%, 30%, 20%, or 10% for the first, second, third, fourth, fifth, and sixth six-month windows sold in the sequence, respectively.

(6) For any month covered by a CRR Auction that is part of a CRR Long-Term Auction Sequence, ERCOT shall offer network capacity equal to:

(a) The expected network topology for that month, scaled down to the CRR Auction Capacity percentage; minus

(b) All outstanding CRRs that were previously allocated for the month, scaled down to the CRR Auction Capacity percentage; minus

(c) All outstanding CRRs that were previously awarded for the month in any previous CRR Auction.

(7) For the CRR Monthly Auction, ERCOT shall offer network capacity equal to the difference between:

(a) The expected transmission network topology in the CRR Network Model of the month for which the CRRs are effective scaled down to the CRR Auction Capacity percentage; and

(b) All outstanding CRRs that were previously awarded or allocated for the month.

7.5.2 CRR Auction Offers and Bids

(1) To submit bids or offers into a CRR Auction, an Entity must become a CRR Account Holder and satisfy financial assurance criteria required to participate, under Section 16.8, Registration and Qualification of Congestion Revenue Rights Account Holders.

(2) In order to enforce a volume limitation on the number of market transactions (bids and offers) submitted into the CRR Auction, ERCOT shall evaluate the maximum number of transactions which are available prior to the auction, and evenly divide the limit across the CRR Account Holders eligible to submit bids or offers according to paragraph (1) above. This limit shall be designated as the preliminary allocated CRR transaction limit. A CRR Auction Notice will be provided to all CRR Account Holders prior to each auction. The CRR Auction Notice will include the following ERCOT determined limitations for each CRR Monthly Auction and each Long-Term Auction Sequence: the preliminary allocated CRR transaction limit; the maximum overall transaction limits; time-of-use transaction limits; and per-CRR Account Holder transaction limits.

(a) Prior to executing the CRR Auction but after the transaction submission window is closed, ERCOT shall determine which of the CRR Account Holders are Participating CRR Account Holders for that CRR Auction. ERCOT shall then calculate a final allocated CRR transaction limit by evenly dividing the number of available transactions across the Participating CRR Account Holders.

(b) If the total number of transactions submitted by all Participating CRR Account Holders into the CRR Auction does not exceed the maximum number of transactions available prior to the auction, then the final allocated CRR transaction limit will not apply and all transactions will be accepted.

(c) Within one hour after the close of each CRR Auction, ERCOT shall notify all CRR Account Holders of the total number of transactions submitted by all Participating CRR Account Holders and whether or not a transaction adjustment period is necessary. ERCOT may determine that a transaction adjustment period is not necessary if the total number of transactions submitted by all Participating CRR Account Holders does not exceed the number of transactions that can be processed by the CRR Auction system.

(d) If ERCOT announces a transaction adjustment period, ERCOT shall notify all CRR Account Holders of the final allocated transaction limit and reject all transactions submitted by each Participating CRR Account Holder whose sum total of transactions submitted to the affected CRR Auction exceeds the final allocated transaction limit. Each Participating CRR Account Holder may then adjust their transactions while respecting the final allocated CRR transaction limitation for the affected CRR Auction within one Business Day. ERCOT will then execute the CRR Auction using the updated set of transactions as revised by Market Participants.

(e) Each Counter-Party is limited to a total of three CRR Account Holders.

(f) ERCOT shall determine a charge for each PTP Option bid awarded in each CRR Auction as described in Section 7.7, Point-to-Point (PTP) Option Award Charge.

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| ***[NPRR936: Replace paragraph (2) above with the following upon system implementation:]***(2) In order to enforce a volume limitation on the number of market transactions (bids and offers) submitted into the CRR Auction, ERCOT shall evaluate the maximum number of transactions which are available prior to the auction, and evenly divide the limit across the Counter-Parties that are associated with CRR Account Holders eligible to submit bids or offers according to paragraph (1) above. This limit shall be designated as the preliminary allocated CRR transaction limit. A CRR Auction Notice will be provided to all CRR Account Holders prior to each auction. The CRR Auction Notice will include the following ERCOT determined limitations for each CRR Monthly Auction and each Long-Term Auction Sequence: the preliminary allocated CRR transaction limit; the maximum overall transaction limits; time-of-use transaction limits; and per-CRR Account Holder transaction limits.(a) Prior to executing the CRR Auction but after the transaction submission window is closed, ERCOT shall determine which of the Counter-Parties are associated with Participating CRR Account Holders for that CRR Auction. ERCOT shall then calculate a final allocated CRR transaction limit by evenly dividing the number of available transactions across the Counter-Parties associated with Participating CRR Account Holders.(b) If the total number of transactions submitted by all Participating CRR Account Holders into the CRR Auction does not exceed the maximum number of transactions available prior to the auction, then the final allocated CRR transaction limit will not apply and all transactions will be accepted.(c) Within one hour after the close of each CRR Auction, ERCOT shall notify all CRR Account Holders of the total number of transactions submitted by all Participating CRR Account Holders and whether or not a transaction adjustment period is necessary. ERCOT may determine that a transaction adjustment period is not necessary if the total number of transactions submitted by all Participating CRR Account Holders does not exceed the number of transactions that can be processed by the CRR Auction system. (d) If ERCOT announces a transaction adjustment period, ERCOT shall notify all CRR Account Holders of the final allocated transaction limit and reject all transactions submitted by each Participating CRR Account Holder associated with a Counter-Party whose sum total of transactions submitted to the affected CRR Auction exceeds the final allocated transaction limit. Each Participating CRR Account Holder may then adjust their transactions while respecting the final allocated CRR transaction limitation for the affected CRR Auction within one Business Day. ERCOT will then execute the CRR Auction using the updated set of transactions as revised by Market Participants.(e) ERCOT shall determine a charge for each PTP Option bid awarded in each CRR Auction as described in Section 7.7, Point-to-Point (PTP) Option Award Charge. |

7.5.2.1 CRR Auction Offer Criteria

(1) A CRR Auction Offer indicates a willingness to sell CRRs at the auction clearing price, if it equals or exceeds the Minimum Reservation Price. It must be submitted by a Participating CRR Account Holder and must include the following:

(a) The short name of the Participating CRR Account Holder;

(b) The unique identifier for each CRR being offered, which must include the single type of CRR being offered;

(c) The source Settlement Point and the sink Settlement Point for the block of CRRs being offered;

(d) The month, or strip of consecutive months, for which the block of CRRs is being offered, including time-of-use designation except that a 7x24 offer may not be designated;

(e) The quantity of CRRs in MW, which must be the same for each hour within the block, for which the Minimum Reservation Price is effective; and

(f) A dollars per CRR (i.e. dollars per MW per hour) for the Minimum Reservation Price.

(2) The Participating CRR Account Holder may submit a self-imposed credit limit for the CRR Monthly Auction or for each time-of-use in a CRR Auction that is part of a CRR Long-Term Auction Sequence, if desired.

(3) A Participating CRR Account Holder can only offer to sell one-month or multi-month strips of CRRs for which it is the CRR Owner of record at the time of the offer. Multi-month CRR offers must consist of consecutive months that are within the period of the relevant CRR Auction and can only be submitted as part of a CRR Long-Term Auction Sequence.

(4) A CRR offer for a specified MW quantity of CRRs constitutes an offer to sell a quantity of CRRs equal to or less than the specified quantity. A CRR offer may not specify a minimum quantity of MW that the Participating CRR Account Holder wishes to sell.

7.5.2.2 CRR Auction Offer Validation

(1) A valid CRR Auction Offer is a CRR Auction Offer that ERCOT has determined meets the criteria listed in Section 7.5.2.1, CRR Auction Offer Criteria.

(2) ERCOT shall continuously display on the MIS Certified Area information that allows any CRR Account Holder submitting a CRR Auction Offer to view its valid CRR Auction Offers.

(3) As soon as practicable, ERCOT shall notify each CRR Account Holder of any of its CRR Auction Offers that are invalid. The CRR Account Holder may correct and resubmit any invalid CRR Auction Offer, within the appropriate auction timeline.

7.5.2.3 CRR Auction Bid Criteria

(1) A CRR Auction Bid indicates a willingness to buy CRRs at the auction clearing price, if it is equal to or less than the Not-to-Exceed Price. It must be submitted by a Participating CRR Account Holder and must include the following:

(a) The short name of the Participating CRR Account Holder;

(b) The single type of CRR being bid;

(c) The source Settlement Point and the sink Settlement Point for the block of CRRs being bid;

(d) The month or strip of consecutive months for which the block of CRRs is being bid, including time-of-use designation, which may include a 7x24 block in a CRR Monthly Auction but not in a CRR Auction held as part of a CRR Long-Term Auction Sequence;

(e) The quantity of CRRs in MW, which must be the same for each hour within the block, for which the Not-to-Exceed Price is effective; and

(f) A dollars per CRR (i.e. dollars per MW per hour) for the Not-to-Exceed Price.

(2) The Participating CRR Account Holder may submit a self-imposed credit limit for the CRR Monthly Auction or for each time-of-use in a CRR Auction that is part of a CRR Long-Term Auction Sequence, if desired.

(3) A bid to buy a PTP Option cannot specify a non-positive Not-to-Exceed Price less than the Minimum PTP Option Bid Price.

(4) A bid to buy a PTP Obligation can specify a negative Not-to-Exceed Price.

(5) A CRR bid for a specified MW quantity of CRRs constitutes a bid to buy a quantity of CRRs equal to or less than the specified quantity. A CRR bid may not specify a minimum quantity of MW that the Participating CRR Account Holder wishes to buy.

(6) A CRR bid may not contain a source Settlement Point and a sink Settlement Point that are Electrically Similar Settlement Points, nor may CRR bids be submitted by any combination of Participating CRR Account Holders within the same Counter-Party to create the net effect of a single PTP Obligation bid containing a source Settlement Point and a sink Settlement Point that are Electrically Similar Settlement Points.

7.5.2.4 CRR Auction Bid Validation

(1) A valid CRR Auction Bid is a CRR Auction Bid that ERCOT has determined meets the criteria listed in Section 7.5.2.3, CRR Auction Bid Criteria.

(2) ERCOT shall continuously display on the MIS Certified Area information that allows any CRR Account Holder submitting a CRR Auction Bid to view its valid CRR Auction Bids.

(3) As soon as practicable, ERCOT shall notify each CRR Account Holder of any of its CRR Auction Bids that are invalid. The CRR Account Holder may correct and resubmit any invalid CRR Auction Bid, if within the appropriate auction timeline.

7.5.3 ERCOT Responsibilities

(1) ERCOT shall:

(a) Manage the qualification and registration of eligible CRR Account Holders;

(b) Post calendar of CRR Auctions;

(c) Initiate, direct, and oversee the CRR Auction;

(d) Post CRR Auction results;

(e) Maintain a record of the CRRs;

(f) Provide a mechanism to record CRR bilateral transactions;

(g) Determine CRR Auction Settlement and distribute auction revenues;

(h) Keep, under the ERCOT data retention policy, all information and tools necessary to reproduce CRR calculations; and

(i) Post CRR Network Model of the effective month of the auction on the MIS Secure Area, before each CRR Auction:

(i) For the CRR Monthly Auction, the model shall be posted no later than ten Business Days before the auction.

(ii) For any CRR Long-Term Auction Sequence, the models shall be posted no later than 20 Business Days before the sequence commences.

(2) ERCOT shall use the CRR Network Model as defined in Section 3.10.3, CRR Network Model.

(3) ERCOT shall develop and maintain a CRR guide to help Market Participants with the CRR program.

(4) Before each auction, ERCOT shall establish a credit limit under Section 16, Registration and Qualification of Market Participants, that is imposed in the CRR Auction.

(5) Five Business Days prior to the credit lock for each CRR Auction, ERCOT shall post on the ERCOT website the credit related path-specific DAM-based adders and the historical CRR Auction clearing prices as applicable in support of the credit adders defined in Section 7.5.5.3, Auction Process, for the existing CRR Inventory.

7.5.3.1 Data Transparency

(1) Following each CRR Auction, ERCOT shall record and make available to each CRR Account Holder on the MIS Certified Area the following information for each CRR awarded in, sold in, or allocated before, the CRR Auction to the specific CRR Account Holder:

(a) Unique identifier of each CRR;

(b) Type of CRR (PTP Option, PTP Obligation, PTP Option with Refund, or PTP Obligation with Refund);

(c) Clearing price and, if applicable, the PCRR pricing factor of each CRR;

(d) The source and sink of each CRR;

(e) The date and time-of-use block for which the CRR is effective; and

(f) Total MW of each PTP pair of CRR, awarded, sold or allocated.

(2) Following each CRR Auction, ERCOT shall post to the ERCOT website the following information for all outstanding or sold CRRs following this auction:

(a) PTP Options and PTP Options with Refund – the source and sink, and total MWs;

(b) PTP Obligations and PTP Obligations with Refund – the source and sink and total MWs;

(c) The identities of the CRR Account Holders that sold, were awarded, or were allocated CRRs in or before the CRR Auction;

(d) The clearing prices for each strip of CRR Auction bids and CRR Auction offers awarded in the CRR Auction;

(e) The identity and post contingency flow of each binding directional element based on the CRR Network Model used in the CRR Auction;

(f) All CRR Auction bids and CRR Auction offers, without identifying the name of the CRR Account Holder that submitted the bid or offer;

(g) The clearing prices for each strip of CRRs bid or offered in the CRR Auction;

(h) The Shadow Prices for each Settlement Point in the CRR Auction; and

(i) The clearing prices for all outstanding CRRs that were previously awarded or allocated for the month(s) in the CRR Auction.

(3) Following a one-time auction of CRRs pursuant to Section 16.11.6.1.4, Repossession of CRRs by ERCOT, or Section 16.11.6.1.5, Declaration of Forfeit of CRRs, ERCOT shall post to the ERCOT website the following information for all CRRs sold in the auction:

(a) PTP Options – the source and sink, total MWs, and date and time-of-use block for which the CRR is effective;

(b) PTP Obligations – the source and sink, total MWs, and date and time-of-use block for which the CRR is effective; and

(c) The identity of the CRR Account Holder that was awarded CRRs in the one-time CRR Auction.

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| ***[NPRR1023: Delete paragraph (3) above upon system implementation.]*** |

7.5.3.2 Auction Notices

(1) Not less than 20 days before each CRR Long-Term Auction Sequence and not less than ten days before each CRR Monthly Auction, ERCOT shall post the following to the ERCOT website:

(a) For the CRR Auction, number and type (PTP Options or PTP Obligations) of CRRs previously awarded or allocated for each appropriate month, including the source and sink for each such CRR;

(b) Deadline for CRR Account Holders to satisfy financial requirements to participate in the auction;

(c) Specifications for the equipment and interfaces necessary to participate in the CRR Auction;

(d) Date and time by which CRR Auction bids and CRR Auction offers in the CRR Auction must be submitted;

(e) Bid and offer format;

(f) Minimum PTP Option Bid Price;

(g) The preliminary allocated CRR transaction limit as defined in paragraph (2) of Section 7.5.2, CRR Auction Offers and Bids; and

(h) Any other relevant information of commercial significance to CRR Account Holders, including a list of Electrically Similar Settlement Points.

7.5.4 CRR Account Holder Responsibilities

(1) Participating CRR Account Holders may submit CRR Auction Bids and CRR Auction Offers.

(2) Each CRR Account Holder must maintain adequate credit for its CRR holdings, and CRR Auction participation requirements, as described in Section 16, Registration and Qualification of Market Participants.

7.5.5 Auction Clearing Methodology

7.5.5.1 Creditworthiness

(1) The CRR Auction system prevents a CRR Account Holder from being awarded bids and offers that exceed the lesser of the CRR Account Holder’s self-imposed credit limit or the credit limit as prescribed in Section 16.11.4.6.1, Credit Requirements for CRR Auction Participation.

7.5.5.2 Disclosure of CRR Ownership

(1) ERCOT shall post monthly, by the fifth Business Day of the month, on the ERCOT website CRR ownership of record information for each source and sink pair as follows:

(a) The identities of the CRR Account Holders;

(b) Type of CRR held by that account holder; and

(c) Total MWs held by that account holder.

7.5.5.3 Auction Process

(1) The CRR Auction must be a single-round, simultaneous auction for selling the CRRs available for all auction products. ERCOT shall enter into the CRR Auction system a credit limit for each Counter-Party that has at least one CRR Account Holder. A Counter-Party’s CRR Auction credit limit is equal to the lesser of the credit limit as determined in Section 16.11.4.6.1, Credit Requirements for CRR Auction Participation, or, if provided, the Counter-Party’s self-imposed CRR Auction credit limit for the CRR Monthly Auction or for a time-of-use within a CRR Auction held as part of a CRR Long-Term Auction Sequence.

(2) Prior to the CRR Auction, ERCOT will conduct a two-part pre-auction screening process. First, if the Counter-Party’s CRR Auction credit limit is greater than that Counter-Party’s credit exposure as defined below using the CRR bid volumes rather than awarded volumes, then the Counter-Party’s CRR Auction credit limit will be ignored as the CRR Auction is solved. Second, for each CRR Account Holder of a Counter-Party, if the CRR Account Holder’s self-imposed credit limit is greater than that CRR Account Holder’s credit exposure as defined below, then the CRR Account Holder’s self-imposed credit limit will be ignored as the CRR Auction is solved.

 The calculated exposure for the pre-auction screening for each CRR Account Holder is the sum of the credit exposure for PTP Obligation bids, PTP Obligation offers, and PTP Option bids for that CRR Account Holder. The calculated exposure for the pre-auction screening for each Counter-Party is the sum of the credit exposure for PTP Obligation bids, PTP Obligation offers, and PTP Option bids for that Counter-Party. PTP Option offers have zero credit exposure. Separately, for PTP Obligation bids, PTP Obligation offers, and PTP Option bids, for each source/sink Settlement Point combination, the credit exposure will use the bid price and MW quantity that produces the maximum credit exposure that could result from the CRR Auction for that source/sink Settlement Point combination.

(3) The credit constraint for each Counter-Party is based on the following calculation:

**ACR*b* = AOBLCR *b* + AOPTCR *b*- AOBLCRO *b***

Where:

AOBLCR *b* = ∑*m* ∑*h*∑*j, k*[(BOBLMW *m, h,(j, k), b*\* (Max(0, BPOBL *m, h,(j, k), b*) – Min(0,A *ci99, m, h,(j, k), b*, EACP *m, h,(j, k)*)))]

AOPTCR *b* = ∑*m* ∑*h*∑*j*, *k*[(BOPTMW *m, h,(j, k), b* \* BPOPT*m, h,(j, k), b*)]

AOBLCRO *b* = ∑*m* ∑*h*∑*j*, *k*(OOBLMW*m, h,(j, k), b* \* Min(0, OPOBL*m, h,(j, k), b*))

The above variables are defined as follows:

|  |  |  |
| --- | --- | --- |
| Variable | Unit | Description |
| ACR *b* | $ | *Auction Credit Requirement*—The auction credit requirement for a Counter-Party *b.* |
| AOBLCR *b* | $ | *Auction PTP Obligation Credit Requirement*—The auction credit requirement for all PTP Obligation bids submitted by a Counter-Party *b* for all Operating Days.  |
| BOBLMW *m, h, (j, k), b* | MW | *Awarded Bid PTP Obligation*—The awarded bid PTP Obligation with the source *j* and sink *k* for the hour *h,* and month *m* submitted by a Counter-Party *b.* |
| BPOBL *m, h, (j, k), b* | $/MW per hour | *Bid Price for PTP Obligation*—Bid Price for PTP Obligationwith the source *j* and sink *k* for the hour *h,* and month *m* submitted by a Counter-Party *b.*  |
| A*ci 99, m, h, (j, k), b* | $/MW per hour | *Path-Specific DAM-Based Adder*—The path-specific DAM-based adder with the source *j* and sink *k* for the hour *h,* and month *m* submitted by a Counter-Party *b*; calculated as 99th percentile of the average rolling consecutive DAM settled price for the reference CRR source/sink over a period that represents a month for each product type (18 days for 5\*16, 8 days for 2\*16, 28 days for 7\*8). The look-back period for DAM settled prices shall be the lesser of Nodal Market go-live to current time and current time minus three years. If historical Day-Ahead Settlement Point Prices (DASPPs) are not available for a Settlement Point for one or more Operating Days, ERCOT will designate a proxy Settlement Point for this purpose, and the DASPPs of the proxy Settlement Point of corresponding Operating Days are used. |
| EACP*m, h, (j, k)* | $/MW per hour | *Effective Auction Clearing Price*—The auction clearing price with the source *j* and sink *k* for the hour *h,* and month *m*.For each CRR PTP Obligation, this value is equal to the auction clearing price of an awarded CRR selected as follows: (a) Awarded CRRs with the source *j* and sink *k* containing hour *h* and operating month *m* are selected from the set of unexpired awarded PTP Obligations. If no awarded CRRs are found the EACP value is zero.(b) If (a) results in more than one awarded CRR, awarded CRRs with the most recent award date are selected.(c) If (b) results in more than one awarded CRR, then the awarded CRR with the lowest auction clearing price is selected. |
| AOBLCRO *b* | $ | *Auction PTP Obligation Credit Requirement for Offers*—The auction credit requirement for all PTP Obligation offers submitted by a Counter-Party *b* for all Operating Days.  |
| OOBLMW*m, h, (j, k), b* | MW | *Awarded Offer PTP Obligation*—The awarded offer PTP Obligation with source *j* and sink *k* for the hour *h,* and month *m* submitted by a Counter-Party *b.* |
| OPOBL *m, h, (j, k ), b* | $/MW per hour | *Offer Price for PTP Obligation*—The offer price for PTP Obligation with the source *j* and sink *k* for the hour *h,* and month *m* submitted by a Counter-Party *b.* |
| AOPTCR *b* | $ | *Auction PTP Option Bid Credit Requirement*—The auction credit requirement for all PTP Option bids submitted by a Counter-Party *b.* |
| BOPTMW*m, h, (j, k),b* | MW | *Awarded Bid PTP Option*—The awarded bid PTP Option with the source *j* and sink *k* for the hour *h,* and month *m* submitted by a Counter-Party *b.*  |
| BPOPT*m, h, (j, k), b* | $/MW per hour | *Bid Price for PTP Option*—The bid price for PTP Option with the source *j* and sink *k* for the hour *h,* and month *m* submitted by a Counter-Party *b*. |
| *b* | none | A Counter-Party. |
| *m* | none | An operating month. |
| *h* | none | An Operating Hour. |
| *j* | none | A source Settlement Point. |
| *k* | none | A sink Settlement Point. |
| *ci99* | none | 99th percentile confidence interval. |

(4) ERCOT may review preliminary CRR Auction results to ensure that post auction collateral requirements are satisfied for all CRR Account Holders participating in the CRR Auction. If it is practicable to rerun the applicable CRR Auction, and the post CRR Auction collateral requirements for a Counter-Party are not satisfied, ERCOT:

(a) Shall promptly notify the Counter-Party of the amount by which its Financial Security must be increased and allow it until 1500 on the next Bank Business Day from the date on which ERCOT delivered Notification to increase the Financial Security.

(b) If sufficient Financial Security is not received by 1500 on the next Bank Business Day, ERCOT shall void all of the Counter-Party’s bids and offers in the CRR Auction and rerun the CRR Auction without that Counter-Party’s activity.

(c) ERCOT shall award CRRs in quantities truncated to the nearest tenth MW (0.1 MW).

(d) The CRR clearing price is equal to the corresponding Shadow Price for that CRR product.

(e) Except as noted in paragraph (f) below, when a CRR Account Holder is awarded CRRs as a result of a CRR Auction, the CRRs do not become the property of the winning CRR Account Holder, and the CRRs may not be placed in their CRR accounts, until the required CRR Invoice has been paid.

|  |
| --- |
| ***[NPRR1023: Replace paragraph (e) above with the following upon system implementation:]***(e) When a CRR Account Holder is awarded CRRs as a result of a CRR Auction, the CRRs do not become the property of the winning CRR Account Holder, and the CRRs may not be placed in their CRR accounts, until the required CRR Invoice has been paid. |

(f) Following a one-time auction of CRRs pursuant to Section 16.11.6.1.4, Repossession of CRRs by ERCOT, or Section 16.11.6.1.5, Declaration of Forfeit of CRRs, the CRRs may be placed in the account of the winning CRR Account Holder immediately upon determination of the winning bidder if the post-auction collateral requirement is satisfied and if ERCOT determines that the transfer is required to ensure the correctness of the inventory for any subsequent CRR Auction.

|  |
| --- |
| ***[NPRR1023: Delete paragraph (f) above upon system implementation.]*** |

(5) ERCOT shall use a linear programming auction engine model for each CRR Auction that evaluates all CRR Auction bids and CRR Auction offers submitted, and selects a combination of CRR Auction bids and CRR Auction offers that:

(a) Makes the solution simultaneously feasible within the limits of the ERCOT network capability over the auction term; and

(b) Maximizes the objective function, which is equal to the total economic value (as expressed in the CRR Auction bids) of the awarded CRR Auction bids, less the total economic cost (as expressed in CRR Auction offers) of the awarded CRR Auction offers, while observing all applicable constraints.

(6) The CRR Network Model must, to the extent practicable, reflect the continuous and post-contingency system operating limits and operational procedures (i.e., Remedial Action Schemes (RASs), Automatic Mitigation Plans (AMPs) and Remedial Action Plans (RAPs)) in the Network Operations Model used by ERCOT during Real-Time operations, as discussed below in Section 7.5.5.4, Simultaneous Feasibility Test.

(7) Once a CRR Auction is complete, ERCOT shall archive and keep the CRR Auction system and all models used to finalize the CRR Auction results under ERCOT’s data retention policy as that policy applies to data that may be needed to resolve requests for billing adjustments under applicable billing adjustment procedures.

(8) Once a CRR Auction is complete, ERCOT will make available on the MIS Certified Area each active CRR Account Holder’s credit exposure calculated within the CRR Auction process (as defined in paragraph (3) above).

7.5.5.4 Simultaneous Feasibility Test

(1) The Simultaneous Feasibility Test (SFT) is a market feasibility test that confirms that the transmission system can support the awarded set of CRRs during normal system conditions, assuming that the Network Operations Model updated with Real-Time network topology is the same as that modeled (for the CRR Auction), while observing all security constraints.

(2) The SFT uses a Direct Current (DC) power-flow model to model the effect of CRR Auction bids and offers on the expected system network topology during the auction term. SFT is not a system reliability test and is not intended to model actual system operating conditions. SFTs are run during the determination of the winning bids and offers for the CRR Auction.

(3) Inputs to the SFT model include:

(a) CRR bids and offers for the auction;

(b) All previously awarded or allocated CRRs for each month;

(c) Transmission line Outage schedules;

(d) Expected configuration of Transmission Facilities, adjusted for oversold CRRs, as specified in paragraph (e) below;

(e) Increased capacity of each element that has been oversold in prior CRR Auctions and CRR allocations to exactly match the amount of CRRs that have been sold or allocated on that element (this ensures the feasibility of the CRR Auction);

(f) Thermal operating limits (including estimates for Dynamic Ratings) for transmission lines;

(i) For a CRR Long-Term Auction Sequence, ERCOT shall use Dynamic Ratings based on a historical analysis of the maximum peak-hour temperatures for the previous ten years; and

(ii) For the CRR Monthly Auction, ERCOT shall use Dynamic Ratings for the maximum peak-hour temperature forecast for the month;

(g) Voltage and stability limits that are valid for the study period converted to thermal limits;

(h) ERCOT Transmission Grid pre- and post-contingency ratings;

(i) All Transmission Element contingencies expected to be used by ERCOT in Real-Time operations; and

(j) RAPs, AMPs, and RASs.

7.5.6 CRR Auction Settlements

7.5.6.1 Payment of an Awarded CRR Auction Offer

(1) ERCOT shall pay each CRR Account Holder of its PTP Obligation offers awarded in each CRR Auction. The payment for each source and sink pair for a given Time of Use (TOU) period is calculated as follows:

OBLSAMT crrh, (j, k), a = (-1) \* OBLPR (j, k), a \* OBLS crrh, (j, k), a

The above variables are defined as follows:

|  |  |  |
| --- | --- | --- |
| Variable | Unit | Definition |
| OBLSAMT *crrh, (j, k), a* | $ | *PTP Obligation Sale Amount per CRR Account Holder per source and sink pair per CRR Auction*—The payment calculated for CRR Account Holder *crrh* of the MW quantity that represents the total PTP Obligation offers with the source *j* and the sink *k* awarded in CRR Auction *a*, for the hour. |
| OBLPR *(j, k), a* | $/MWh  | *PTP Obligation Price per source and sink pair per CRR Auction*—The clearing price of a PTP Obligation with the source *j* and the sink *k* in CRR Auction *a*,for the hour. |
| OBLS *crrh, (j, k), a* | MW | *PTP Obligation Sale per CRR Account Holder per source and sink pair per CRR Auction*—The MW quantity that represents the total of CRR Account Holder *crrh*’s PTP Obligation offers associated with the source *j* and the sink *k* awarded in CRR Auction *a*, for the hours of the TOU period. |
| *crrh* | none | A CRR Account Holder. |
| *j* | none | A source Settlement Point. |
| *k* | none | A sink Settlement Point. |
| *a* | none | A CRR Auction. |

(2) ERCOT shall pay each CRR Account Holder of its PTP Option offers awarded in each CRR Auction. The payment for each source and sink pair for a given TOU period is calculated as follows:

OPTSAMT crrh, (j, k), a = (-1) \* OPTPR (j, k), a \* OPTS crrh, (j, k), a

The above variables are defined as follows:

| Variable | Unit | Definition |
| --- | --- | --- |
| OPTSAMT *crrh, (j, k), a* | $ | *PTP Option Sale Amount per CRR Account Holder per source and sink pair per CRR Auction*—The payment calculated for CRR Account Holder *crrh* of the MW quantity that represents the total PTP Option bids with the source *j* and the sink *k* awarded in CRR Auction *a*, for the hour. |
| OPTPR *(j, k), a* | $/MWh  | *PTP Option Price per source and sink pair per CRR Auction*—The clearing price of a PTP Option with the source *j* and the sink *k* in CRR Auction *a*,for the hour. |
| OPTS *crrh, (j, k), a* | MW | *PTP Option Sale per CRR Account Holder per source and sink pair per CRR Auction*—The MW quantity that represents the total of CRR Account Holder *crrh*’s PTP Option offers with the source *j* and the sink *k* awarded in CRR Auction *a*, for the hours of the TOU period. |
| *crrh* | none | A CRR Account Holder. |
| *j* | none | A source Settlement Point. |
| *k* | none | A sink Settlement Point. |
| *a* | none | A CRR Auction. |

7.5.6.2 Charge of an Awarded CRR Auction Bid

(1) ERCOT shall charge each CRR Account Holder of its PTP Obligation bids awarded in each CRR Auction. The charge for each source and sink pair for a given Operating Hour is calculated as follows:

OBLPAMT crrh, (j, k), a = OBLPR (j, k), a \* OBLP crrh, (j, k), a

The above variables are defined as follows:

| Variable | Unit | Definition |
| --- | --- | --- |
| OBLPAMT *crrh, (j, k), a* | $ | *PTP Obligation Purchase Amount per CRR Account Holder per source and sink pair per CRR Auction*—The charge calculated for CRR Account Holder *crrh* of the MW quantity that represents the total PTP Obligation bids with the source *j* and the sink *k* awarded in CRR Auction *a*, for the hour. |
| OBLPR *(j, k), a* | $/MWh  | *PTP Obligation Price per source and sink pair per CRR Auction*—The clearing price of a PTP Obligation with the source *j* and the sink *k* in CRR Auction *a*,for the hour. |
| OBLP *crrh, (j, k), a* | MW | *PTP Obligation Purchase per CRR Account Holder per source and sink pair per CRR Auction*—The MW quantity that represents the total of CRR Account Holder *crrh*’s PTP Obligation bids associated with the source *j* and the sink *k* awarded in CRR Auction *a*, for the hours of the TOU period. |
| *crrh* | none | A CRR Account Holder. |
| *j* | none | A source Settlement Point. |
| *k* | none | A sink Settlement Point. |
| *a* | none | A CRR Auction. |

(2) ERCOT shall charge each CRR Account Holder of its PTP Option bids awarded in each CRR Auction. The charge for each source and sink pair for a given TOU period is calculated as follows:

OPTPAMT crrh, (j, k), a = OPTPR (j, k), a \* OPTP crrh, (j, k), a

The above variables are defined as follows:

| Variable | Unit | Definition |
| --- | --- | --- |
| OPTPAMT *crrh, (j, k), a* | $ | *PTP Option Purchase Amount per CRR Account Holder per source and sink pair per CRR Auction*—The charge calculated for CRR Account Holder *crrh* of the MW quantity that represents the total PTP Option bids with the source *j* and the sink *k* awarded in CRR Auction *a*, for the hour. |
| OPTPR *(j, k), a* | $/MWh  | *PTP Option Price per source and sink pair per CRR Auction*—The clearing price of a PTP Option with the source *j* and the sink *k* in CRR Auction *a*,for the hour. |
| OPTP *crrh, (j, k), a* | MW | *PTP Option Purchase per CRR Account Holder per source and sink pair per CRR Auction*—The MW quantity that represents the total of CRR Account Holder *crrh*’s PTP Option bids associated with the source *j* and the sink *k* awarded in CRR Auction *a*, for the hours of the TOU period. |
| *crrh* | none | A CRR Account Holder. |
| *j* | none | A source Settlement Point. |
| *k* | none | A sink Settlement Point. |
| *a* | none | A CRR Auction. |

7.5.6.3 Charge of PCRRs Pertaining to a CRR Auction

(1) For pre-assigned PTP Obligations allocated before each CRR Auction, ERCOT shall charge each CRR Account Holder. The charge for each source and sink pair for a given TOU period is calculated as follows:

If OBLPR *(j, k), a* >0

**PCRROBLAMT *crrh, (j, k), a, tech* = PCRROBLF *tech* \* OBLPR *(j, k), a***

**\* PCRROBL *crrh, (j, k), a, tech***

Otherwise

**PCRROBLAMT *crrh, (j, k), a, tech* = OBLPR *(j, k),* *a* \* PCRROBL *crrh, (j, k), a, tech***

The above variables are defined as follows:

| Variable | Unit | Definition |
| --- | --- | --- |
| PCRROBLAMT *crrh, (j, k), a, tech* | $ | *PCRR PTP Obligation Amount per CRR Account Holder per source and sink pair per CRR Auction by resource technology*—The charge calculated for CRR Account Holder *crrh* of the MW quantity that represents its total PTP Obligations associated with the source *j* and the sink *k* allocated before CRR Auction *a* based on Resources of the technology *tech*, for the hour. |
| PCRROBLF *tech* |  | *PCRR PTP Obligation pricing Factor per resource technology*—The pricing factor of pre-allocated PTP Obligations based on Resources of the technology *tech*. See item (1)(g)(ii) of Section 7.4.2.2, PCRR Allocations and Nominations. |
| OBLPR *(j, k), a* | $/MWh  | *PTP Obligation Price per source and sink pair per CRR Auction*—The clearing price of a PTP Obligation with the source *j* and the sink *k* in CRR Auction *a*,for the hour. |
| PCRROBL *crrh, (j, k), a, tech* | MW | *PCRR PTP Obligation per CRR Account Holder per source and sink pair per CRR Auction by resource technology*—The MW quantity that represents the total of CRR Account Holder *crrh*’s PTP Obligations associated with the source *j* and the sink *k* allocated before CRR Auction *a* based on Resources of the technology *tech*, for the hours of the TOU period. |
| *crrh* | none | A CRR Account Holder. |
| *j* | none | A source Settlement Point. |
| *k* | none | A sink Settlement Point. |
| *a* | none | A CRR Auction. |
| *tech* | none | A Resource technology. See item (1)(g) of Section 7.4.2.2. |

(2) For pre-assigned PTP Options allocated before each CRR Auction, ERCOT shall charge each CRR Account Holder. The charge for each source and sink pair for a given TOU period is calculated as follows:

PCRROPTAMT crrh, (j, k), a, tech = PCRROPTF tech \* OPTPR (j, k), a \* PCRROPT crrh, (j, k), a, tech

The above variables are defined as follows:

| Variable | Unit | Definition |
| --- | --- | --- |
| PCRROPTAMT *crrh, (j, k), a, tech* | $ | *PCRR PTP Option Amount per CRR Account Holder per source and sink pair per CRR Auction by resource technology*—The charge calculated for CRR Account Holder *crrh* of the MW quantity that represents its total PTP Options associated with the source *j* and the sink *k* allocated before CRR Auction *a* based on Resources of the technology *tech*, for the hour. |
| PCRROPTF *tech* |  | *PCRR PTP Option pricing Factor per resource technology*—The pricing factor of pre-allocated PTP Options based on Resources of the technology *tech*. See item (1)(g)(i) of Section 7.4.2.2. |
| OPTPR *(j, k), a* | $/MWh  | *PTP Option Price per source and sink pair per CRR Auction*—The clearing price of a PTP Option with the source *j* and the sink *k* in CRR Auction *a*,for the hour. |
| PCRROPT *crrh, (j, k), a, tech* | MW | *PCRR PTP Option per CRR Account Holder per source and sink pair per CRR Auction by resource technology*—The MW quantity that represents the total of CRR Account Holder *crrh*’s PTP Options with the source *j* and the sink *k* allocated before CRR Auction *a* based on Resources of the technology *tech*, for the hours of the TOU period. |
| *crrh* | none | A CRR Account Holder. |
| *j* | none | A source Settlement Point. |
| *k* | none | A sink Settlement Point. |
| *a* | none | A CRR Auction. |
| *tech* | none | A Resource technology. See item (1)(g) of Section 7.4.2.2. |

7.5.6.4 CRR Auction Revenues

(1) The revenue for a given month produced from CRRs that source and sink within the same 2003 ERCOT Congestion Management Zone (CMZ), cleared in each CRR Auction, is calculated as follows:

CRRZREV *z, a* = (OBLSAMT*crrh,(j,k),z,a,h* + OPTSAMT*crrh,(j,k),z,a,h* + OBLPAMT *crrh,(j,k),z,a,h* + OPTPAMT*crrh,(j,k),z,a,h*)

The above variables are defined as follows:

| Variable | Unit | Definition |
| --- | --- | --- |
| 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. |
| OBLSAMT *crrh, (j, k), z, a, h* | $ | *PTP Obligation Sale Amount per CRR Account Holder per source and sink pair per zone per CRR Auction per hour*—The payment calculated for CRR Account Holder *crrh* of the MW quantity that represents the total PTP Obligation offers awarded in CRR Auction *a* with the source *j* and the sink *k*, both in CMZ *z*, for the hour *h*. |
| OPTSAMT *crrh, (j, k), z, a, h* | $ | *PTP Option Sale Amount per CRR Account Holder per source and sink pair per zone per CRR Auction per hour*—The payment calculated for CRR Account Holder *crrh* of the MW quantity that represents the total PTP Option bids awarded in CRR Auction *a* with the source *j* and the sink *k*, both in CMZ *z*, for the hour *h*. |
| OBLPAMT *crrh, (j, k), z, a, h* | $ | *PTP Obligation Purchase Amount per CRR Account Holder per source and sink pair per CRR Auction*—The charge calculated for CRR Account Holder *crrh* of the MW quantity that represents the total PTP Obligation offers awarded in CRR Auction *a* with the source *j* and the sink *k*, both in CMZ *z*, for the hour *h*. |
| OPTPAMT *crrh, (j, k), z, a, h* | $ | *PTP Option Purchase Amount per CRR Account Holder per source and sink pair per zone per CRR Auction per hour*—The charge calculated for CRR Account Holder *crrh* of the MW quantity that represents the total PTP Option bids awarded in CRR Auction *a* with the source *j* and the sink *k*, both in CMZ *z*, for the hour *h*. |
| *a* | none | A CRR Auction. |
| *z* | none | A 2003 ERCOT CMZ. |
| *crrh* | none | A CRR Account Holder that paid the invoice in full. |
| *j* | none | A source Settlement Point. |
| *k* | none | A sink Settlement Point. |
| *h* | none | An hour in the month. |

(2) The revenue for a given month produced from CRRs that source and sink in different 2003 ERCOT CMZs, cleared in each CRR Auction, is calculated as follows:

CRRNZREV *a* = (OBLSAMT*crrh,(j,k),a,h* + OPTSAMT*crrh,(j,k),a,h* + OBLPAMT *crrh,(j,k),a,h* + OPTPAMT*crrh,(j,k),a,h*)

The above variables are defined as follows:

| Variable | Unit | Definition |
| --- | --- | --- |
| CRRNZREV *a* | $ | *CRR Non-Zonal Revenue*—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. |
| OBLSAMT *crrh, (j, k), a, h* | $ | *PTP Obligation Sale Amount per CRR Account Holder per source and sink pair per CRR Auction*—The payment calculated for CRR Account Holder *crrh* of the MW quantity that represents the total PTP Obligation offers awarded in CRR Auction *a* with the source *j* and the sink *k* in different CMZs, for the hour *h*. |
| OPTSAMT *crrh, (j, k), a, h* | $ | *PTP Option Sale Amount per CRR Account Holder per source and sink pair per CRR Auction*—The payment calculated for CRR Account Holder *crrh* of the MW quantity that represents the total PTP Option bids awarded in CRR Auction *a* with the source *j* and the sink *k* in different CMZs, for the hour *h*. |
| OBLPAMT *crrh, (j, k), a, h* | $ | *PTP Obligation Purchase Amount per CRR Account Holder per source and sink pair per CRR Auction*—The charge calculated for CRR Account Holder *crrh* of the MW quantity that represents the total PTP Obligation offers awarded in CRR Auction *a* with the source *j* and the sink *k* in different CMZs, for the hour *h*. |
| OPTPAMT *crrh, (j, k), a, h* | $ | *PTP Option Purchase Amount per CRR Account Holder per source and sink pair per CRR Auction*—The charge calculated for CRR Account Holder *crrh* of the MW quantity that represents the total PTP Option bids awarded in CRR Auction *a* with the source *j* and the sink *k* in different CMZs, for the hour *h*. |
| *a* | none | A CRR Auction. |
| *crrh* | none | A CRR Account Holder that paid the invoice in full. |
| *(j, k)* | none | A pair of source and sink Settlement Points in different CMZs. |
| *h* | none | An hour in the month. |

(3) The revenue for a given month produced from PCRRs that source and sink within the same 2003 ERCOT CMZ, pertaining to each CRR Auction, is calculated as follows:

PCRRZREV *z, a* = (PCRROBLAMT *crrh,(j,k),z,a,tech,h* + PCRROPTAMT *crrh,(j,k),z,a,tech,h*)

The above variables are defined as follows:

| Variable | Unit | Definition |
| --- | --- | --- |
| 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. |
| PCRROBLAMT *crrh, (j, k), z, a, tech, h* | $ | *PCRR PTP Obligation Amount per CRR Account Holder per source and sink pair per zone per CRR Auction per resource technology per hour*—The charge calculated for CRR Account Holder *crrh* of the MW quantity that represents its total PTP Obligations pertaining to CRR Auction *a* with the source *j* and the sink *k* in CMZ *z*, based on Resources of the technology *tech*, for the hour *h*. |
| PCRROPTAMT *crrh, (j, k), z, a, tech, h* | $ | *PCRR PTP Option Amount per CRR Account Holder per source and sink pair per zone per CRR Auction per resource technology per hour*—The charge calculated for CRR Account Holder *crrh* of the MW quantity that represents its total PTP Options pertaining to CRR Auction *a* with the source *j* and the sink *k* in CMZ *z*, based on Resources of the technology *tech*, for the hour *h*. |
| *a* | none | A CRR Auction. |
| *z* | none | A 2003 ERCOT CMZ. |
| *crrh* | none | A CRR Account Holder that paid the invoice in full. |
| *j* | none | A source Settlement Point. |
| *k* | none | A sink Settlement Point. |
| *tech* | none | A Resource technology. |
| *h* | none | An hour in the month. |

(4) The revenue for a given month produced from PCRRs that source and sink in different 2003 ERCOT CMZs, pertaining to each CRR Auction, is calculated as follows:

PCRRNZREV *a* = (PCRROBLAMT *crrh,(j,k),a,tech,h* + PCRROPTAMT *crrh,(j,k),a,tech,h*)

The above variables are defined as follows:

|  |  |  |
| --- | --- | --- |
| Variable | Unit | Definition |
| PCRRNZREV *a* | $ | *PCRR Non-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. |
| PCRROBLAMT *crrh, (j, k), a, tech, h* | $ | *PCRR PTP Obligation Amount per CRR Account Holder per source and sink pair per CRR Auction per resource technology per hour*—The charge calculated for CRR Account Holder *crrh* of the MW quantity that represents its total PTP Obligations pertaining to CRR Auction *a* with the source *j* and the sink *k* in different CMZs, based on Resources of the technology *tech*, for the hour *h*. |
| PCRROPTAMT *crrh, (j, k), a, tech, h* | $ | *PCRR PTP Option Amount per CRR Account Holder per source and sink pair per CRR Auction per resource technology per hour*—The charge calculated for CRR Account Holder *crrh* of the MW quantity that represents its total PTP Options pertaining to CRR Auction *a* with the source *j* and the sink *k* in different CMZs, based on Resources of the technology *tech*, for the hour *h*. |
| *a* | none | A CRR Auction. |
| *crrh* | none | A CRR Account Holder that paid the invoice in full. |
| *(j, k)* | none | A pair of source and sink Settlement Points in different CMZs. |
| *tech* | none | A Resource technology. |
| *h* | none | An hour in the month. |

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 in accordance with paragraph (2) of Section 9.10, CRR Auction Revenue Distribution Invoices.

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| ***[NPRR1030: Replace 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. |

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(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. |

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7.6 CRR Balancing Account

(1) In the Day-Ahead Market (DAM), if the congestion rent is equal to or greater than the net amounts due to all Congestion Revenue Right (CRR) Owners for any Settlement Interval, then ERCOT shall pay the net amounts due to the CRR Owners and put any excess amount into the CRR Balancing Account (CRRBA).

(2) In the DAM, if the congestion rent is less than the net amounts due to all CRR Owners for any Settlement Interval, then ERCOT shall short-pay each CRR Owner on a prorated basis and shall keep track of how much each CRR Owner has been short-paid. The proration must be calculated using only the amounts due to the CRR Owner for CRRs settled in both the DAM and Real-Time and not using amounts due to ERCOT for Point-to-Point (PTP) Obligations owned by the CRR Owner.

(3) ERCOT shall pay any positive balance in the CRRBA to each short-paid CRR Owner, with the amount paid to each CRR Owner being the lesser of (a) a prorated amount based on the short-paid amount for that CRR Owner compared to the total short-paid amount, and (b) the short-paid amount for that CRR Owner. Any remaining positive balance in the CRRBA will first be used to fund the CRRBA fund up to the fund cap, as described in Section 7.9.3.5, CRR Balancing Account Closure, and any surplus must be allocated to all Qualified Scheduling Entities (QSEs) on the QSE’s Load Ratio Share (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) ERCOT shall pay any positive balance in the CRRBA to each short-paid CRR Owner, with the amount paid to each CRR Owner being the lesser of (a) a prorated amount based on the short-paid amount for that CRR Owner compared to the total short-paid amount, and (b) the short-paid amount for that CRR Owner. Any remaining positive balance in the CRRBA will first be used to fund the CRRBA fund up to the fund cap, as described in Section 7.9.3.5, CRR Balancing Account Closure, and any surplus must be allocated to all Qualified Scheduling Entities (QSEs) based on the QSE’s ratio shares for the month. |

(4) For initial distribution of the CRRBA, 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 (4) above with the following upon system implementation:]***(4) For initial distribution of the CRRBA, revenues shall be paid to each QSE based on that QSE’s Direct Current Tie (DC Tie) monthly 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) ERCOT shall true up the distribution of CRRBA based on that QSE’s LRS in the interval coincident with the ERCOT-wide peak 15-minute Settlement Interval for the month in accordance with paragraph (2) of Section 9.12, CRR Balancing Account Invoices.

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| ***[NPRR1030: Replace paragraph (5) above with the following upon system implementation:]***(5) ERCOT shall true up the distribution of CRRBA, in accordance with paragraph (2) of Section 9.12, CRR Balancing Account Invoices, based on that QSE’s DC Tie monthly 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. |

7.7 Point-to-Point (PTP) Option Award Charge

7.7.1 Determination of the PTP Option Award Charge

(1) ERCOT will calculate a Point-to-Point (PTP) Option Award Charge for each Congestion Revenue Right (CRR) Account Holder for each PTP Option bid awarded where the clearing price for the PTP Option bid awarded is less than the Minimum PTP Option Bid Price.

(2) The Technical Advisory Committee (TAC) shall review the current Minimum PTP Option Bid Price at least annually and may recommend to the ERCOT Board a change to this value by submitting a Nodal Protocol Revision Request (NPRR).

(3) ERCOT shall charge each CRR Account Holder for its PTP Option bids awarded in each CRR Auction as follows:

**OPTAFAMT *crrh, a* = (Max (0, OPTMBP - OPTPR *(j, k), a, h, bp*) \***

 **OPTP *crrh, (j, k), a, h, bp*)**

The above variables are defined as follows:

| Variable | Unit | Definition |
| --- | --- | --- |
| OPTAFAMT ***crrh, a*** | $ | *PTP Option Award Charge Amount* *per CRR Account Holder per CRR Auction*—The charge assessed to CRR Account Holder *crrh* for PTP Option awards awarded in CRR Auction *a*, for the hour for which the clearing price is less than the defined Minimum PTP Option Bid Price. For a multi-month CRR Auction, the charge shall be calculated for each month. |
| OPTMBP | $/MW per hour | *Minimum PTP Option Bid Price*—As defined in Section 2.1, Definitions. |
| OPTPR *(j, k), a, h, bp*  | $/MW per hour | *PTP Option Price per source and sink pair per CRR Auction*—The clearing price of a PTP Option with the source *j* and the sink *k* in CRR Auction *a*,for the hour *h*, for the bid period *bp*. |
| OPTP *crrh, (j, k), a, h, bp* | MW | *PTP Option Purchase per CRR Account Holder per source and sink pair per CRR Auction*—The MW quantity that represents the total of CRR Account Holder *crrh*’s PTP Option bids associated with the source *j* and the sink *k* awarded in CRR Auction *a*, for the hour *h*, for the bid period *bp*. |
| *crrh* | None | A CRR Account Holder. |
| *j* | None | A source Settlement Point. |
| *k* | None | A sink Settlement Point. |
| *a* | None | A CRR Auction. |
| *h* | None | An Operating Hour. |
| *bp* | None | A CRR bid period. |

*7.7.2* *[RESERVED]*

7.8 Bilateral Trades and ERCOT CRR Registration System

(1) Market Participants may sell or trade Point-to-Point (PTP) Options and PTP Obligations bilaterally, except PTP Options with Refund and PTP Obligations with Refund.

(2) The characteristics of the Congestion Revenue Rights (CRRs) sold or traded bilaterally, including CRR source and CRR sink and time-of-use block, may not be modified from the terms of the original CRR.

(3) ERCOT shall initially populate a database of CRR Owners with the first-buyers of CRRs and first-recipients of Pre-Assigned Congestion Revenue Rights (PCRRs).

(4) A transfer of CRRs through the ERCOT CRR registration system is not effective until the selling CRR Account Holder reports the transaction, the buying CRR Account Holder acknowledges the transaction, and both parties meet ERCOT’s credit requirements to support the transfer. Until all of those occur, the selling CRR Account Holder is considered the CRR Owner for purposes of these Protocols, including financial responsibility.

(5) For CRR ownership to be effective in the Day-Ahead Market (DAM), the CRR must be registered through the ERCOT CRR registration system prior to the DAM. PTP Obligations acquired in DAM may not change ownership in the ERCOT CRR registration system after DAM execution.

7.9 CRR Settlements

7.9.1 Day-Ahead CRR Payments and Charges

7.9.1.1 Payments and Charges for PTP Obligations Settled in DAM

(1) Except as specified in paragraph (2) below, ERCOT shall pay or charge the owner of each Point-to-Point (PTP) Obligation based on the difference in the Day-Ahead Settlement Point Price between the sink Settlement Point and the source Settlement Point.

(2) For PTP Obligations that have a positive value and sink at a Resource Node, the PTP Obligation payment may be reduced due to directional network elements that are oversold in previous Congestion Revenue Right (CRR) Auctions.

(3) The payment or charge to each CRR Owner for a given Operating Hour of PTP Obligations with each pair of source and sink Settlement Points settled in the Day-Ahead Market (DAM) is calculated as follows:

If the PTP Obligation has a non-positive value, i.e. (DAOBLPR *(j, k)* ≤ 0), or the sink, *k,* is a Load Zone or Hub, then

DAOBLAMT *o, (j, k)* = (-1) \* DAOBLTP *o, (j, k)*

If the PTP Obligation has a positive value and the sink is a Resource Node, then

DAOBLAMT *o, (j, k)* = (-1) \* Max ((DAOBLTP *o, (j, k)* – DAOBLDA *o, (j, k)*), Min (DAOBLTP *o, (j, k)*, DAOBLHV *o, (j, k)*))

Where:

The target payment:

DAOBLTP *o, (j, k)* = DAOBLPR *(j, k)* \* DAOBL *o, (j, k)*

The price based on the difference of the Settlement Point Prices:

DAOBLPR *(j, k)* = DASPP*k* - DASPP*j*

The derated amount:

DAOBLDA *o, (j, k)* = OBLDRPR *(j, k)* \* DAOBL *o, (j, k)*

The price used to calculate the derated amount:

OBLDRPR *(j, k)* = (Max (0, DAWASF *j, c* – DAWASF *k, c*) \* DASP *c* \* DRF*c*)

The hedge value:

DAOBLHV *o, (j, k)* = DAOBLHVPR *(j, k)* \* DAOBL *o, (j, k)*

The price of the hedge value:

If the source, *j*, is a Load Zone or Hub and the sink, *k*, is a Resource Node,

DAOBLHVPR *(j, k)* = Max (0, MAXRESPR *k* – DASPP *j*)

If the source, *j*, is a Resource Node and the sink, *k*, is also a Resource Node,

DAOBLHVPR *(j, k)* = Max (0, MAXRESPR *k* – MINRESPR *j*)

The above variables are defined as follows:

| Variable | Unit | Definition |
| --- | --- | --- |
| DAOBLAMT *o, (j, k)* | $ | *Day-Ahead Obligation Amount per CRR Owner per source and sink pair*—The payment or charge to CRR Owner *o* for the PTP Obligations with the source *j* and the sink *k* settled in the DAM, for the hour. |
| DAOBLTP *o, (j, k)* | $ | *Day-Ahead Obligation Target Payment per CRR Owner per source and sink pair*—The target payment for CRR Owner *o*’s PTP Obligations with the source *j* and the sink *k* settled in the DAM, for the hour. |
| DAOBLHV *o, (j, k)* | $ | *Day-Ahead Obligation Hedge Value per CRR Owner per source and sink pair*—The hedge value of CRR Owner *o*’s PTP Obligations with the source *j* and the sink *k* settled in the DAM, for the hour. |
| DAOBLDA*o, (j, k)* | $ | *Day-Ahead Obligation Derated Amount per CRR Owner per source and sink pair*—The derated amount of CRR Owner *o*’s PTP Obligations with the source *j* and the sink *k* settled in the DAM, for the hour. |
| DAOBLPR *(j, k)* | $/MW per hour | *Day-Ahead Obligation Price per source and sink pair*—The DAM price of a PTP Obligation with the source *j* and the sink *k*, for the hour. |
| DASPP*j* | $/MWh | *Day-Ahead Settlement Point Price at source*—The DAM Settlement Point Price at the source Settlement Point *j*, for the hour. |
| DASPP*k* | $/MWh | *Day-Ahead Settlement Point Price at sink*—The DAM Settlement Point Price at the sink Settlement Point *k*, for the hour. |
| OBLDRPR *(j, k)* | $/MW per hour | *Obligation Deration Price per source and sink pair*—The deration price of a PTP Obligation with the source *j* and the sink *k*, for the hour. |
| DASP *c* | $/MW per hour | *Day-Ahead Shadow Price per constraint*—The DAM Shadow Price of the constraint *c* for the hour. |
| DRF *c* | none | *Deration Factor per constraint*—The deration factor of the constraint *c* for the hour, equal to the MW amount by which the constraint is oversold divided by the total MW amount of the positive impacts on the constraint of all CRRs existing prior to DAM execution. |
| DAWASF *j, c* | none | *Day-Ahead Weighted Average Shift Factor at source per constraint*—The Day-Ahead Shift Factor for the source Settlement Point and the directional network element for constraint *c*, in the hour. |
| DAWASF*k, c* | None | *Day-Ahead Weighted Average Shift Factor at sink per constraint*—The Day-Ahead Shift Factor for the sink Settlement Point and the directional network element for constraint *c*, in the hour. |
| DAOBLHVPR *(j, k)* | $/MWh | *Day-Ahead Obligation Hedge Value Price per source and sink pair*—The Day-Ahead hedge price of a PTP Obligation with the source *j* and the sink *k*, for the hour. |
| MINRESPR *j* | $/MWh | *Minimum Resource Price for source*—The lowest Minimum Resource Price for the Resources located at the source Settlement Point *j*. |
| MAXRESPR *k* | $/MWh | *Max Resource Price for sink*—The highest Maximum Resource Price for the Resources located at the sink Settlement Point *k*. |
| DAOBL *o, (j, k)* | MW | *Day-Ahead Obligation per CRR Owner per source and sink pair*—The number of CRR Owner *o*’s PTP Obligations with the source *j* and the sink *k* settled in the DAM for the hour. |
| *o* | none | A CRR Owner. |
| *j* | none | A source Settlement Point. |
| *k* | none | A sink Settlement Point. |
| *c* | none | A constraint associated with a directional network element for the hour. |

(4) The net total payment or charge to each CRR Owner for the Operating Hour of all its PTP Obligations settled in the DAM is calculated as follows:

DAOBLAMTOTOT*o* = DAOBLCROTOT*o* + DAOBLCHOTOT*o*

Where:

DAOBLCROTOT *o* = Min (0, DAOBLAMT *o, (j, k)*)

DAOBLCHOTOT *o* = Max (0, DAOBLAMT *o, (j, k)*)

The above variables are defined as follows:

| Variable | Unit | Definition |
| --- | --- | --- |
| DAOBLAMTOTOT *o* | $ | *Day-Ahead Obligation Amount Owner Total per CRR Owner*—The net total payment or charge to CRR Owner *o* for all its PTP Obligations settled in the DAM, for the hour. |
| DAOBLCROTOT *o* | $ | *Day-Ahead Obligation Credit Owner Total per CRR Owner*—The total payment to CRR Owner *o* for its PTP Obligations settled in the DAM, for the hour. |
| DAOBLCHOTOT *o* | $ | *Day-Ahead Obligation Charge Owner Total per CRR Owner*—The total charge to CRR Owner *o* for its PTP Obligations settled in the DAM, for the hour. |
| DAOBLAMT *o, (j, k)* | $ | *Day-Ahead Obligation Amount per CRR Owner per pair of source and sink*—The payment or charge to CRR Owner *o* for its PTP Obligations with the source *j* and the sink *k* settled in the DAM, for the hour. |
| *o* | none | A CRR Owner. |
| *j* | none | A source Settlement Point. |
| *k* | none | A sink Settlement Point. |

7.9.1.2 Payments for PTP Options Settled in DAM

(1) Except as specified otherwise in paragraph (2) below, ERCOT shall pay the owner of a PTP Option the difference in the Day-Ahead Settlement Point Price between the sink Settlement Point and the source Settlement Point, if positive.

(2) For PTP Options that sink at a Resource Node, the PTP Option payment may be reduced due to Transmission Elements that are oversold in previous CRR Auctions.

(3) The payment to each CRR Owner for a given Operating Hour of PTP Options with each pair of source and sink Settlement Points settled in the DAM is calculated as follows:

If the sink, *k*, is a Load Zone or Hub, then

DAOPTAMT *o, (j, k)* = (-1) \* DAOPTTP *o, (j, k)*

If the sink, *k*, is a Resource Node, then

DAOPTAMT *o, (j, k)* = (-1) \* Max ((DAOPTTP *o, (j, k)* – DAOPTDA *o, (j, k)*), Min (DAOPTTP *o, (j, k)*, DAOPTHV *o, (j, k)*))

Where:

The target payment:

DAOPTTP *o, (j, k)* = DAOPTPR *(j, k)* \* OPT *o, (j, k)*

The price based on the difference of the Settlement Point Prices:

DAOPTPR *o, (j, k)* = Max (0, DASPP *k* – DASPP *j*)

The derated amount:

DAOPTDA *o, (j, k)* = OPTDRPR *(j, k)* \* OPT *o, (j, k)*

The price used to calculate the derated amount:

OPTDRPR *(j, k)* = (Max (0, DAWASF *j, c* – DAWASF *k, c*) \* DASP *c* \* DRF *c*)

The hedge value:

DAOPTHV *o, (j, k)* = DAOPTHVPR *(j, k)* \* OPT *o, (j, k)*

The price of the hedge value:

If the source, *j*, is a Load Zone or Hub and the sink, *k*, is a Resource Node,

DAOPTHVPR *(j, k)* = Max (0, MAXRESPR *k* – DASPP *j*)

If the source, *j*, is a Resource Node and the sink, *k*, is also a Resource Node,

DAOPTHVPR *(j, k)* = Max (0, MAXRESPR *k* – MINRESPR *j*)

The above variables are defined as follows:

| Variable | Unit | Definition |
| --- | --- | --- |
| DAOPTAMT *o, (j, k)* | $ | *Day-Ahead Option Amount per CRR Owner per source and sink pair*⎯The payment to CRR Owner *o* for the PTP Options with the source *j* and the sink *k* settled in the DAM, for the hour. |
| DAOPTTP *o, (j, k)* | $ | *Day-Ahead Option Target Payment per CRR Owner per source and sink pair*—The target payment for CRR Owner *o*’s PTP Options with the source *j* and the sink *k* settled in the DAM, for the hour. |
| DAOPTHV *o, (j, k)* | $ | *Day-Ahead Option Hedge Value per CRR Owner per source and sink pair*—The hedge value of CRR Owner *o*’s PTP Options with the source *j* and the sink *k* settled in the DAM, for the hour. |
| DAOPTDA*o, (j, k)* | $ | *Day-Ahead Option Derated Amount per CRR Owner per source and sink pair*—The derated amount of CRR Owner *o*’s PTP Options with the source *j* and the sink *k* settled in the DAM, for the hour. |
| DAOPTPR *(j, k)* | $/MW per hour | *Day-Ahead Option Price per source and sink pair*⎯The DAM price of a PTP Option with the source *j* and the sink *k*, for the hour. |
| DASPP*j* | $/MWh | *Day-Ahead Settlement Point Price at source*⎯The DAM Settlement Point Price at the source Settlement Point *j*, for the hour. |
| DASPP *k* | $/MWh | *Day-Ahead Settlement Point Price at sink*⎯The DAM Settlement Point Price at the sink Settlement Point *k*, for the hour. |
| OPTDRPR *(j, k)* | $/MW per hour | *Option Deration Price per source and sink pair*—The deration price of a PTP Option with the source *j* and the sink *k*, for the hour. |
| DASP *c* | $/MW per hour | *Day-Ahead Shadow Price per constraint*—The DAM Shadow Price of the constraint *c* for the hour. |
| DRF *c* | none | *Deration Factor per constraint*—The deration factor of the constraint *c* for the hour, equal to the MW amount by which the constraint is oversold divided by the total MW amount of the positive impacts on the constraint of all CRRs existing prior to DAM execution. |
| DAWASF *j, c* | none | *Day-Ahead Weighted Average Shift Factor at source per constraint*—The Day-Ahead Shift Factor for the source Settlement Point and the directional network element for constraint *c*, in the hour. |
| DAWASF*k, c* | none | *Day-Ahead Weighted Average Shift Factor at sink per constraint*—The Day-Ahead Shift Factor for the sink Settlement Point and the directional network element for constraint *c*, in the hour. |
| DAOPTHVPR *(j, k)* | $/MWh | *Day-Ahead Option Hedge Value Price per source and sink pair*—The Day-Ahead hedge price of a PTP Option with the source *j* and the sink *k*, for the hour. |
| MINRESPR *j* | $/MWh | *Minimum Resource Price for source*—The lowest Minimum Resource Price for Resources located at the source Settlement Point *j*. |
| MAXRESPR *k* | $/MWh | *Max Resource Price for sink*—The highest Maximum Resource Price for Resources located at the sink Settlement Point *k*. |
| OPT *o, (j, k)* | MW | *Option per CRR Owner per source and sink pair*⎯The number of CRR Owner *o*’s PTP Options with the source *j* and the sink *k* settled in the DAM for the hour. |
| *o* | none | A CRR Owner. |
| *j* | none | A source Settlement Point. |
| *k* | none | A sink Settlement Point. |
| *c* | none | A constraint associated with a directional network element for the hour. |

(4) The total payment to each CRR Owner for the Operating Hour of all its PTP Options settled in the DAM is calculated as follows:

DAOPTAMTOTOT *o* = DAOPTAMT *o, (j, k)*

The above variables are defined as follows:

| Variable | Unit | Definition |
| --- | --- | --- |
| DAOPTAMTOTOT *o* | $ | *Day-Ahead Option Amount Owner Total per CRR Owner*—The total payment to CRR Owner *o* for all its PTP Options settled in the DAM, for the hour. |
| DAOPTAMT *o, (j, k)* | $ | *Day-Ahead Option Amount per CRR Owner per pair of source and sink*—The payment to CRR Owner *o* for its PTP Options with the source *j* and the sink *k* settled in the DAM, for the hour. |
| *o* | none | A CRR Owner. |
| *j* | none | A source Settlement Point. |
| *k* | none | A sink Settlement Point. |

(5) For informational purposes, the following calculation of PTP Option value shall be posted on the ERCOT website:

DAOPTPRINFO *(j, k)* = (DASP *c* \* Max (0, (DAWASF *j, c* – DAWASF *k, c*)))

The above variables are defined as follows:

| Variable | Unit | Definition |
| --- | --- | --- |
| DAOPTPRINFO *(j, k)* | $/MW per hour | *Day-Ahead Option Informational Price per pair of source and sink*—The informational DAM price of the PTP Options with the source Settlement Point *j* and the sink Settlement Point *k*, for the hour. |
| DAWASF *j, c* |  | *Day-Ahead Weighted Average Shift Factor at source per constraint*—The Day-Ahead Shift Factor for the source Settlement Point and for the constrained directional network element for constraint *c*, in the hour. |
| DAWASF*k, c* | none | *Day-Ahead Weighted Average Shift Factor at sink per constraint*—The Day-Ahead Shift Factor for the sink Settlement Point and for the constrained directional network element for constraint *c*, in the hour. |
| DASP *c* | $/MW per hour | *Day-Ahead Shadow Price per constraint*—The DAM Shadow Price for the constraint *c* for the hour. |
| *c* | none | A constraint associated with a directional network element for the hour. |

7.9.1.3 Minimum and Maximum Resource Prices

(1) For purposes of Section 7.9.1, Day-Ahead CRR Payments and Charges, Settlements data published to the Market Information System (MIS) Secure Area shall include the association of the Resource Category for each Generation Resource. The following prices specified in paragraphs (2) and (3) below are used in the CRR hedge value calculation for CRRs settled in the DAM.

|  |
| --- |
| ***[NPRR1014 and NPRR1188: Replace applicable portions of paragraph (1) above with the following upon system implementation:]***(1) For purposes of Section 7.9.1, Day-Ahead CRR Payments and Charges, Settlements data published to the Market Information System (MIS) Secure Area shall include the association of the Resource Category for each Generation Resource, identify Controllable Load Resources (CLRs) that are not Aggregate Load Resources (ALRs), and identify Energy Storage Resources (ESRs). The following prices specified in paragraphs (2) and (3) below are used in the CRR hedge value calculation for CRRs settled in the DAM. |

(2) Minimum Resource Prices of source Settlement Points are:

**MINRESPR** *j* **= Min ( MINRESRPR** *j, r* **)** *r*

Where:

Minimum Resource Prices for Resources located at source Settlement Points (**MINRESRPR** *j, r*) are:

(a) Nuclear = -$20.00/MWh;

(b) Hydro = -$20.00/MWh;

(c) Coal and Lignite = $0.00/MWh;

(d) Combined Cycle greater than 90 MW = Fuel Index Price (FIP) \* 5 MMBtu/MWh;

(e) Combined Cycle less than or equal to 90 MW = FIP \* 6 MMBtu/MWh;

(f) Gas -Steam Supercritical Boiler = FIP \* 6.5 MMBtu/MWh;

(g) Gas Steam Reheat Boiler = FIP \* 7.5 MMBtu/MWh;

(h) Gas Steam Non-Reheat or Boiler without Air-Preheater = FIP \* 10.5 MMBtu/MWh;

(i) Simple Cycle greater than 90 MW = FIP \* 10 MMBtu/MWh;

(j) Simple Cycle less than or equal to 90 MW = FIP \* 11 MMBtu/MWh;

(k) Diesel = FIP \* 12 MMBtu/MWh;

(l) Wind = -$35/MWh;

(m) PhotoVoltaic (PV) = -$10;

(n) Reliability Must-Run (RMR) Resource = RMR contract price Energy Offer Curve at Low Sustained Limit (LSL); and

|  |
| --- |
| ***[NPRR1188: Insert item (o) below upon system implementation and renumber accordingly:]***(o) CLR = $100/MWh; and |

|  |
| --- |
| ***[NPRR1014: Insert item (p) below upon system implementation and renumber accordingly:]***(p) ESR = -$20/MWh; and |

(o) Other = -$20/MWh.

The above variables are defined as follows:

| Variable | Unit | Definition |
| --- | --- | --- |
| MINRESPR *j* | $/MWh | *Minimum Resource Price for source*—The lowest Minimum Resource Price for the Resources located at the source Settlement Point *j*. |
| MINRESRPR *j* | $/MWh | *Minimum Resource Price for Resource*—The Minimum Resource Price for the Resources located at the source Settlement Point *j*. |
| *r* | none | A Generation Resource located at the source Settlement Point *j*.

|  |
| --- |
| ***[NPRR1014 and NPRR1188: Replace applicable portions of the definition above with the following upon system implementation:]***A Generation Resource, CLR that is not an ALR, or ESR located at the source Settlement Point *j*. |

 |
| *j* | none | A source Settlement Point. |

(3) Maximum Resource Prices of sink Settlement Points are:

**MAXRESPR** *k* **= Max (MAXRESRPR** *k, r* **)** *r*

Where:

Maximum Resource Prices for Resources located at sink Settlement Points **(MAXRESRPR** *k, r* **)** are:

(a) Nuclear = $15.00/MWh;

(b) Hydro = $10.00/MWh;

(c) Coal and Lignite = $18.00/MWh;

(d) Combined Cycle greater than 90 MW = FIP \* 9 MMBtu/MWh;

(e) Combined Cycle less than or equal to 90 MW = FIP \* 10 MMBtu/MWh;

(f) Gas -Steam Supercritical Boiler = FIP \* 10.5 MMBtu/MWh;

(g) Gas Steam Reheat Boiler = FIP \* 11.5 MMBtu/MWh;

(h) Gas Steam Non-Reheat or Boiler without Air-Preheater = FIP \* 14.5 MMBtu/MWh;

(i) Simple Cycle greater than 90 MW = FIP \* 14 MMBtu/MWh;

(j) Simple Cycle less than or equal to 90 MW = FIP \* 15 MMBtu/MWh;

(k) Diesel = FIP \* 16 MMBtu/MWh;

(l) Wind = $0/MWh;

(m) PV = $0/MWh;

(n) RMR Resource = RMR contract price Energy Offer Curve at High Sustained Limit (HSL); and

|  |
| --- |
| ***[NPRR1188: Insert item (o) below upon system implementation and renumber accordingly:]***(o) CLR = SWCAP; and |

|  |
| --- |
| ***[NPRR1014: Insert item (p) below upon system implementation and renumber accordingly:]***(p) ESR = $100/MWh; and |

(o) Other = $100/MWh.

The above variables are defined as follows:

| Variable | Unit | Definition |
| --- | --- | --- |
| MAXRESPR *k* | $/MWh | *Maximum Resource Price for source*—The highest Maximum Resource Price for the Resources located at the sink Settlement Point *k*. |
| MAXRESRPR *k* | $/MWh | *Maximum Resource Price for Resource*—The Maximum Resource Price for the Resources located at the sink Settlement Point *k*. |
| *r* | none | A Generation Resource located at the sink Settlement Point *k*.

|  |
| --- |
| ***[NPRR1014 and NPRR1188: Replace applicable portions of the definition above with the following upon system implementation:]***A Generation Resource, CLR that is not an ALR, or ESR located at the sink Settlement Point *k*. |

 |
| *k* | none | A sink Settlement Point. |

7.9.1.4 Payments for FGRs Settled in DAM

There are currently no defined flowgates.

7.9.1.5 Payments and Charges for PTP Obligations with Refund Settled in DAM

(1) ERCOT shall pay the owner of a PTP Obligation with Refund the difference in the Day-Ahead Settlement Point Prices between the sink Settlement Point and the source Settlement Point, subject to a charge for refund, when the price difference is positive, as described in the item (1)(e)(i) of Section 7.4.2.2, PCRR Allocation and Nominations.

(2) The payment or charge to each CRR Owner for a given Operating Hour of PTP Obligations with Refund with each pair of source and sink Settlement Points settled in the DAM is calculated as follows:

DAOBLRAMT *o, (j, k)* = (-1) \* DAOBLPR *(j, k)* \* Min (DAOBLR *o, (j, k),* OBLRACT *o, (j, k)*)

Where:

DAOBLPR *(j, k)* = DASPP*k* - DASPP*j*

OBLRACT *o, (j, k)* = (OBLROF *o, r* \* RESACT *r* \* OBLRF *o, r, (j, k)***)**

If (a valid OS *r, y* exists for all Security-Constrained Economic Dispatch (SCED) intervals within the hour)

 RESACT *r* = (OS *r, y* \* TLMP *y*) / (TLMP *y*)

Otherwise

 RESACT *r* = TGFTH *r*

The above variables are defined as follows:

| Variable | Unit | Definition |
| --- | --- | --- |
| DAOBLRAMT *o, (j, k)* | $ | *Day-Ahead Obligation with Refund Amount per CRR Owner per pair of source and sink*⎯The payment to CRR Owner *o* for the PTP Obligation with Refund with the source *j* and the sink *k*, settled in the DAM, for the hour. |
| DAOBLPR *(j, k)* | $/MW per hour | *Day-Ahead Obligation Price*⎯The DAM price of a PTP Obligation with the source *j* and the sink *k*, for the hour. |
| DASPP*j* | $/MWh | *Day-Ahead Settlement Point Price at source*⎯The DAM Settlement Point Price at the source Settlement Point *j* for the hour. |
| DASPP*k* | $/MWh | *Day-Ahead Settlement Point Price at sink*⎯The DAM Settlement Point Price at the sink Settlement Point *k* for the hour. |
| DAOBLR *o, (j, k)* | MW | *Day-Ahead Obligation with Refund per CRR Owner per pair of source and sink*⎯ The number of CRR Owner *o*’s PTP Obligations with Refund with the source *j* and the sink *k* settled in DAM for the hour. |
| OBLRACT *o, (j, k)* | MW | *Obligation with Refund Actual usage per CRR Owner per pair of source and sink*—CRR Owner *o*’s actual usage for the PTP Obligations with Refund with the source *j* and the sink *k*, for the hour. |
| RESACT *r* | MW | *Resource Actual per Resource per hour*—The time-weighted average of the Output Schedule of Resource *r* (if a valid Output Schedule exists) or the telemetered output of Resource *r*, for the hour. |
| OBLROF *o, r* | none | *Obligation with Refund Ownership Factor per CRR Owner per Resource*—The factor showing the percentage usage of Resource *r* for CRR Owner *o*’s PTP Obligations with Refund. Its value is 1, if only one CRR Owner has acquired Pre-Assigned Congestion Revenue Right (PCRRs) under the refund provision using this Resource *r*. |
| OS *r, y* | MW | *Output Schedule per Resource per SCED interval*—The Output Schedule submitted to ERCOT for Resource *r* for the SCED interval *y*. |
| TGFTH *r* | MWh | *Telemetered Generation for the Hour per Resource per hour*—The telemetered generation of Generation Resource *r*, for the hour. |
| OBLRF *o, r, (j, k)* | none | *Obligation with Refund Factor per CRR Owner per Resource associated with pair of source and sink*—The ratio of CRR Owner *o*’s Resource *r*’s capacity allocated to the PTP Obligations with Refund with the source *j* and sink *k* to the same CRR Owner’s total capacity for the Resource *r* nominated for all the PCRRs under the refund provision with the same source *j*. |
| TLMP *y* | second | *Duration of SCED interval per interval*—The duration of the portion of the SCED interval *y* within the hour. |
| *o* | none | A CRR Owner. |
| *y* | none | A SCED interval in the hour.  |
| *r* | none | A Resource.  |
| *j* | none | A source Settlement Point. |
| *k* | none | A sink Settlement Point. |

(3) The net total payment or charge to each CRR Owner for the Operating Hour of all its PTP Obligations with Refund settled in the DAM is calculated as follows:

DAOBLRAMTOTOT *o* = DAOBLRCROTOT *o* + DAOBLRCHOTOT *o*

Where:

DAOBLRCROTOT *o* = Min (0, DAOBLRAMT *o, (j, k)*)

DAOBLRCHOTOT *o* = Max (0, DAOBLRAMT *o, (j, k)*)

The above variables are defined as follows:

|  |  |  |
| --- | --- | --- |
| Variable | Unit | Definition |
| DAOBLRAMTOTOT *o* | $ | *Day-Ahead 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 the DAM, for the hour. |
| DAOBLRCROTOT *o* | $ | *Day-Ahead Obligation with Refund Credit Owner Total per CRR Owner*—The total payment to CRR Owner *o* for its PTP Obligations with Refund settled in the DAM, for the hour. |
| DAOBLRCHOTOT *o* | $ | *Day-Ahead Obligation with Refund Charge Owner Total per CRR Owner*—The total charge to CRR Owner *o* for its PTP Obligations with Refund settled in the DAM, for the hour. |
| DAOBLRAMT *o, (j, k)* | $ | *Day-Ahead Obligation with Refund Amount per CRR Owner per pair of source and sink*—The payment or charge to CRR Owner *o* for the PTP Obligations with Refund with the source *j* and the sink *k* settled in the DAM, for the hour. |
| *o* | none | A CRR Owner. |
| *j* | none | A source Settlement Point. |
| *k* | none | A sink Settlement Point. |

7.9.1.6 Payments for PTP Options with Refund Settled in DAM

(1) ERCOT shall pay the owner of a PTP Option with Refund the difference in the DAM Settlement Point Prices between the sink Settlement Point and the source Settlement Point, if positive, subject to a charge for refund, as described in item (1)(e)(i) of Section 7.4.2.2, PCRR Allocation and Nominations.

(2) The payment to each CRR Owner for a given Operating Hour of its PTP Options with Refund with each pair of source and sink Settlement Points settled in the DAM is calculated as follows:

DAOPTRAMT *o, (j, k)* = (-1) \* DAOPTPR *(j, k)* \* Min (OPTR *o, (j, k)*, OPTRACT *o, (j, k)*)

Where:

DAOPTPR *(j, k)* = Max (0, DASPP *k* – DASPP *j*)

OPTRACT *o, (j, k)* = (OPTROF *o, r* \* RESACT *r* \* OPTRF *o, r, (j, k)*)

If (a valid OS *r, y* exists for all SCED intervals within the hour)

 RESACT *r* = (OS *r, y* \* TLMP *y*) / (TLMP *y*)

Otherwise

 RESACT *r* = TGFTH *r*

The above variables are defined as follows:

| Variable | Unit | Definition |
| --- | --- | --- |
| DAOPTRAMT *o, (j, k)* | $ | *Day-Ahead Option with Refund Amount per CRR Owner per pair of source and sink*⎯The payment to CRR Owner *o* for its PTP Options with Refund with the source *j* and the sink *k*, settled in the DAM, for the hour. |
| DAOPTPR *(j, k)* | $/MW per hour | *Day-Ahead Option Price per pair of source and sink*⎯The DAM price of the PTP Option with the source *j* and the sink *k*, for the hour. |
| DASPP*j* | $/MWh | *Day-Ahead Settlement Point Price at source*⎯The DAM Settlement Point Price at the source Settlement Point *j*, for the hour. |
| DASPP *k* | $/MWh | *Day-Ahead Settlement Pont Price at sink*⎯The DAM Settlement Point Price at the sink Settlement Point *k*, for the hour. |
| OPTR *o, (j, k)* | MW | *Option with Refund per CRR Owner per pair of source and sink*⎯The number of CRR Owner *o*’s PTP Options with Refund with the source *j* and the sink *k*, settled in DAM, for the hour. |
| OPTRACT *o, (j, k)* | MW | *Option with Refund Actual usage per CRR Owner per pair of source and sink*—CRR Owner *o*’s actual usage for the PTP Options with Refund with the source *j* and the sink *k*, for the hour. |
| RESACT *r* | MW | *Resource Actual per Resource per hour*—The time-weighted average of the Output Schedule of Resource *r* (if a valid operating schedule exists) or the telemetered output of Resource *r*, for the hour. |
| OPTROF *o, r* | none | *Option with Refund Ownership Factor per CRR Owner per Resource*—The factor showing the percentage usage of Resource *r* for CRR Owner *o*’s PTP Options with Refund. Its value is 1, if only one CRR Owner has acquired PCRRs under the refund provision using this Resource *r*. |
| OS *r, y* | MW | *Output Schedule per Resource per SCED interval*—The Output Schedule submitted to ERCOT for Resource *r* for the SCED interval *y*. |
| TGFTH *r* | MWh | *Telemetered Generation for the Hour per Resource per hour*—The telemetered generation of Generation Resource *r,* for the hour. |
| OPTRF *o, r, (j, k)* | none | *Option with Refund Factor per CRR Owner per Resource associated with pair of source and sink*—The ratio of CRR Owner *o*’s Resource *r*’s capacity allocated to the PTP Options with Refund with the source *j* and sink *k* to the same CRR Owner’s total capacityfor the Resource *r* nominated PCRRs under the refund provision with the same source *j*. |
| TLMP *y* | second | *Duration of SCED interval per interval*—The duration of the portion of the SCED interval *y* within the hour. |
| *o* | none | A CRR Owner. |
| *y* | none | A SCED interval in the hour. |
| *r* | none | A Resource.  |
| *j* | none | A source Settlement Point. |
| *k* | none | A sink Settlement Point. |

(3) The total payment to each Non-Opt-In-Entity (NOIE) CRR Owner for the Operating Hour of all its PTP Options with Refund settled in the DAM is calculated as follows:

DAOPTRAMTOTOT *o* = DAOPTRAMT *o, (j, k)*

The above variables are defined as follows:

| Variable | Unit | Definition |
| --- | --- | --- |
| DAOPTRAMTOTOT *o* | $ | *Day-Ahead 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 the DAM, for the hour. |
| DAOPTRAMT *o, (j, k)* | $ | *Day-Ahead Option with Refund Amount per CRR Owner per pair of source and sink*—The payment to NOIE CRR Owner *o* for the PTP Options with Refund with the source *j* and the sink *k* settled in the DAM, for the hour.  |
| *o* | none | A CRR Owner. |
| *j* | none | A source Settlement Point. |
| *k* | none | A sink Settlement Point. |

7.9.2 Real-Time CRR Payments and Charges

7.9.2.1 Payments and Charges for PTP Obligations Settled in Real-Time

(1) ERCOT shall pay the Qualified Scheduling Entity (QSE) of each cleared PTP Obligation with links to an Option the positive difference in Real-Time Settlement Point Prices between the sink Settlement Point and the source Settlement Point. The payment to each QSE for a given Operating Hour of its cleared PTP Obligation with links to an Option with each pair of source and sink Settlement Points is calculated as follows:

**RTOBLLOAMT *q, (j, k)* = (-1) \* MAX(0, RTOBLPR *(j, k)*) \* RTOBLLO *q, (j, k)***

(2) ERCOT shall pay or charge the QSE of each PTP Obligation acquired in the DAM the difference in Real-Time Settlement Point Prices between the sink Settlement Point and the source Settlement Point. The payment or charge to each QSE for a given Operating Hour of its cleared PTP Obligations with each pair of source and sink Settlement Points is calculated as follows:

RTOBLAMT *q, (j, k)* = (-1) \* RTOBLPR *(j, k)* \* RTOBL *q, (j, k)*

(3) In the event that ERCOT is unable to execute the DAM, ERCOT shall pay or charge the owner of each PTP Obligation based on the difference in Real-Time Settlement Point Prices between the sink Settlement Point and the source Settlement Point. The payment or charge to each CRR Owner for a given Operating Hour of its PTP Obligations with each pair of source and sink Settlement Points is calculated as follows:

NDRTOBLAMT *o, (j, k)* = (-1) \* RTOBLPR *(j, k)* \* DAOBL *o, (j, k)*

Where:

RTOBLPR *(j, k)* = (RTSPP *k, i* – RTSPP *j, i*) / 4

The above variables are defined as follows:

| Variable | Unit | Definition |
| --- | --- | --- |
| RTOBLAMT *q, (j, k)* | $ | *Real-Time Obligation Amount per QSE per pair of source and sink*—The payment or charge to QSE *q* for its PTP Obligations with the source *j* and the sink *k* settled in Real-Time, for the hour. |
| RTOBLLOAMT *q, (j, k)* | $ | *Real-Time Obligation with Links to an Option Amount per QSE per pair of source and sink*—The payment to QSE *q* for its PTP Obligations with Links to an Option with the source *j* and the sink *k* settled in Real-Time, for the hour. |
| NDRTOBLAMT *o, (j, k)* | $ | *No DAM Real-Time Obligation Amount per CRR Owner per pair of source and sink*—The payment or charge to CRR Owner *o* for its PTP Obligations with the source *j* and the sink *k* settled in Real-Time when ERCOT is unable to execute the DAM, for the hour. |
| RTOBLPR *(j, k)* | $/MW per hour | *Real-Time Obligation Price*—The Real-Time price of the PTP Obligation, for the hour. |
| RTSPP *j, i* | $/MWh | *Real-Time Settlement Point Price at source per interval*—The Real-Time Settlement Point Price at the source *j* for the 15-minute Settlement Interval *i*. |
| RTSPP *k, i* | $/MWh | *Real-Time Settlement Point Price at sink per interval*—The Real-Time Settlement Point Price at the sink *k* for the 15-minute Settlement Interval *i*. |
| RTOBL *q, (j, k)* | MW | *Real-Time Obligation per QSE per pair of source and sink*—The total MW of QSE *q*’s PTP Obligation bids cleared in the DAM and settled in Real-Time for the source *j* and the sink *k* for the hour. |
| RTOBLLO *q, (j, k)* | MW | *Real-Time Obligation with Links to an Option per QSE per pair of source and sink*—The total MW of QSE *q*’s PTP Obligation bids with Links to an Option cleared in the DAM and settled in Real-Time for the source *j* and the sink *k* for the hour. |
| DAOBL *o, (j, k)* | MW | *Day-Ahead Obligation per CRR Owner per source and sink pair*—The number of CRR Owner *o*’s PTP Obligations with the source *j* and the sink *k* settled in the DAM for the hour. See Section 7.9.1.1, Payments and Charges for PTP Obligations Settled in DAM. |
| *o* | none | A CRR Owner. |
| *q* | none | A QSE. |
| *i* | none | A 15-minute Settlement Interval in the Operating Hour. |
| *j* | none | A source Settlement Point. |
| *k* | none | A sink Settlement Point. |

(4) The net total payment or charge to each QSE for the Operating Hour of all its PTP Obligations settled in Real-Time is calculated as follows:

**RTOBLAMTQSETOT *q* = RTOBLAMT *q, (j, k)***

The above variables are defined as follows:

| Variable | Unit | Definition |
| --- | --- | --- |
| 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. |
| RTOBLAMT *q, (j, k)* | $ | *Real-Time Obligation Amount per QSE per pair of source and sink*—The payment or charge to QSE *q* for the PTP Obligations with the source *j* and the sink *k* settled in Real-Time, for the hour. |
| *q* | none | A QSE. |
| *j* | none | A source Settlement Point. |
| *k* | none | A sink Settlement Point. |

(5) The net total payment to each QSE for the Operating Hour of all its PTP Obligations with Links to Options settled in Real-Time is calculated as follows:

**RTOBLLOAMTQSETOT *q* = RTOBLLOAMT *q, (j, k)***

The above variables are defined as follows:

| Variable | Unit | Definition |
| --- | --- | --- |
| RTOBLLOAMTQSETOT *q* | $ | *Real-Time Obligation with Links to an Option Amount QSE Total per QSE*—The net total payment to QSE *q* of all its PTP Obligations with Links to an Option settled in Real-Time, for the hour. |
| RTOBLLOAMT *q, (j, k)* | $ | *Real-Time Obligation with Links to an Option Amount per QSE per pair of source and sink*—The payment to QSE *q* for the PTP Obligations with Links to an Option with the source *j* and the sink *k* settled in Real-Time, for the hour. |
| *q* | none | A QSE. |
| *j* | none | A source Settlement Point. |
| *k* | none | A sink Settlement Point. |

(6) If ERCOT is unable to execute DAM, the net total payment or charge to each CRR Owner for the Operating Hour of all its PTP Obligations settled in Real-Time is calculated as follows:

**NDRTOBLAMTOTOT *o* = NDRTOBLAMT *o,(j, k)***

The above variables are defined as follows:

| Variable | Unit | Definition |
| --- | --- | --- |
| 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. |
| NDRTOBLAMT *o, (j, k)* | $ | *No DAM Real-Time Obligation Amount per CRR Owner per pair of source and sink*—The payment or charge to CRR Owner *o* for its PTP Obligations with the source *j* and the sink *k* settled in Real-Time when ERCOT is unable to execute the DAM, for the hour. |
| *o* | None | A CRR Owner. |
| *j* | None | A source Settlement Point. |
| *k* | None | A sink Settlement Point. |

7.9.2.2 Payments for PTP Options Settled in Real-Time

(1) When the DAM is not executed, ERCOT shall pay the owner of each PTP Option based on the positive difference in Real-Time Settlement Point Prices between the sink Settlement Point and the source Settlement Point. The payment to each CRR Owner for a given Operating Hour of its PTP Options with each pair of source and sink Settlement Points is calculated as follows:

NDRTOPTAMT *o, (j, k)* = (-1) \* NDRTOPTTP *o, (j, k)*

Where:

The target payment if ERCOT is unable to execute the DAM:

NDRTOPTTP *o, (j, k)* = RTOPTPR *(j, k)* \* OPT *o, (j, k)*

RTOPTPR *(j, k)* = Max (0, RTSPP *k, i* – RTSPP *j, i*) / 4

The above variables are defined as follows:

| Variable | Unit | Definition |
| --- | --- | --- |
| NDRTOPTAMT *o, (j, k)* | $ | *No DAM Real-Time Option Amount per CRR Owner per source and sink pair*—The payment to CRR Owner *o* of PTP Options with the source *j* and the sink *k* settled in Real-Time when ERCOT is unable to execute the DAM, for the hour. |
| NDRTOPTTP *o, (j, k)* | $ | *No DAM Real-Time Option Target Payment per CRR Owner per source and sink pair*—The target payment for CRR Owner *o*’s PTP Options with the source *j* and the sink *k* settled in Real-Time when ERCOT is unable to execute the DAM, for the hour. |
| RTOPTPR *(j, k)* | $/MW per hour | *Real-Time Option Price per source and sink pair* —The Real-Time price of a PTP Option or PTP Option with Refund with the source *j* and the sink *k* for the hour. |
| OPT *o, (j, k)* | MW | *Option per CRR Owner per source and sink pair*⎯The number of CRR Owner *o*’s PTP Options with the source *j* and the sink *k* settled in the DAM for the hour. See Section 7.9.1.2, Payments for PTP Options Settled in DAM. |
| RTSPP *j, i* | $/MWh | *Real-Time Settlement Point Price at source per interval*—The Real-Time Settlement Point Price at the source Settlement Point *j*, for the 15-minute Settlement Interval *i*. |
| RTSPP *k, i* | $/MWh | *Real-Time Settlement Point Price at sink per interval*—The Real-Time Settlement Point Price at the sink Settlement Point *k*, for the 15-minute Settlement Interval *i*. |
| *o* | none | A CRR Owner. |
| *j* | none | A source Settlement Point. |
| *k* | none | A sink Settlement Point. |

(2) If ERCOT is unable to execute the DAM, the total payment to each CRR Owner for the Operating Hour of all its PTP Options settled in Real-Time is calculated as follows:

NDRTOPTAMTOTOT *o* = NDRTOPTAMT *o, (j, k)*

The above variables are defined as follows:

| Variable | Unit | Definition |
| --- | --- | --- |
| 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. |
| NDRTOPTAMT *o, (j, k)* | $ | *No DAM Real-Time Option Amount per CRR Owner per pair of source and sink*—The payment to CRR Owner *o* for its PTP Options with the source *j* and the sink *k* settled in Real-Time when ERCOT is unable to execute the DAM, for the hour. |
| *o* | none | A CRR Owner. |
| *j* | none | A source Settlement Point. |
| *k* | none | A sink Settlement Point. |

7.9.2.3 Payments for NOIE PTP Options with Refund Settled in Real-Time

(1) When the DAM is not executed, ERCOT shall pay the NOIE owner of each PTP Option with Refund that was allocated to that NOIE as a PCRR, for the quantity up to the actual usage based on the positive difference in Real-Time Settlement Point Prices between the sink Settlement Point and the source Settlement Point. The payment to each NOIE CRR Owner for a given Operating Hour of its PTP Options with Refund each pair of source and sink Settlement Points is calculated as follows:

NDRTOPTRAMT *o, (j, k)* = (-1) \* NDRTOPTRTP *o, (j, k)*

Where:

The target payment if ERCOT is unable to execute the DAM:

NDRTOPTRTP *o, (j, k)* = RTOPTPR *(j, k)* \* Min (OPTR *o, (j, k)*, OPTRACT *o, (j, k)*)

OPTRACT *o, (j, k)* = (OPTROF *o, r* \* RESACT *r* \* OPTRF *o, r, (j, k)*)

If (a valid OS *r, y* exists for all SCED intervals within the hour)

 RESACT *r* = OS *r, y* \* TLMP *y*) / (TLMP*y*)

Otherwise

 RESACT *r* = TGFTH *r*

The above variables are defined as follows:

| Variable | Unit | Definition |
| --- | --- | --- |
| NDRTOPTRAMT *o, (j, k)* | $ | *No DAM Real-Time Option with Refund Amount per CRR Owner per pair of source and sink*—The payment to CRR Owner *o* of the PTP Options with Refund with the source *j* and the sink *k*, settled in Real-Time when ERCOT is unable to execute the DAM, for the hour. |
| NDRTOPTRAMT *o, (j, k)* | $ | *No DAM Real-Time Option with Refund Amount per CRR Owner per pair of source and sink*—The payment to CRR Owner *o* of the PTP Options with Refund with the source *j* and the sink *k*, settled in Real-Time when ERCOT is unable to execute the DAM, for the hour. |
| NDRTOPTRTP *o, (j, k)* | $ | *No DAM Real-Time Option with Refund Target Payment per CRR Owner per source and sink pair*—The target payment for CRR Owner *o*’s PTP Options with Refund, with the source *j* and the sink *k*, settled in Real-Time when ERCOT is unable to execute the DAM, for the hour. |
| RTSPP *j, i* | $/MWh | *Real-Time Settlement Point Price at source per interval*—The Real-Time Settlement Point Price at the source *j* for the 15-minute Settlement Interval *i*. |
| RTSPP *k, i* | $/MWh | *Real-Time Settlement Point Price at sink per interval*—The Real-Time Settlement Point Price at the sink *k* for the 15-minute Settlement Interval *i*. |
| RTOPTPR *(j, k)* | $/MW per hour | *Real-Time Option Price per source and sink pair*—The Real-Time price of a PTP Option with Refund with the source *j* and the sink *k* for the hour. |
| OPTRACT *o, (j, k)* | MW | *Option with Refund Actual usage per CRR Owner per pair of source and sink*—CRR Owner *o*’s actual usage for the PTP Options with Refund with the source *j* and the sink *k*, for the hour. |
| RESACT *r* | MW | *Resource Actual per Resource per hour*—The time-weighted average of the Output Schedule of Resource *r* (if a valid Output Schedule exists) or the telemetered output of Resource *r*, for the hour. |
| OPTROF *o, r* | none | *Option with Refund Ownership Factor per CRR Owner per Resource*—The factor showing the percentage usage of Resource *r* for CRR Owner *o*’s PTP Options with Refund. Its value is 1, if only one CRR Owner uses this Resource for PCRRs under the refund provision. |
| OS *r, y* | MW | *Output Schedule per Resource per SCED interval*—The Output Schedule submitted to ERCOT for Resource *r* for the SCED interval *y*. |
| TGFTH *r* | MWh | *Telemetered Generation for the Hour per Resource per hour*—The telemetered generation of Generation Resource *r*, for the hour. |
| OPTRF *o, r, (j, k)* | none | *Option with Refund Factor per CRR Owner per Resource associated with pair of source and sink*—The ratio of CRR Owner *o*’s Resource *r*’s capacity allocated to the PTP Options with Refund with the source *j* and sink *k* to the same CRR Owner’s total capacityfor the Resource *r* nominated for all the PCRRs under the refund provision with the same source *j*. |
| TLMP *y* | second | *Duration of SCED interval per interval*—The duration of the portion of the SCED interval *y* within the hour. |
| OPTR *o, (j, k)* | MW | *Option with Refund per CRR Owner per pair of source and sink*—The number of CRR Owner *o*’s PTP Options with Refund settled in the DAM for the hour. |
| *o* | none | A CRR Owner. |
| *r* | none | A Resource. |
| *y* | none | A SCED interval in the hour. |
| *j* | none | A source Settlement Point. |
| *k* | none | A sink Settlement Point. |

(2) If ERCOT is unable to execute the DAM, the total payment to each NOIE CRR Owner for the Operating Hour of all its PTP Options with Refund settled in Real-Time is calculated as follows:

NDRTOPTRAMTOTOT *o* = NDRTOPTRAMT *o, (j, k)*

The above variables are defined as follows:

| Variable | Unit | Definition |
| --- | --- | --- |
| 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. |
| NDRTOPTRAMT *o, (j, k)* | $ | *No DAM Real-Time Option with Refund Amount per CRR Owner per pair of source and sink*—The payment to NOIE CRR Owner *o* for the PTP Options with Refund with the source *j* and the sink *k* settled in Real-Time when ERCOT is unable to execute the DAM, for the hour. |
| *o* | none | A CRR Owner. |
| *j* | none | A source Settlement Point. |
| *k* | none | A sink Settlement Point. |

7.9.2.4 Payments for FGRs in Real-Time

(1) There are currently no defined flowgates.

7.9.2.5 Payments and Charges for PTP Obligations with Refund in Real-Time

(1) In the event that ERCOT is unable to execute the DAM, ERCOT shall pay or charge the NOIE owner of a PTP Obligation with Refund, for the quantity up to the actual usage based on the difference in the Real-Time Settlement Point Prices between the sink Settlement Point and the source Settlement Point. The payment or charge to each NOIE CRR Owner for a given Operating Hour of its PTP Options with Refund each pair of source and sink Settlement Points in Real-Time is calculated as follows:

NDRTOBLRAMT *o, (j, k)* = (-1) \* NDRTOBLRTP *o, (j, k)*

Where:

The target payment:

NDRTOBLRTP *o, (j, k)* = RTOBLRPR *(j, k)* \* Min (DAOBLR *o, (j, k),* OBLRACT *o, (j, k)*)

 RTOBLPR *(j, k)* = (RTSPP *k, i* – RTSPP *j, i*) / 4

 OBLRACT *o, (j, k)* = (OBLROF *o, r* \* RESACT *r* \* OBLRF *o, r, (j, k)*)

If (a valid OS *r, y* exists for all SCED intervals within the hour)

 RESACT *r* = (OS *r, y* \* TLMP *y*) / (TLMP *y*)

Otherwise

 RESACT *r* = TGFTH *r*

The above variables are defined as follows:

| Variable | Unit | Definition |
| --- | --- | --- |
| NDRTOBLRAMT *o, (j, k)* | $ | *No DAM Real-Time Obligation with Refund Amount per CRR Owner per pair of source and sink*⎯The payment to CRR Owner *o* for the PTP Obligation with Refund with the source *j* and the sink *k*, settled in Real-Time, when ERCOT is unable to execute the DAM, for the hour. |
| NDRTOBLRTP *o, (j, k)* | $ | *No DAM Real-Time Obligation with Refund Target Payment per CRR Owner per source and sink pair*—The target payment for CRR Owner *o*’s PTP Obligations with Refund, with the source *j* and the sink *k*, settled in Real-Time, when ERCOT is unable to execute the DAM, for the hour. |
| RTOBLPR *(j, k)* | $/MW per hour | *Real-Time Obligation Price*—The Real-Time price of the PTP Obligation, for the hour. |
| RTSPP *j, i* | $/MWh | *Real-Time Settlement Point Price at source per interval*—The Real-Time Settlement Point Price at the source *j* for the 15-minute Settlement Interval *i*. |
| RTSPP *k, i* | $/MWh | *Real-Time Settlement Point Price at sink per interval*—The Real-Time Settlement Point Price at the sink *k* for the 15-minute Settlement Interval *i*. |
| DAOBLR *o, (j, k)* | MW | *Day-Ahead Obligation with Refund per CRR Owner per pair of source and sink*⎯The number of CRR Owner *o*’s PTP Obligations with Refund with the source *j* and the sink *k* settled in DAM for the hour. See Section 7.9.1.5, Payments and Charges for PTP Obligations with Refund Settled in DAM. |
| OBLRACT *o, (j, k)* | MW | *Obligation with Refund Actual usage per CRR Owner per pair of source and sink*—CRR Owner *o*’s actual usage for the PTP Obligations with Refund with the source *j* and the sink *k*, for the hour. |
| RESACT *r* | MW | *Resource Actual per Resource per hour*—The time-weighted average of the Output Schedule of Resource *r* (if a valid Output Schedule exists) or the telemetered output of Resource *r*, for the hour. |
| OBLROF *o, r* | none | *Obligation with Refund Ownership Factor per CRR Owner per Resource*—The factor showing the percentage usage of Resource *r* for CRR Owner *o*’s PTP Obligations. Its value is 1, if only one CRR Owner has acquired PCRRs under the refund provision using this Resource *r*. |
| OS *r, y* | MW | *Output Schedule per Resource per SCED interval*—The Output Schedule submitted to ERCOT for Resource *r* for the SCED interval *y*. |
| TGFTH *r* | MWh | *Telemetered Generation for the Hour per Resource per Hour*—The telemetered generation of Generation Resource *r*, for the hour. |
| OBLRF *o, r, (j, k)* | none | *Obligation with Refund Factor per CRR Owner per Resource*—The ratio of CRR Owner *o*’s Resource *r*’s capacity allocated to the PTP Obligations with Refund with the source *j* and sink *k* to the same CRR Owner’s total capacity for the Resource *r* nominated for all the PCRRs under the refund provision with the same source *j*. |
| TLMP y | second | *Duration of SCED interval per interval*—The duration of the portion of the SCED interval *y* within the hour. |
| *o* | none | A CRR Owner. |
| *y* | none | A SCED interval in the hour.  |
| *r* | none | A Resource.  |
| *j* | none | A source Settlement Point. |
| *k* | none | A sink Settlement Point. |

(2) If ERCOT is unable to execute the DAM, the net total payment or charge to each CRR Owner for the Operating Hour of all its PTP Obligations with Refund settled in Real-Time is calculated as follows:

NDRTOBLRAMTOTOT *o* =  NDRTOBLRAMT *o, (j, k)*

The above variables are defined as follows:

| Variable | Unit | Definition |
| --- | --- | --- |
| 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. |
| NDRTOBLRAMT *o, (j, k)* | $ | *No DAM Real-Time Obligation with Refund Amount per CRR Owner per pair of source and sink*⎯The payment to CRR Owner *o* for the PTP Obligation with Refund with the source *j* and the sink *k*, settled in Real-Time, when ERCOT is unable to execute the DAM, for the hour. |
| *o* | none | A CRR Owner. |
| *j* | none | A source Settlement Point. |
| *k* | none | A sink Settlement Point. |

7.9.3 CRR Balancing Account

7.9.3.1 DAM Congestion Rent

(1) The DAM congestion rent is calculated as the sum of the following payments and charges:

(a) The total of payments to all QSEs for cleared DAM energy offers, whether through Three-Part Supply Offers or through DAM Energy-Only Offer Curves, calculated under Section 4.6.2.1, Day-Ahead Energy Payment;

|  |
| --- |
| ***[NPRR1245: Replace item (a) above with the following upon system implementation of the Real-Time Co-Optimization (RTC) project:]***(a) The total of payments to all QSEs for cleared DAM energy offers, whether through Three-Part Supply Offers, DAM Energy-Only Offer Curves, or cleared sales from the offer portion of Energy Bid/Offer Curves, calculated under Section 4.6.2.1, Day-Ahead Energy Payment; |

(b) The total of charges to all QSEs for cleared DAM Energy Bids, calculated under Section 4.6.2.2 , Day-Ahead Energy Charge; and

|  |
| --- |
| ***[NPRR1245: Replace item (b) above with the following upon system implementation of the Real-Time Co-Optimization (RTC) project:]***(b) The total of charges to all QSEs for cleared DAM Energy Bids or cleared purchases from the bid portion of Energy Bid/Offer Curves, calculated under Section 4.6.2.2 , Day-Ahead Energy Charge; and |

|  |
| --- |
| ***[NPRR1188: Replace item (b) above with the following upon system implementation:]***(b) The total of charges to all QSEs for cleared DAM Energy Bids and Energy Bid Curves, calculated under Section 4.6.2.2, Day-Ahead Energy Charge; and |

(c) The total of charges or payments to all QSEs for PTP Obligation bids cleared in the DAM, calculated under Section 4.6.3, Settlement for PTP Obligations Bought in DAM.

(d) The total of charges to all QSEs for PTP Obligation with Links to an Option bids cleared in the DAM, calculated under Section 4.6.3.

(2) The DAM congestion rent for a given Operating Hour is calculated as follows:

DACONGRENT = DAESAMTTOT + DAEPAMTTOT + DARTOBLAMTTOT + DARTOBLLOAMTTOT

Where:

DAESAMTTOT = DAESAMTQSETOT *q*

DAEPAMTTOT = DAEPAMTQSETOT *q*

DARTOBLAMTTOT = DARTOBLAMTQSETOT *q*

DARTOBLLOAMTTOT = DARTOBLLOAMTQSETOT *q*

The above variables are defined as follows:

| Variable | Unit | Definition |
| --- | --- | --- |
| DACONGRENT | $ | *Day-Ahead Congestion Rent*⎯The congestion rent collected in the DAM for the hour. |
| DAESAMTTOT | $ | *Day-Ahead Energy Sale Amount Total*⎯The total payment to all QSEs for cleared DAM energy offers, whether through Three-Part Supply Offers or through DAM Energy-Only Offer Curves, for the hour.

|  |
| --- |
| ***[NPRR1245: Replace the definition above with the following upon system implementation of the Real-Time Co-Optimization (RTC) project:]****Day-Ahead Energy Sale Amount Total*¾The total payment to all QSEs for cleared DAM energy offers, whether through Three-Part Supply Offers, DAM Energy-Only Offer Curves, or cleared sales from the offer portion of Energy Bid/Offer Curves, for the hour. |

 |
| DAEPAMTTOT | $ | *Day-Ahead Energy Purchase Amount Total*⎯The total charge to all QSEs for cleared DAM Energy Bids for the hour.

|  |
| --- |
| ***[NPRR1245: Replace the definition above with the following upon system implementation of the Real-Time Co-Optimization (RTC) project:]****Day-Ahead Energy Purchase Amount Total*¾The total charge to all QSEs for cleared DAM Energy Bids or cleared purchases from the bid portion of Energy Bid/Offer Curves for the hour. |

|  |
| --- |
| ***[NPRR1188: Replace definition above with the following upon system implementation:]****Day-Ahead Energy Purchase Amount Total*⎯The total charge to all QSEs for DAM Energy Bids and Energy Bid Curves, cleared in the DAM, for the hour. |

 |
| DARTOBLAMTTOT | $ | *Day-Ahead Real-Time Obligation Amount Total*⎯The net total charge or payment to all QSEs for cleared PTP Obligation bids in the DAM for the hour. |
| DARTOBLLOAMTTOT | $ | *Day-Ahead Real-Time Obligation with Links to an Option Amount Total*⎯The net total charge to all QSEs for charge to QSE *q* for a PTP Obligation with Links to an Option Bid cleared in the DAM with the source *j* and the sink *k*, for the hour. |
| DAESAMTQSETOT *q* | $ | *Day-Ahead Energy Sale Amount QSE Total per QSE*⎯The total payment to QSE *q* for cleared DAM energy offers, whether through Three-Part Supply Offers or through DAM Energy-Only Offer Curves, for the hour. See item (2) of Section 4.6.2.1.

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| ***[NPRR1245: Replace the definition above with the following upon system implementation of the Real-Time Co-Optimization (RTC) project:]****Day-Ahead Energy Sale Amount QSE Total per QSE*¾The total payment to QSE *q* for cleared DAM energy offers, whether through Three-Part Supply Offers, DAM Energy-Only Offer Curves, or cleared sales from the offer portion of Energy Bid/Offer Curves, for the hour. See item (2) of Section 4.6.2.1. |

 |
| DAEPAMTQSETOT *q* | $ | *Day-Ahead Energy Purchase Amount QSE Total per QSE*⎯The total charge to QSE *q* for cleared DAM Energy Bids for the hour. See item (2) of Section 4.6.2.2.

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| ***[NPRR1245: Replace the definition above with the following upon system implementation of the Real-Time Co-Optimization (RTC) project:]****Day-Ahead Energy Purchase Amount QSE Total per QSE*¾The total charge to QSE *q* for cleared DAM Energy Bids or cleared purchases from the bid portion of Energy Bid/Offer Curves for the hour. See item (2) of Section 4.6.2.2. |

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| ***[NPRR1188: Replace definition above with the following upon system implementation:]****Day-Ahead Energy Purchase Amount QSE Total per QSE*⎯The total charge to QSE *q* for DAM Energy Bids and Energy Bid Curves, cleared in the DAM, for the hour. See item (2) of Section 4.6.2.2. |

 |
| DARTOBLAMTQSETOT *q* | $ | *Day-Ahead Real-Time Obligation Amount QSE Total per QSE*⎯The total charge or payment to QSE *q* for PTP Obligation Bids cleared in the DAM for the hour. See item (2) of Section 4.6.3. |
| DARTOBLLOAMTQSETOT*q* | $ | *Day-Ahead Real-Time Obligation with Links to an Option Amount QSE Total per QSE*⎯The net total charge to QSE q for all its PTP Obligation with Links to Option Bids cleared in the DAM for the hour. |
| *q* | none | A QSE. |

7.9.3.2 Credit to CRR Balancing Account

(1) If the Day-Ahead Congestion Rent is greater than the total payment to all CRR Owners for the CRRs settled in the DAM for any Operating Hour, a credit is put into the CRR Balancing Account for that Operating Hour. The credit to the CRR Balancing Account for a given Operating Hour is calculated as follows:

CRRBACR = Max (0, (DACONGRENT + DACRRCRTOT + DACRRCHTOT))

Where:

DACRRCRTOT = DAOBLCRTOT + DAOBLRCRTOT + DAOPTAMTTOT + DAOPTRAMTTOT

DACRRCHTOT = DAOBLCHTOT + DAOBLRCHTOT

DAOBLCRTOT = DAOBLCROTOT *o*

DAOBLCHTOT = DAOBLCHOTOT *o*

DAOBLRCRTOT = DAOBLRCROTOT *o*

DAOBLRCHTOT = DAOBLRCHOTOT *o*

DAOPTAMTTOT = DAOPTAMTOTOT *o*

DAOPTRAMTTOT = DAOPTRAMTOTOT *o*

The above variables are defined as follows:

| Variable | Unit | Definition |
| --- | --- | --- |
| CRRBACR | $ | *CRR Balancing Account Credit*—The credit to the CRR Balancing Account for the hour. |
| DACONGRENT | $ | *Day-Ahead Congestion Rent*—The congestion rent collected in the DAM for the hour. See Section 7.9.3.1, DAM Congestion Rent. |
| DACRRCRTOT | $ | *Day-Ahead CRR Credit Total*—The total payment to all CRR Owners of all CRRs settled in the DAM, for the hour. |
| DACRRCHTOT | $ | *Day-Ahead CRR Charge Total*—The total charge to all CRR Owners of all CRRs settled in the DAM, for the hour. |
| DAOBLCRTOT | $ | *Day-Ahead Obligation Credit Total*—The total payment of all PTP Obligations settled in the DAM, for the hour. |
| DAOBLCHTOT | $ | *Day-Ahead Obligation Charge Total*—The total charge of all PTP Obligations settled in the DAM, for the hour. |
| DAOBLRCRTOT | $ | *Day-Ahead Obligation with Refund Credit Total*—The total payment of all PTP Obligations with Refund settled in the DAM, for the hour. |
| DAOBLRCHTOT | $ | *Day-Ahead Obligation with Refund Charge Total*—The total charge of all PTP Obligations with Refund settled in the DAM, for the hour. |
| DAOPTAMTTOT | $ | *Day-Ahead Option Amount Total*—The total payment of all PTP Options settled in the DAM, for the hour. |
| DAOPTRAMTTOT | $ | *Day-Ahead Option with Refund Amount Total*—The total payment of all PTP Options with Refund settled in the DAM, for the hour. |
| DAOBLCROTOT *o* | $ | *Day-Ahead Obligation Credit Owner Total per owner*—The total payment to CRR Owner *o* of PTP Obligations settled in the DAM, for the hour. See Section 7.9.1.1, Payments and Charges for PTP Obligations Settled in DAM. |
| DAOBLCHOTOT *o* | $ | *Day-Ahead Obligation Charge Owner Total per owner*—The total charge to CRR Owner *o* of PTP Obligations settled in the DAM, for the hour. See Section 7.9.1.1. |
| DAOBLRCROTOT *o* | $ | *Day-Ahead Obligation with Refund Credit Owner Total per owner*—The total payment to the CRR Owner *o* of PTP Obligations with Refund settled in the DAM, for the hour. See Section 7.9.1.5, Payments and Charges for PTP Obligations with Refund Settled in DAM. |
| DAOBLRCHOTOT *o* | $ | *Day-Ahead Obligation with Refund Charge Owner Total per owner*—The total charge to CRR Owner *o* of PTP Obligations with Refund settled in the DAM, for the hour. See Section 7.9.1.5. |
| DAOPTAMTOTOT *o* | $ | *Day-Ahead Option Amount Owner Total per owner*—The total payment to the CRR Owner *o* of PTP Options settled in the DAM, for the hour. See Section 7.9.1.2, Payments for PTP Options Settled in DAM. |
| DAOPTRAMTOTOT *o* | $ | *Day-Ahead Option with Refund Amount Owner Total per owner*—The total payment to the CRR Owner *o* of PTP Options with Refund settled in the DAM, for the hour. See Section 7.9.1.6, Payments for PTP Options with Refund Settled in DAM. |
| *o* | none | A CRR Owner. |

7.9.3.3 Shortfall Charges to CRR Owners

(1) For each Operating Hour, if the Day-Ahead Congestion Rent is less than the total payment to all CRR Owners for the CRRs settled in the DAM, a charge will be made to each CRR Owner for any of its CRRs settled in the DAM that have positive Settlement prices.

(2) The charge to each CRR Owner for its CRRs settled in the DAM for a given Operating Hour is calculated as follows:

DACRRSAMT *o* = DACRRSAMTTOT \* CRRCRRSDA *o*

Where:

DACRRSAMTTOT = (-1) \* Min (0, DACONGRENT + DACRRCRTOT + DACRRCHTOT)

CRRCRRSDA *o* = (DAOBLCROTOT *o* + DAOBLRCROTOT *o* + DAOPTAMTOTOT *o* + DAOPTRAMTOTOT *o*) / (DACRRCRTOT)

The above variables are defined as follows:

| Variable | Unit | Definition |
| --- | --- | --- |
| DACRRSAMT *o* | $ | *Day-Ahead CRR Shortfall Amount per owner*—The shortfall charge to CRR Owner *o* for its CRRs settled in the DAM, for the hour. |
| DACRRSAMTTOT | $ | *Day-Ahead CRR Shortfall Amount Total*—The shortfall charge to all CRR Owners for their CRRs settled in the DAM and the Real-Time Market (RTM), for the hour. |
| DACONGRENT | $ | *Day-Ahead Congestion Rent*—The Congestion Rent collected in the DAM for the hour. See Section 7.9.3.1, DAM Congestion Rent. |
| DACRRCRTOT | $ | *Day-Ahead CRR Credit Total*—The total payment to all CRR Owners of all the CRRs settled in the DAM, for the hour. See Section 7.9.3.2, Credit to CRR Balancing Account. |
| DACRRCHTOT | $ | *Day-Ahead CRR Charge Total*—The total charge to all CRR Owners of all the CRRs settled in the DAM, for the hour. See Section 7.9.3.2. |
| CRRCRRSDA *o* | none | *CRR Credit Ratio Share Day-Ahead per owner*—The ratio of the total payments to CRR Owner *o* of its CRRs settled in the DAM to the total payments to all CRR Owners of all CRRS, for the hour. |
| DAOBLCROTOT *o* | $ | *Day-Ahead Obligation Credit Owner Total per owner*—The total payment to CRR Owner *o* of PTP Obligations settled in the DAM, for the hour. See Section 7.9.1.1, Payments and Charges for PTP Obligations Settled in DAM. |
| DAOBLRCROTOT *o* | $ | *Day-Ahead Obligation with Refund Credit Owner Total per owner*—The total payment to CRR Owner *o* of PTP Obligations with Refund settled in the DAM, for the hour. See Section 7.9.1.5, Payments and Charges for PTP Obligations with Refund Settled in DAM. |
| DAOPTAMTOTOT *o* | $ | *Day-Ahead Option Amount Owner Total per owner*—The total payment to CRR Owner *o* of PTP Options settled in the DAM, for the hour. See Section 7.9.1.2, Payments PTP Options Settled in DAM. |
| DAOPTRAMTOTOT *o* | $ | *Day-Ahead Option with Refund Amount Owner Total per owner*—The total payment to CRR Owner *o* of PTP Options with Refund settled in the DAM, for the hour. See Section 7.9.1.6, Payments for PTP Options with Refund Settled in DAM. |
| *o* | none | A CRR Owner. |

7.9.3.4 Monthly Refunds to Short-Paid CRR Owners

(1) On a monthly basis, a refund may be paid to the CRR Owners that have a shortfall charge for any Operating Hour in a month. The refund to each CRR Owner for a given month is calculated as follows:

If CRRBACRTOT + CRRFEETOT < CRRSAMTTOT :

CRRRAMT *o* = (-1) \* Min (CRRBACRTOT + CRRFEETOT + CRRBAFA *m*, CRRSAMTTOT) \* CRRSAMTRS *o*

Where:

CRRBAFA *m* = Min (CRRBAFBBAL, CRRSAMTTOT – (CRRBACRTOT + CRRFEETOT))

Otherwise:

CRRRAMT *o* = (-1) \* Min (CRRBACRTOT + CRRFEETOT, CRRSAMTTOT) \* CRRSAMTRS *o*

Where:

CRRBACRTOT = CRRBACR *h*

CRRFEETOT =  (OPTAFAMT *crrh, a*)

If (CRRSAMTTOT = 0)

CRRSAMTRS *o* = 0

Otherwise:

CRRSAMTRS *o* = CRRSAMTOTOT *o* / CRRSAMTTOT

CRRSAMTTOT = CRRSAMTOTOT *o*

CRRSAMTOTOT *o* = DACRRSAMT *o, h*

The above variables are defined as follows:

| Variable | Unit | Definition |
| --- | --- | --- |
| CRRRAMT *o* | $ | *CRR Refund Amount per owner*—The refund to the short-paid CRR Owner *o* for the month. |
| CRRBACRTOT | $ | *CRR Balancing Account Credit Total*—The total of credits accumulated in the CRR Balancing Account for all Operating Hours in the month.  |
| CRRBAFA *m*  | $ | *CRR Balancing Account Fund Available*—The amount available to cover CRR shortfalls from the CRR Balancing Account fund for the month. |
| CRRBAFBBAL | $ | *CRR Balancing Account Fund Beginning Balance*—The amount in the CRR Balancing Account Fund at the previous Settlement. |
| CRRSAMTTOT | $ | *CRR Shortfall Amount Total*—The total of shortfall charges to all CRR Owners for all Operating Hours in the month. |
| CRRSAMTRS *o* | none | *CRR Shortfall Amount Ratio Share per owner*—The ratio of the CRR Owner *o*’s total shortfall-charge to the total of all the CRR Owners’ shortfall charges, for the month. |
| CRRSAMTOTOT *o* | $ | *CRR Shortfall Amount Owner Total per owner*—The total of shortfall charges to CRR Owner *o* for all Operating Hours in the month. |
| DACRRSAMT *o, h* | $ | *Day-Ahead CRR Shortfall Amount per owner per hour*—The shortfall charge to CRR Owner *o* for its CRRs settled in the DAM for the hour *h*. |
| CRRBACR *h* | $ | *CRR Balancing Account Credit per hour*—The credit to the CRR Balancing Account for the hour *h*. |
| 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. |
| OPTAFAMT *crrh, a* | $ | *PTP Option Award Charge Amount* *per CRR Account Holder per CRR Auction*—The charge assessed to CRR Account Holder *crrh* for PTP Option awards awarded in CRR Auction *a*, for the hour for which the clearing price is less than the defined Minimum PTP Option Bid Price for the month. For a multi-month CRR Auction, the charge shall be calculated for each month. |
| *m* | none | A month. |
| *h* | none | An Operating Hour in the month. |
| *o* | none | A CRR Owner. |
| *crrh* | none | A CRR Account Holder. |
| *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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7.9.3.6 Rolling CRR Balancing Account Fund

(1) ERCOT shall establish a rolling CRR Balancing Account Fund (CRRBAF) as follows:

(a) The CRRBAF shall be funded beginning in the first month after implementation and every month that the CRR Balancing Account credit exceeds monthly CRR shortfalls.

(b) The CRRBAF calculated for a month shall not exceed the CRR Balancing Account Fund Cap.

(c) The CRRBAF shall refund to LSEs any surplus above the fund cap.

(d) In the event that a resettlement of the CRR Balancing Account is required, the CRRBAF for the resettlement will be calculated using the CRRBAF at the end of the previous month from the date of the resettlement invoice.

(e) The end of the month CRRBAF is calculated as follows:

 **If CRRBACRTOT + CRRFEETOT < CRRSAMTTOT**:

CRRBAF *m* = CRRBAFBBAL - CRRBAFA *m*

**Otherwise if CRRBACRTOT + CRRFEETOT > CRRSAMTTOT and CRRBAF < FUNDCAP:**

**CRRBAF *m* = CRRBAFBBAL + (CRRBACRTOT + CRRFEETOT – CRRSAMTTOT) + LACRRAMTTOT**

Where:

LACRRAMTTOT =  LACRRAMT *q*

The above variables are defined as follows:

| Variable | Unit | Definition |
| --- | --- | --- |
| 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, Monthly Refunds to Short-Paid CRR Owners. |
| CRRFEETOT | $ | *CRR Auction Fee Total*—The sum of the PTP Option Award Fees charged to all CRR Account Holders in single-month or multi-month CRR Auctions for the month. |
| CRRSAMTTOT | $ | *CRR Shortfall Amount Total*—The total of shortfall charges to all CRR Owners for all Operating Hours in the month. |
| CRRBAFBBAL | $ | *CRR Balancing Account Fund Beginning Balance*—The amount in the CRR Balancing Account Fund at the end of the previous month. |
| CRRBAF *m*   | $ | *CRR Balancing Account Fund Balance*—The amount in the CRR Balancing Account Fund at the end of the current month. |
| CRRBAFA *m*  | $ | *CRR Balancing Account Fund Available*—The amount available to cover CRR shortfalls from the CRR Balancing Account Fund for the 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. |
| LACRRAMTTOT | $ | *Load-Allocated CRR Amount Total*—The net total surplus from the CRR Balancing Account and CRR Auction fees at the end of the month. |
| LACRRAMT *q* | $ | *Load-Allocated CRR Amount per QSE*—The allocated surplus from the CRR Balancing Account and CRR Auction fees at the end of the month to QSE *q*, based on LRS for the month. |
| *m* | none | A month. |