Resource Category	O&M Costs ($)
Simple cycle greater than 90 MW	~~$1~~ 5,000
Simple cycle less than or equal to 90 MW	~~$0~~ 2,300
Diesel	~~$0~~1
RMR Resource	Not Applicable

~~(2) The "Fuel Oil Index Price" (FOP) is the sum of five cents plus the average of the Platts Oilgram Price Report for No. 2 oil quoted free on board the Colonial Pipeline on the Gulf Coast. For Saturdays, Sundays, holidays, and other days for which Platts Oilgram Price Report does not publish the described average price, the FOP is calculated using the described average price that is next published by Platts Oilgram Price Report. If the described average price is not published for more than two days, the previous day's published described average price will be used to calculate the FOP in the initial settlement and the next day's published described average price will be used to calculate the FOP in subsequent settlement statements;~~

(~~3~~2) The Resource Category Minimum-Energy Generic Cap is the cost per MWh of energy for a Resource in producing energy up to and including the Resource's LSL after breaker close according to the following:

(a) Hydro = $10.00/MWh;

(b) Coal and lignite = $18.00/MWh;

(c) Combined cycle greater than 90 MW = 10 MMBtu/MWh * FIP or FOP, as specified in Minimum-Energy Offer;

(d) Combined cycle less than or equal to 90 MW = 10 MMBtu/MWh * FIP or FOP, as specified in Minimum-Energy Offer;

(e) Gas steam supercritical boiler = 16.5 MMBtu/MWh * FIP or FOP, as specified in Minimum-Energy Offer;

(f) Gas steam reheat boiler = 17.0 MMBtu/MWh * FIP or FOP, as specified in Minimum-Energy Offer;

(g) Gas steam non-reheat or boiler without air-preheater = 19.0 MMBtu/MWh * FIP or FOP, as specified in Minimum-Energy Offer;

(h) Simple cycle greater than 90 MW = 15.0 MMBtu/MWh * FIP or FOP, as specified in Minimum-Energy Offer;

(i) Simple cycle less than or equal to 90 MW = 15.0 MMBtu/MWh * FIP or FOP, as specified in Minimum-Energy Offer;

(j) Diesel = 16.0 MMBtu/MWh * FOP;

(k) RMR Resource = RMR contract estimated fuel cost using its contract I/O curve at its LSL times FIP;

(l) Nuclear = Not Applicable; and

(m) Renewable = $0.

(3) The FIP and FOP used to calculate the Resource Category Minimum-Energy Generic Cap shall be the FIP or FOP for the Operating Day. In the event that the Resource Category Minimum-Energy Generic Cap needs to be calculated before the FIP and FOP are available for the particular Operating Day, the FIP and FOP that is available for the most recent preceding Operating Day shall be used. Once the FIP and FOP are available for a particular Operating Day, those values shall be used in the calculations. If the percentage fuel mix is not specified for Resource categories having the option to specify the fuel mix, then the minimum of FIP or FOP shall be used.

(4) Items (~~3~~2) (c) and (~~3~~2) (d) are determined by capacity of largest simple-cycle combustion turbine in the train.

4.4.9.2.4 Verifiable Startup Offer and Minimum-Energy Offer Caps

Once verifiable Resource-specific startup costs and minimum-energy costs are established and approved by ERCOT in accordance with Section 5.6.1, Verifiable Costs, then they are used in place of generic costs as described in Section 4.4.9.2.3, Startup Offer and Minimum-Energy Offer Generic Caps. A QSE may file verifiable unit-specific costs for a Resource at any time, but it is not required to file those costs only because of a DAM commitment. The most recent approved verifiable costs on file must be used going forward.

4.4.9.3 Energy Offer Curve

(1) The "Energy Offer Curve" represents the QSE's willingness to sell energy at or above a certain price and at a certain quantity in the DAM or its willingness to be dispatched by SCED in Real-Time Operations.

(2) A QSE may submit Resource-specific Energy Offer Curves to ERCOT.

(3) Energy Offer Curves remain active for the offered period until either:

(a) Selected by ERCOT; or

(b) Automatically inactivated by the software at the offer expiration time selected by the QSE.

(4) For any hour that is not a RUC-Committed Interval or a DAM-Committed Interval for a Resource, the QSE for that Resource may submit or change Energy Offer Curves in the Adjustment Period and a QSE may withdraw an Energy Offer Curve if:

(a) An Output Schedule is submitted for all intervals for which an Energy Offer Curve is withdrawn, or

(b) The Resource is forced Off-Line and notifies ERCOT of the Forced Outage by changing the Resource Status appropriately and updating its COP.

(5) For any hour that is a RUC-Committed Interval or a DAM-Committed Interval for a Resource, a QSE for that Resource may not change an Energy Offer Curve, except as specified in (a) and (b) below:

(a) A QSE may change the Energy Offer Curve if the Resource is required, due to external fuel curtailments, to change fuel type or source during the Adjustment Period. ERCOT shall develop reasonable procedures for QSEs to report and document such fuel curtailments.

(b) A QSE may change the Energy Offer Curve if the Resource suffers a partial Forced Outage by truncating the Energy Offer Curve at the Resource's HSL as modified by the partial Forced Outage.

(6) If a valid Energy Offer Curve or an Output Schedule does not exist for a Resource that has a status of On-Line at the end of the Adjustment Period, then ERCOT shall notify the QSE and set the Output Schedule equal to the then current telemetered output of the Resource until an Output Schedule or Energy Offer Curve is submitted in a subsequent Adjustment Period.

4.4.9.3.1 Energy Offer Curve Criteria

(1) Each Energy Offer Curve must be reported by a QSE and must include the following information:

(a) The selling QSE;

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

(c) A monotonically increasing offer curve for both price (in $/MWh) and quantity (in MW) with no more than 10 price/quantity pairs;

(d) The first and last hour of the Offer;

(e) The expiration time and date of the offer;

(f) List of Ancillary Service Offers from the same Resource; ~~and~~

(g) Inclusive or exclusive designation relative to other DAM offers; and

(h) Percentage of FIP and FOP for generation above LSL.

(2) An Energy Offer Curve must be within the range of -$250.00 per MWh and the system-wide offer cap of $1,000.00 per MWh. The software systems must be able to provide ERCOT with the ability to enter Resource-specific Energy Offer Curve floors and caps.

(3) The minimum amount per Resource for each Energy Offer Curve that may be offered is one MW.

4.4.9.3.2 Energy Offer Curve Validation

(1) A valid Energy Offer Curve is an offer curve that ERCOT has determined meets the criteria listed in Section 4.4.9.3.1, Energy Offer Curve Criteria, and the Energy Offer Curve that is part of a Three-Part Supply Offer for which the Startup Offer and Minimum-Energy Offer has also been validated.

(2) ERCOT shall notify the QSE submitting an Energy Offer Curve by the Messaging System if the offer was rejected or was considered invalid for any reason. The QSE may then resubmit the offer within the appropriate market timeline.

(3) ERCOT shall continuously validate Energy Offer Curves and continuously display on the MIS Certified Area information that allows any QSE to view its valid Energy Offer Curves.

4.4.9.3.3 Energy Offer Curve Caps for Make-Whole Calculation Purposes

(1) The following Energy Offer Curve Caps must be used for the purpose of Make-Whole Settlements:

(a) Nuclear = $15.00/MWh;

~~(b) Hydro = $10.00/MWh;~~

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

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

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

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

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

(h~~g~~) Gas Steam Non-reheat or boiler without air-preheater = FIP * 14.5 MMBtu/MWh;

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

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

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

(k) Hydro = $10.00/MWh;

(l) Other Renewable = $0/MWh; and

(m) RMR Resource = RMR contract price Energy Offer Curve.; and

(n) Renewable = $0.

(2) Items in (d) and (e) are determined by capacity of largest simple-cycle combustion turbine in the train selected.

4.4.9.4 Mitigated Offer Cap and Mitigated Offer Floor

4.4.9.4.1 Mitigated Offer Cap

Energy Offer Curves may be subject to mitigation in Real-Time Operations under Section 6.5.7.3, Security Constrained Economic Dispatch, using a Mitigated Offer Cap. The "Mitigated Offer Cap" is:

(a) For a Generation Resource that commences commercial operation after January 1, 2004, ERCOT shall construct an incremental mitigated offer cap curve (Section 6.5.7.3, Security Constrained Economic Dispatch) such that each point on the Mitigated Offer Cap curve (Cap vs. output level) is the greater of:

(i) 14.5 MMBtu/MWh times Fuel Index Price (FIP) or Fuel Oil Price (FOP), as specified in the Energy Offer Curve; or

(ii) the Resource's verifiable costs incremental heat rate ($MMBtu/MWh) above LSL verifiable heat rate for the output level of the Resource multiplied by the FIP or FOP, as specified in the Energy Offer Curve, plus verifiable variable O&M cost ($/per MWh) times a multiplier as described in (c)below.

(b) For all other Generation Resources, each point on the Mitigated Offer Cap curve (Cap vs. output level) is the greater of:

(i) 10.5 MMBtu/MWh times FIP or FOP, as specified in the Energy Offer Curve; or

(ii) the Resource's verifiable costs incremental heat rate (MMBtu/MWh) above LSL (verifiable heat rate for the output level times multiplied by the FIP or FOP, as specified in the Energy Offer Curve, plus verifiable variable O&M cost ($/per MWh) times a multiplier as described in (c)below.

(c) The multipliers for section 4.4.9.4.1, Mitigated Offer Cap, paragraphs (a)(ii) and (b)(ii) the Mitigated Offer Caps are as follows:

(i) 1.10 for Resources running at a ≥50% capacity factor for the previous 12 months;

(ii) 1.15 for Resources running at a ≥30 and < 50% capacity factor for the previous 12 months;

(iii) 1.20 for Resources running at a ≥20 and < 30% capacity factor for the previous 12 months;

(iv) 1.25 for Resources running at a ≥10 and < 20% capacity factor for the previous 12 months;

(v) 1.30 for Resources running at a ≥5 and < 10% capacity factor for the previous 12 months;

(vi) 1.40 for Resources running at a ≥1 and < 5% capacity factor for the previous 12 months; and

(vii) 1.50 for Resources running at a less than 1% capacity factor for the previous 12 months.

(d) The previous 12 months' capacity factor must be updated by ERCOT by the 20th day of each month using the most recent data for use in the next month. ERCOT shall post to the MIS Secure Area the capacity factor for each Resource before the start of the effective month.

(e) The process for developing the mitigate offer cap in (a) and (b) above must be described by ERCOT in a procedure approved by the appropriate TAC Subcommittee, and posted to the MIS Secure Area within one Business Day after initial approval, and after each approved change.

4.4.9.4.2 Mitigated Offer Floor

Energy Offer Curves may be subject to mitigation in Real-Time Market under Section 6.5.7.3, Security Constrained Economic Dispatch, using a Mitigated Offer Floor. The "Mitigated Offer Floor" is:

Resource Category	Mitigated Offer Floor
Nuclear and Hydro	-$250/MWh
Coal and Lignite	-$20/MWh
Combined Cycle	1 MMBtu/MWh * FIP
Gas/Oil Steam and Combustion Turbine	6 MMBtu/MWh * FIP or FOP, as specified in the Energy Offer Curve
QF	-$ 50/MWh
Wind	-$100/MWh
Other Renewables	-$ 50/MWh

4.4.9.5 DAM Energy-Only Offer Curves

(1) A QSE must submit any DAM Energy-Only Offer Curves by 1000 for the effective DAM.

(2) The DAM Energy-Only Offer Curve represents the QSE's willingness to sell energy at or above a certain price and at a certain quantity at a specific Settlement Point in the DAM. A DAM Energy-Only Offer Curve may be offered only in the DAM.

(3) DAM Energy-Only Offer Curves are not Resource-specific.

4.4.9.5.1 DAM Energy-Only Offer Curve Criteria

(1) Each DAM Energy-Only Offer Curve must be reported by a QSE and must include the following information:

(a) The selling QSE;

(b) The Settlement Point;

(c) The fixed quantity block, variable quantity block, or curve indicator for the offer;

(i) If a fixed quantity block, the single price (in $/MWh) and single quantity (in MW) for all hours offered in that block;

(ii) If a variable quantity block, the single price (in $/MWh) and single "up to" quantity (in MW) contingent on the purchase of all hours offered in that block; and

(iii) If a curve, a monotonically increasing energy offer curve for both price (in $/MWh) and quantity (in MW) with no more than ten price/quantity pairs;

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

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

(2) A DAM Energy-Only Offer Curve must be within the range of -$250.00 per MWh and $1,000.00 per MWh.

(3) The minimum amount for each DAM Energy-Only Offer Curve that may be offered is one MW.

4.4.9.5.2 DAM Energy-Only Offer Validation

(1) A valid DAM Energy-Only Offer Curve is an offer that ERCOT has determined meets the criteria listed in Section 4.4.9.5.1, DAM Energy-Only Offer Curve Criteria.

(2) ERCOT shall notify the QSE submitting a DAM Energy-Only Offer Curve by the Messaging System if the offer was rejected or was considered invalid for any reason. The QSE may then resubmit the offer within the appropriate market timeline.

(3) ERCOT shall continuously validate DAM Energy-Only Offers and continuously display on the MIS Certified Area information that allows any QSE to view its valid DAM Energy-Only Offers.

4.4.9.6 DAM Energy Bids

(1) A QSE must submit any DAM Energy Bids by 1000 for the effective DAM.

(2) A DAM Energy Bid represents the QSE's willingness to buy energy at or below a certain price and at a certain quantity at a specific Settlement Point in the DAM. A DAM Energy Bid may be made only in the DAM.

4.4.9.6.1 DAM Energy Bid Criteria

(1) Each DAM Energy Bid must be reported by a QSE and must include the following information:

(a) The buying QSE;

(b) The Settlement Point;

(c) Fixed quantity block, variable quantity block, or curve indicator for the bid;

(i) If a fixed quantity block, the single price (in $/MWh) and single quantity (in MW) for all hours bid in that block;

(ii) If a variable quantity block, the single price (in $/MWh) and single "up to" quantity (in MW) contingent on the purchase of all hours bid in that block; and

(iii) If a curve, a monotonically decreasing energy bid curve for both price (in $/MWh) and quantity (in MW) with no more than 10 price/quantity pairs.

(d) The first and last hour of the bid; and

(e) The expiration time and date of the bid.

(2) The minimum amount for each DAM Energy Bid that may be bid is one MW.

4.4.9.6.2 DAM Energy Bid Validation

(1) A valid DAM Energy Bid is a bid that ERCOT has determined meets the criteria listed in Section 4.4.9.6.1, DAM Energy Bid Criteria.

(2) ERCOT shall notify the QSE submitting a DAM Energy Bid by the Messaging System if the bid was rejected or was considered invalid for any reason. The QSE may then resubmit the bid within the appropriate market timeline.

(3) ERCOT shall continuously validate DAM Energy Bids and continuously display on the MIS Certified Area information that allows any QSE to view its valid DAM Energy Bids.

4.4.10 Credit Requirement for DAM Bids and Offers

(1) Each QSE's ability to bid and offer in the DAM is subject to the criteria under Section 16, Registration and Qualification of Market Participants.

(a) If the criteria are not met, ERCOT shall reject all of the QSE's bids and offers, and shall notify the QSE through the MIS Certified Area as soon as practicable.

(b) ERCOT shall accept the QSE's resubmitted valid bids and offers that meet the criteria if such resubmission is prior to 1000.

(2) ERCOT must calculate credit exposure for bids and offers in the DAM as follows:

(a) For each DAM Energy Bid, the quantity of the bid multiplied by the bid price.

(b) For each DAM Energy Offer, the product of the quantity of the offer times the 95th percentile of the hourly difference of Real-Time Settlement Point Price and Day-Ahead Settlement Point Price over the previous 30 days for the hour.

(c) For DAM Energy Bids and Offers at the same Settlement Point for the same hour ERCOT must calculate the credit exposure as the maximum of the credit exposure for the DAM Energy Bid as calculated in (a) or the credit exposure for the DAM Energy Offer as calculated in (b) above.

(d) For PTP Obligation Bids, the sum of the quantity of bid multiplied by the bid price, if positive, plus 95th percentile of the hourly positive price difference between the source Real-Time SPP minus the sink Real-Time SPP over the previous 30 days for the hour.

(e) For Ancillary Services not self-arranged, the product of the quantity of Ancillary Service not self-arranged times the 95th percentile of the hourly MCPC for that Ancillary Service over the previous 30 days for that hour.

4.5 DAM Execution and Results

4.5.1 DAM Clearing Process

(1) At 1000 in the Day-Ahead, ERCOT shall start the DAM clearing process.

(2) Prior to execution of the DAM, ERCOT shall complete a Day-Ahead Simultaneous Feasibility Test. This test uses the Day-Ahead Updated Network Model topology and evaluates all CRRs for feasibility to determine hourly oversold quantities.

(3) The purpose of the DAM is to economically and simultaneously clear offers and bids described in Section 4.4, Inputs into DAM and Other Trades.

(4) The DAM uses a multi-hour mixed integer programming algorithm to maximize bid-based revenues minus the offer-based costs over the Operating Day, subject to security and other constraints, and ERCOT Ancillary Service procurement requirements.

(a) The bid-based revenues include revenues from DAM Energy Bids and PTP Obligation Bids.

(b) The offer-based costs include costs from the Startup Offer, Minimum Energy Offer, and Energy Offer Curve of any Resource that submitted a Three-Part Supply Offer, DAM Energy-Only Offers, CRR Offers, and Ancillary Service Offers.

(c) Security constraints specified to prevent DAM solutions that would overload the elements of the ERCOT Transmission Grid include the following:

(i) Transmission constraints – Transfer limits on energy flows through the ERCOT Transmission Grid, e.g., thermal or stability limits. These limits must be satisfied by the intact network and for certain specified contingencies.

These constraints may represent:

(A) Thermal constraints – protect transmission facilities against thermal overload.

(B) Generic constraints – protect the ERCOT Transmission Grid against transient instability, dynamic stability or voltage collapse.

(C) Power flow constraints – the energy balance at required Electrical Buses in the ERCOT Transmission Grid must be maintained.

(ii) Resource constraints – the physical and security limits on Resources that submit Three-Part Supply Offers:

(A) Resource output constraints – the ~~minimum and maximum output levels~~ LSL and HSL of each Resource, and

(B) Resource operational constraints – includes minimum run time, minimum down time, and configuration constraints.

(iii) Other constraints –

(A) Linked offers –the DAM may not select any one part of that Resource capacity to provide more than one Ancillary Service or to provide both energy and an Ancillary Service in the same Operating Hour. The DAM may, however, select part of that Resource capacity to provide one Ancillary Service and another part of that capacity to provide a different Ancillary Service or energy in the same Operating Hour.

(B) The sum of the awarded Ancillary Service capacities for each Resource must be within the Resource limits specified in COP and Section 3.18, Resource Limits in Providing Ancillary Service, and the Resource parameters as described in Section 3.7, Resource Parameters.

(C~~B~~) Block Ancillary Service Offers for a Load Resource– blocks will not be cleared unless the entire quantity block can be awarded.~~For a Load Resource offering a block Ancillary Service Offer, the DAM must ignore the offer unless the entire block can be accepted.~~

(D) Block CRR Offers and PTP Obligation Bids- blocks will not be cleared unless the entire time block can be awarded.

(d) Ancillary Service needs for each Ancillary Service include the needs specified in the Ancillary Service Plan that are not part of the Self-Arranged Ancillary Service Quantity and that must be met from available DAM Ancillary Service Offers while co-optimizing with DAM Energy Offers. ERCOT may not buy more of one Ancillary Service in place of the quantity of a different service. See Section 4.5.2, Ancillary Service Insufficiency, for what happens if insufficient Ancillary Service Offers are received in the DAM.

(5) ERCOT shall determine the appropriate Load distributions to allocate offers, bids, and source and sink of CRRs at a Load Zone across the Electrical Buses that are modeled with Load in that Load Zone. The default distribution is the State Estimator hourly distribution for the seven days before the Operating Day. If

ERCOT decides, in its sole discretion, to change this distribution for reasons such as anticipated weather events or holidays, ERCOT shall select a State Estimator distribution from a proxy day reasonably reflecting the anticipated distribution in the Operating Day. ERCOT may also modify this distribution to account for predicted differences in network topology between the proxy day and Operating Day. ERCOT shall develop a methodology, subject to TAC approval to describe the modification of the proxy day bus-load distribution for this purpose.

(6) ERCOT shall allocate offers, bids, and source and sink of CRRs at a Hub using the distribution factors specified in the definition of that Hub in Section 3.5.2, Hub Definitions.

(7) A Resource that has a Three-Part Supply Offer cleared in the DAM may be eligible for make whole payment of the Startup Offer and Minimum Energy Offer submitted by the QSE representing the Resource under Section 4.6, DAM Settlement.

(8) The directional network element flows for PTP Options declared for settlement in Real-Time must be properly accounted for in determining available transmission network capacity in the DAM. In the event the available transmission capability in the DAM cannot accommodate all PTP Options declared for settlement in Real-Time, any PTP Option declared for settlement in Real-Time that impacts overloaded directional network elements must be appropriately derated for DAM modeling purposes only, in proportion to that impact. The derated MW of PTP Options declared for settlement in Real-Time will be settled in the DAM if their Minimum Reservation Prices are less than or equal to the DAM prices for corresponding PTP Options. Otherwise, the derated MW will be settled in Real-Time.

(9) The DAM settlement is based on hourly MW awards and on Day-Ahead hourly Settlement Point Prices. All PTP Options settled in the DAM are settled based on the Day-Ahead Settlement Point Prices.

(10) The Day-Ahead Market Clearing Price for Capacity (MCPC) for each hour for each Ancillary Service is the Shadow Price for that Ancillary Service for the hour as determined by the DAM algorithm.

(11) If the Day-Ahead MCPC cannot be calculated by ERCOT, the Day-Ahead MCPC for the particular Ancillary Service is equal to the Day-Ahead MCPC for that Ancillary Service in the same Settlement Interval of the preceding Operating Day.

4.5.2 Ancillary Service Insufficiency

(1) ERCOT shall determine if there is an insufficiency in Ancillary Service Offers before executing the DAM. If ERCOT receives insufficient Ancillary Service Offers in the DAM to procure one or more required Ancillary Service such that the Ancillary Service Plan is deficient and system security and reliability is threatened:

(a) ERCOT shall declare an Ancillary Service insufficiency and issue an Alert under Section 6.5.9.3.3, Alert.

(b) ERCOT shall request additional Ancillary Service Offers.

(i) A QSE may resubmit an offer for an Ancillary Service that it submitted before the Alert for the same Ancillary Service, but the resubmitted offer must meet the following criteria to be considered a valid offer:

(A) The offer quantity may not be less than the offer quantity submitted before the Alert, unless the portion of the offer not resubmitted was priced higher than the portion of the offer that is being resubmitted; and

(B) For the amount of the offer quantity that is not more than the offer quantity submitted before the Alert, the offer must be priced equal to or less than the price of the offer submitted before the Alert.

(ii) For any amount of the offer that is greater in quantity than the QSE's offer that was not submitted before the Alert, the incremental amount of the offer may be submitted at a price subject to the offer cap.

(c) ERCOT shall not begin executing the DAM sooner than 30 minutes after issuing the Alert. If the additional Ancillary Service Offers are still insufficient to supply the Ancillary Service required in the Day-Ahead Ancillary Service Plan then ERCOT shall run the DAM by reducing the Ancillary Service Plan quantities only for purposes of the DAM by the amount of insufficiency.

(d) When ERCOT must reduce the Ancillary Service Plan for purposes of the DAM due to insufficient Ancillary Service Offers, ERCOT shall preserve the Ancillary Service Plan in the DAM in the following order of priority:

(i) Reg-Up;

(ii) Reg-Down;

(iii) RRS; and

(iv) Non-Spin.

(2) ERCOT shall procure the difference in capacity between the Day-Ahead Ancillary Service Plan and the DAM-reduced Ancillary Service Plan amounts using the DRUC from Resources that are qualified to provide the needed Ancillary Service.

4.5.3 Communicating DAM Results

(1) As soon as practicable, but no later than 1330 in the Day-Ahead, ERCOT shall notify the parties to each cleared DAM transaction (e.g., the buyer and the seller) of the results of the DAM as follows:

(a) Awarded Ancillary Service Offers, specifying Resource, MW, Ancillary Service Type, and price, for each hour of the awarded offer;

(b) Awarded energy offers from Three-Part Supply Offers and from DAM Energy-Only Offers, specifying Resource (except for DAM Energy-Only Offers), MWh, Settlement Point, and Settlement Point Price, for each hour of the awarded offer;

(c) Awarded DAM Energy Bids, specifying MWh, Settlement Point, and Settlement Point Price for each hour of the awarded bid;

(d) Awarded CRR Offers (PTP Options and PTP Options with Refund), specifying CRR identifier(s), number of CRRs in MW, source and sink Settlement Points, and price, for each Settlement Interval of the awarded offer; and

(e) Awarded PTP Obligation Bids, number of PTP Obligations in MW, source and sink Settlement Points, and price for each Settlement Interval of the awarded bid.

(2) As soon as practicable, but no later than 1330, ERCOT shall post on the MIS Public Area the hourly:

(a) Day-Ahead MCPC for each type of Ancillary Service for each hour of the Operating Day;

(b) Day-Ahead Settlement Point Prices for each Settlement Point for each hour of the Operating Day;

(c) Day-Ahead hourly LMPs for each Electrical Bus for each hour of the Operating Day;

(d) Shadow Prices for every binding constraint for each hour of the Operating Day;

(e) Quantity of total Ancillary Service Offers received in the DAM, in MW by Ancillary Service type for each hour of the Operating Day;

(f) Total quantity of energy (in MWh) bought in DAM at each Settlement Point for each hour of the Operating Day;

(g) Total quantity of energy (in MWh) sold in the DAM at each Settlement Point for each hour of the Operating Day; and

(h) Aggregated Ancillary Service Offer Curve of all Ancillary Service Offers for each type of Ancillary Service for each hour of the Operating Day.

(3) ERCOT shall monitor Day-Ahead MCPCs and Day-Ahead hourly LMPs for errors and shall "flag" for further review questionable prices before posting and make notations in the posting if there are conditions that cause the price to be questionable.

(4) All DAM LMPs, MCPCs, and Settlement Point Prices are final at 1000 of the next Business Day after the Operating Day. After DAM LMPs, MCPCs, and Settlement Point Prices are final, they cannot be changed unless the Board finds that the DAM LMPs, MCPCs, or Settlement Point Prices are significantly affected by a software or data error.

4.6 DAM Settlement

4.6.1 Day-Ahead Settlement Point Prices

4.6.1.1 Day-Ahead Settlement Point Prices for Resource Nodes

The Day-Ahead Settlement Point Price (DASPP) for a Resource Node Settlement Point for an hour is the Locational Marginal Price at that Resource Node for that hour as calculated in the DAM process.

4.6.1.2 Day-Ahead Settlement Point Prices for Load Zones

The DASPP for a Load Zone Settlement Point for an hour is calculated as follows:

$$\mathbf{DASPP} = \sum_{b} (\mathbf{DADF}_{b} * \mathbf{DALMP}_{b})$$

The above variables are defined as follows:

Variable	Unit	Definition
DASPP	$/MWh	*Day-Ahead Settlement Point Price*—The DAM SPP at the Settlement Point for the hour.
$DALMP_b$	$/MWh	*Day-Ahead Locational Marginal Price per bus*—The DAM LMP at Electrical Bus *b* for the hour.
$DADF_b$	none	*Day-Ahead Distribution Factor per bus*—The Load distribution factor, as described in Section 4.5.1, DAM Clearing ~~Prices~~Process, for Electrical Bus *b* in the Load Zone for the hour.
b	none	An Electrical Bus that is assigned to the Load Zone.

4.6.1.3 Day-Ahead Settlement Point Prices for Hubs

The DASPP for a Settlement Point at a Hub is determined according to the methodology included in the definition of that Hub in Section 3.5, Hubs.

4.6.2 Day-Ahead Energy and Make-Whole Settlement

4.6.2.1 Day-Ahead Energy Payment

(1) The Day-Ahead Energy Payment is made for all cleared offers (excluding offers submitted for the RMR Units) to sell energy in the DAM, whether through Three-Part Supply Offers or DAM Energy-Only Offer Curves. The payment to each QSE for each Settlement Point for a given hour of the Operating Day is calculated as follows:

$$\mathbf{DAESAMT}_{q,p} = (-1) * \mathbf{DASPP}_{p} * \mathbf{DAES}_{q,p}$$

The above variables are defined as follows:

Variable	Unit	Definition
$DAESAMT_{q,p}$	$	*Day-Ahead Energy Sale Amount per QSE per Settlement Point*—The payment to QSE *q* for the cleared energy offers at Settlement Point *p* for the hour.
$DASPP_{p}$	$/MWh	*Day-Ahead Settlement Point Price per Settlement Point*—The DAM SPP at Settlement Point *p* for the hour.
$DAES_{q,p}$	MW	*Day-Ahead Energy Sale per QSE per Settlement Point*—The total amount of energy represented by QSE *q*'s cleared Three-Part Supply Offers in the DAM and cleared DAM Energy-Only Offer Curves at Settlement Point *p*, excluding the offers submitted for RMR Units at the same Settlement Point, for the hour.
q	none	A QSE.
p	none	A Settlement Point.

(2) The total of the Day-Ahead Energy Payments to each QSE for the hour is calculated as follows:

$$\mathbf{DAESAMTQSETOT}_{q} = \sum_{p} \mathbf{DAESAMT}_{q,p}$$

The above variables are defined as follows:

Variable	Unit	Definition
$DAESAMTQSETOT_{q}$	$	*Day-Ahead Energy Sale Amount QSE Total per QSE*—The total of the payments to QSE *q* for its cleared energy offers at all Settlement Points for the hour.
$DAESAMT_{q,p}$	$	*Day-Ahead Energy Sale Amount per QSE per Settlement Point*—The payment to QSE *q* for the cleared energy offers at Settlement Point *p* for the hour.
q	none	A QSE.
p	none	A Settlement Point.

4.6.2.2 Day-Ahead Energy Charge

(1) The Day-Ahead Energy Charge is made for all cleared DAM Energy Bids. This charge to each QSE for each Settlement Point for a given hour of the Operating Day is calculated as follows:

$$\mathbf{DAEPAMT}_{q,p} = \mathbf{DASPP}_{p} * \mathbf{DAEP}_{q,p}$$

The above variables are defined as follows:

Variable	Unit	Definition
$DAEPAMT_{q,p}$	$	*Day-Ahead Energy Charge per QSE per Settlement Point*—The charge to QSE *q* for all its cleared DAM Energy Bids at Settlement Point *p* for the hour.
$DASPP_{p}$	$/MWh	*Day-Ahead Settlement Point Price per Settlement Point*—The DAM SPP at Settlement Point *p* for the hour.
$DAEP_{q,p}$	MW	*Day-Ahead Energy Purchase per QSE per Settlement Point*—The total amount of energy represented by QSE *q*'s cleared DAM Energy Bids at Settlement Point *p* for the hour.
q	none	A QSE.
p	none	A Settlement Point.

(2) The total of the Day-Ahead Energy Charges to each QSE for the hour is calculated as follows:

$$\mathbf{DAEPAMTQSETOT}_{q} = \sum_{p} \mathbf{DAEPAMT}_{q,p}$$

The above variables are defined as follows:

Variable	Unit	Definition
$DAEPAMTQSETOT_{q}$	$	*Day-Ahead Energy Purchase Amount QSE Total per QSE*—The total of the charges to QSE *q* for its cleared DAM Energy Bids at all Settlement Points for the hour.
$DAEPAMT_{q,p}$	$	*Day-Ahead Energy Purchase Amount per QSE per Settlement Point*—The charge to QSE *q* for its cleared DAM Energy Bids at Settlement Point *p* for the hour.
q	none	A QSE.
p	none	A Settlement Point.

4.6.2.3 Day-Ahead Make-Whole Settlements

(1) A QSE that has a Three-Part Supply Offer cleared in the DAM is eligible for a Day-Ahead Make-Whole Payment, if, for the Resource associated with the offer:

(a) The generator's breakers were open for at least five minutes during the Adjustment Period for the beginning of the DAM commitment;

(b) The generator's breakers were closed for at least one minute during the DAM commitment period; and

(c) The breaker open-close sequence for which the QSE is eligible for startup cost compensation ~~received a Make-Whole Payment~~ in the DAM or RUC for the previous Operating Day does not qualify in meeting the criteria in (a) and (b) above.

(2) The Day-Ahead Make-Whole Payment guarantees the QSE that the total payment received from the DAM for a DAM-committed Resource is not less than the total cost calculated based on the Startup Offer, the Minimum Energy Offer, and the Energy Offer Curve capped by the Energy Offer Curve Cap defined under Section 4.4.9.3.3, Energy Offer Curve Caps for Make-Whole Calculation Purposes.

(3) If a Generation Resource is eligible for a Day-Ahead Make-Whole payment, then Ancillary Service revenue from the hours committed in the Day-Ahead Market will be included in its Make-Whole calculation for that Resource.

4.6.2.3.1 Day-Ahead Make-Whole Payment

(1) ERCOT shall pay the QSE a Day-Ahead Make-Whole Payment for an eligible Resource, except that the amount is calculated but not paid for any RMR Unit, for each Operating Hour in a DAM-commitment period.

(2) Any Ancillary Service Offer cleared for the same Operating Hour, QSE, and Generation Resource as a Three-Part Supply Offer cleared in the DAM shall be included in the calculation of the Day-Ahead Make-Whole Payment.

(3) The Day-Ahead Make-Whole Payment to each QSE for each DAM-committed Generation Resource is calculated as follows:

$$\mathbf{DAMWAMT}_{q,p,r,h} = (-1) * \mathbf{Max}\left(0, \mathbf{DAMGCOST}_{q,p,r} + \sum_h \mathbf{DAEREV}_{q,p,r,h} + \sum_h \underline{\mathbf{DAASREV}_{q,r,h}}\right) * \mathbf{DAESR}_{q,p,r,h} / \left(\sum_h \mathbf{DAESR}_{q,p,r,h}\right)$$

Where:

$$\text{DAMGCOST}_{q,p,r} = \text{SUO}_{q,p,r} + \sum_h (\text{MEO}_{q,p,r,h} * \text{LSL}_{q,p,r,h}) + \sum_h (\text{DAAIEC}_{q,p,r,h} * (\text{DAESR}_{q,p,r,h} - \text{LSL}_{q,p,r,h}))$$

$$\text{DAEREV}_{q,p,r,h} = (-1) * \text{DASPP}_{p,h} * \text{DAESR}_{q,p,r,h}$$

$$\underline{\text{DAASREV}_{q,r,h}} = \underline{((-1) * \text{MCPCRU}_{DAM,h} * \text{PCRUR}_{r,q,DAM,h}) +}$$

$$((-1) * MCPCRD_{DAM, h} * PCRDR_{r, q, DAM, h}) +$$

$$((-1) * MCPCRR_{DAM, h} * PCRRR_{r, q, DAM, h}) +$$

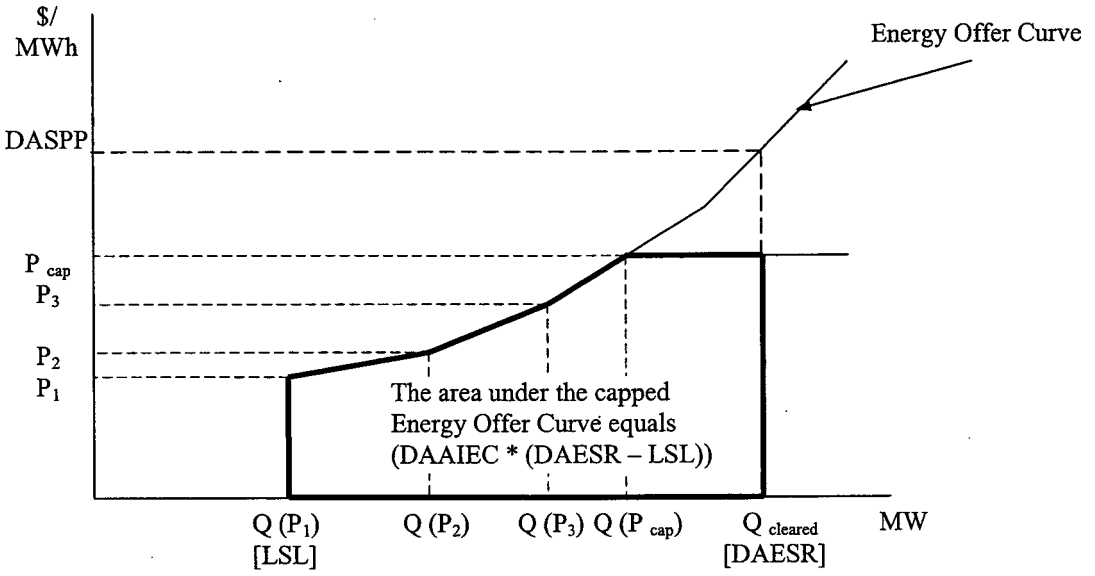
$$((-1) * MCPCNS_{DAM, h} * PCNSR_{r, q, DAM, h})$$

The above variables are defined as follows:

Variable	Unit	Definition
$DAMWAMT_{q, p, r, h}$	$	*Day-Ahead Make-Whole Payment per QSE per Settlement Point per Resource per hour* — The payment to QSE *q* to make-whole the Startup Cost and Energy Cost of Resource *r* committed in the DAM at Resource Node *p* for the hour *h*.
$DAMGCOST_{q, p, r}$	$	*Day-Ahead Market Guaranteed Amount per QSE per Settlement Point per Resource*— The sum of the startup cost and the operating energy costs of the DAM-committed Resource *r* at Resource Node *p* represented by QSE *q*, for the DAM-commitment period.
$DAEREV_{q, p, r, h}$	$	*Day-Ahead Energy Revenue per QSE per Settlement Point per Resource by hour* — The revenue received in the DAM for Resource *r* at Resource Node *p* represented by QSE *q*, based on the DAM Settlement Point Price, for the hour *h*.
$DAASREV_{q, r, h}$	$	*Day-Ahead Ancillary Service Revenue per QSE per Resource by hour*— The revenue received in the DAM for Resource *r* represented by QSE *q*, based on the Market Clearing Price of Capacity for each Ancillary Service in the DAM, for the hour *h*.
$DASPP_{p, h}$	$/MWh	*Day-Ahead Settlement Point Price by Settlement Point by hour*— The DAM Settlement Point Price at Resource Node *p* for the hour *h*.
$DAESR_{q, p, r, h}$	MW	*Day-Ahead Energy Sale from Resource per QSE by Settlement Point per Resource by hour* — The amount of energy cleared through Three-Part Supply Offers in the DAM for Resource *r* at Resource Node *p* represented by QSE *q* for the hour *h*.
$PCRUR_{r, q, DAM}$	MW	*Procured Capacity for Reg-Up from Resource per Resource per QSE in DAM*— The Reg-Up capacity quantity awarded to QSE *q* in the DAM for Resource *r* for the hour.
$MCPCRU_{DAM}$	$/MW per hour	*Market Clearing Price of Capacity for Reg-Up in DAM*—The DAM Market Clearing Price of Capacity for Reg-Up for the hour.
$PCRDR_{r, q, DAM}$	MW	*Procured Capacity for Reg-Down from Resource per Resource per QSE in DAM*—The Reg-Down capacity quantity awarded to QSE *q* in the DAM for Resource *r* for the hour.
$MCPCRD_{DAM}$	$/MW per hour	*Market Clearing Price of Capacity for Reg-Down in DAM*—The DAM Market Clearing Price of Capacity for Reg-Down for the hour.
$PCRRR_{r, q, DAM}$	MW	*Procured Capacity for Responsive Reserve from Resource per Resource per QSE in DAM*—The Responsive Reserve capacity quantity awarded to QSE *q* in the DAM for Resource *r* for the hour.
$MCPCRR_{DAM}$	$/MW per hour	*Market Clearing Price of Capacity for Responsive Reserve in DAM*—The DAM Market Clearing Price of Capacity for Responsive Reserve for the hour.
$PCNSR_{r, q, DAM}$	MW	*Procured Capacity for Non-Spin from Resource per Resource per QSE in DAM*—The Non-Spin capacity quantity awarded to QSE *q* in the DAM for Resource *r* for the hour.
$MCPCNS_{DAM}$	$/MW	*Market Clearing Price of Capacity for Non-Spin in DAM*—The DAM Market

	per hour	Clearing Price of Capacity for Non-Spin for the hour.
$SUO_{q, p, r}$	$/start	*Startup Offer per QSE per Settlement Point per Resource* (The Startup Offer included in the Three-Part Supply Offer associated with Resource *r* at Resource Node *p* represented by QSE *q*, for the first hour of the DAM-commitment period.)
$MEO_{q, p, r, h}$	$/MWh	*Minimum-Energy Offer per QSE per Settlement Point per Resource per hour*—The Minimum-Energy Offer included in the Three-Part Supply Offer associated with Resource *r* at Resource Node *p* represented by QSE *q*, for the hour *h*.
$LSL_{q, p, r, h}$	MW	*Low Sustained Limit per QSE per Settlement Point per Resource per hour*—The Low Sustained Limit of Resource *r* at Resource Node *p* represented by QSE *q*, for the hour *h*.
$DAAIEC_{q, p, r h}$	$/MWh	*Day-Ahead Average Incremental Energy Cost per QSE per Settlement Point per Resource per hour*—The average incremental energy cost, calculated according to the energy offer curve capped by the generic energy price, for the output levels between the DAESR and the LSL of Resource *r* at Resource Node *p* represented by QSE *q*, for the hour *h*.
q	none	A QSE.
p	none	A Resource Node Settlement Point.
r	none	A DAM-committed Generation Resource.
h	none	An hour in the DAM-commitment period.

(2) The calculation of the Day-Ahead Average Incremental Energy Cost for each Resource for each hour is illustrated with the picture below, where P_{cap} is the Energy Offer Curve Cap. The method to calculate such cost is described in Section 4.6.5, Calculation of "Average Incremental Energy Cost" (AIEC).



(3) The total of the Day-Ahead Make-Whole Payments to each QSE for non-RMR Generation Resources for a given hour is calculated as follows:

$$\mathbf{DAMWAMTQSETOT}_{q} = \sum_{p}\sum_{r}\mathbf{DAMWAMT}_{q,p,r}$$

The above variables are defined as follows:

Variable	Unit	Definition
$DAMWAMTQSETOT_{q}$	$	*Day-Ahead Make-Whole Payment QSE Total per QSE*—The total of the Day-Ahead Make-Whole Payments to QSE *q* for the DAM-committed non-RMR Generation Resources represented by this QSE for the hour.
$DAMWAMT_{q,p,r}$	$	*Day-Ahead Make-Whole Payment per QSE per Settlement Point per Resource*—The payment to QSE *q* to make-whole the Startup Cost and Energy Cost of Resource *r* committed in the DAM at Resource Node *p* for the hour.
q	none	A QSE.
p	none	A Settlement Point.
r	none	A DAM-committed non-RMR Generation Resource.

4.6.2.3.2 Day-Ahead Make-Whole Charge

ERCOT shall charge a Day-Ahead Make-Whole Charge to each QSE that has one or more cleared DAM Energy Bids and/or PTP Obligation Bids. The Day-Ahead Make-Whole Charge for an hour is that QSE's prorata share of the total amount of Make-Whole Payments for that hour. The proration must be based on the ratio of the energy amount of the QSE's cleared DAM Energy Bids and PTP Obligation Bids to the total energy amount of all QSEs' cleared DAM Energy Bids and PTP Obligation Bids. The Day-Ahead Make-Whole Charge to each QSE for a given hour is calculated as follows:

$$\mathbf{LADAMWAMT}_{q} = \mathbf{(-1) * (DAMWAMTTOT + RMRDAMWREVTOT) * DAERS}_{q}$$

Where:

Day-Ahead Make-Whole Payment Total

$$DAMWAMTTOT = \sum_{q} DAMWAMTQSETOT_{q}$$

RMR Day-Ahead Make-Whole Revenue Total

$$RMRDAMWREVTOT = \sum_{q}\sum_{p}\sum_{r} DAMWAMT_{q,p,r}$$

Day-Ahead Energy Purchase Ratio Share per QSE

$$DAERS_{q} = DAE_{q} / DAETOT$$

$$DAETOT = \sum_{q} DAE_{q}$$

$$DAE_{q} = \sum_{p} DAEP_{q,p} + \sum_{j} \sum_{k} RTOBL_{q,(j,k)}$$

The above variables are defined as follows:

Variable	Unit	Definition
$LADAMWAMT_{q}$	$	*Day-Ahead Make-Whole Charge*—The allocated charge to QSE *q* to make whole all the eligible DAM-committed Resources for the hour.
DAMWAMTTOT	$	*Day-Ahead Make-Whole Payment Total*—The total of the Day-Ahead Make-Whole Payments to all QSEs for all DAM-committed non-RMR Resources for the hour.
$DAMWAMTQSETOT_{q}$	$	*Day-Ahead Make-Whole Payment QSE Total per QSE*—The total of the Day-Ahead Make-Whole Payments to QSE *q* for the DAM-committed non-RMR Generation Resources represented by this QSE for the hour.
RMRDAMWREVTOT	$	*RMR Day-Ahead Make-Whole Revenue Total*—The total of the RMR Day-Ahead Make-Whole Revenue for all DAM-committed RMR Units for the hour.
$DAMWAMT_{q,p,r}$	$	*Day-Ahead Make-Whole Payment per QSE per Settlement Point per Resource*—The payment to QSE *q* to make-whole the Startup Cost and Energy Cost of Resource *r* committed in the DAM at Resource Node *p* for the hour. This variable is calculated the same as in Section 4.6.2.3.1, Day-Ahead Make-Whole Payment, paragraph (1).
$DAERS_{q}$	none	*Day-Ahead Energy Purchase Ratio Share per QSE*— The ratio of QSE *q*'s total amount of energy represented by its cleared DAM Energy Bids and PTP Obligation Bids, to the total amount of energy represented by all QSEs' cleared DAM Energy Bids and PTP Obligation Bids, for the hour.
DAETOT	MW	*Day-Ahead Energy Total*—The total amount of energy represented by all cleared DAM Energy Bids and all cleared PTP Obligation Bids for the hour.
DAE_{q}	MW	*Day-Ahead Energy per QSE*—QSE *q*'s total amount of energy, represented by its cleared DAM Energy Bids and PTP Obligation Bids, for the hour.
$DAEP_{q,p}$	MW	*Day-Ahead Energy Purchase per QSE per Settlement Point*—The total amount of energy represented by QSE *q*'s cleared DAM Energy Bids at the Settlement Point *p* for the hour.
$RTOBL_{q,(j,k)}$	MW	*Real-Time Obligation per QSE per pair of source and sink*—The total amount of energy represented by QSE *q*'s cleared PTP Obligation Bids with the source *j* and the sink *k*, for the hour.
q	none	A QSE.
r	none	An RMR Unit.
p	none	A Settlement Point.
j	none	A source Settlement Point.
k	none	A sink Settlement Point.

4.6.3 Settlement for PTP Obligations Bought in DAM

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

$$\mathbf{DARTOBLAMT}_{q,(j,k)} = \mathbf{DAOBLPR}_{(j,k)} * \mathbf{RTOBL}_{q,(j,k)}$$

Where:

$$\text{DAOBLPR}_{(j,k)} = \text{DASPP}_k - \text{DASPP}_j$$

The above variables are defined as follows:

Variable	Unit	Definition
$\text{DARTOBLAMT}_{q,(j,k)}$	$	*Day-Ahead Real-Time Obligation Amount per QSE per pair of source and sink*—The charge or payment to QSE q for a PTP Obligation Bid cleared in the DAM with the source *j* and the sink *k*, for the hour.
$\text{DAOBLPR}_{(j,k)}$	$/MW per hour	*Day-Ahead Obligation Price per pair of source and sink*—The DAM clearing price of a PTP Obligation Bid 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.
$\text{RTOBL}_{q,(j,k)}$	MW	*Real-Time Obligation per QSE per pair of source and sink*—The total MW of the QSE's PTP Obligation Bids cleared in the DAM for the source *j* and the sink *k* for the hour.
q	none	A QSE.
j	none	A source Settlement Point.
k	none	A sink Settlement Point.

(2) The net total charge or payment to the QSE for the hour of all its cleared PTP Obligation Bids is calculated as follows:

$$\mathbf{DARTOBLAMTQSETOT}_q = \sum_j \sum_k \mathbf{DARTOBLAMT}_{q,(j,k)}$$

The above variables are defined as follows:

Variable	Unit	Definition
$\text{DARTOBLAMTQSETOT}_q$	$	*Day-Ahead Real-Time Obligation Amount QSE Total per QSE* - The net total charge or payment to QSE q for all its PTP Obligation Bids cleared in the DAM for the hour.
$\text{DARTOBLAMT}_{q,(j,k)}$	$	*Day-Ahead Real-Time Obligation Amount per QSE per pair of source and sink*— - The charge or payment to QSE q for a PTP Obligation Bids cleared in the DAM with the source *j* and the sink *k*, for the hour.

q	none	A QSE.
j	none	A source Settlement Point.
k	none	A sink Settlement Point.

4.6.4 Settlement of Ancillary Services Procured in the DAM

ERCOT shall pay each QSE providing Ancillary Services procured in the DAM the amount of Ancillary Service Capacity in MW procured from the QSE multiplied by the MCPC for the Ancillary Service provided, expressed in $/MW. Each QSE shall pay for its share of each Ancillary Service procured by ERCOT on behalf of the QSE through the DAM.

4.6.4.1 Payments for Ancillary Services Procured in the DAM

4.6.4.1.1 Regulation Up Service Payment

ERCOT shall pay each QSE whose Ancillary Service Offers to provide Reg-Up to ERCOT were cleared in the DAM, for each hour as follows:

$$\mathbf{PCRUAMT}_{q,\,DAM} = (-1) * \mathbf{MCPCRU}_{DAM} * \mathbf{PCRU}_{q,\,DAM}$$

Where:

$$PCRU_{q,\,DAM} = \sum_{r} PCRUR_{r,\,q,\,DAM}$$

The above variables are defined as follows:

Variable	Unit	Definition
$PCRUAMT_{q,\,DAM}$	$	*Procured Capacity for Reg-Up Amount per QSE in DAM*—The DAM Reg-Up payment for QSE *q* for the hour.
$PCRU_{q,\,DAM}$	MW	*Procured Capacity for Reg-Up per QSE in DAM*—The total Reg-Up Service capacity quantity awarded to QSE *q* in the DAM for all the Resources represented by this QSE for the hour.
$PCRUR_{r,\,q,\,DAM}$	MW	*Procured Capacity for Reg-Up from Resource per Resource per QSE in DAM*—The Reg-Up capacity quantity awarded to QSE *q* in the DAM for Resource *r* for the hour.
$MCPCRU_{DAM}$	$/MW per hour	*Market Clearing Price of Capacity for Reg-Up in DAM*—The DAM Market Clearing Price of Capacity for Reg-Up for the hour.
r	none	A Resource.
q	none	A QSE.

4.6.4.1.2 Regulation Down Service Payment

ERCOT shall pay each QSE whose Ancillary Service Offers to provide Reg-Down to ERCOT were cleared in the DAM, for each hour as follows:

$$\mathbf{PCRDAMT}_{q,\,DAM} = (-1) * \mathbf{MCPCRD}_{DAM} * \mathbf{PCRD}_{q,\,DAM}$$

Where:

$$PCRD_{q,\,DAM} = \sum_{r} PCRDR_{r,\,q,\,DAM}$$

The above variables are defined as follows:

Variable	Unit	Definition
$PCRDAMT_{q,\,DAM}$	$	*Procured Capacity for Reg-Down Amount per QSE in DAM*—The DAM Reg-Down payment for QSE *q* for the hour.
$PCRD_{q,\,DAM}$	MW	*Procured Capacity for Reg-Down per QSE in DAM*—The total Reg-Down Service capacity quantity awarded to QSE *q* in the DAM for all the Resources represented by this QSE for the hour.
$PCRDR_{r,\,q,\,DAM}$	MW	*Procured Capacity for Reg-Down from Resource per Resource per QSE in DAM*—The Reg-Down capacity quantity awarded to QSE *q* in the DAM for Resource *r* for the hour.
$MCPCRD_{DAM}$	$/MW per hour	*Market Clearing Price of Capacity for Reg-Down in DAM*—The DAM Market Clearing Price of Capacity for Reg-Down for the hour.
r	none	A Resource.
q	none	A QSE.

4.6.4.1.3 Responsive Reserve Service Payment

ERCOT shall pay each QSE whose Ancillary Service Offers to provide Responsive Reserve to ERCOT were cleared in the DAM, for each hour as follows:

$$\mathbf{PCRRAMT}_{q,\,DAM} = (-1) * \mathbf{MCPCRR}_{DAM} * \mathbf{PCRR}_{q,\,DAM}$$

Where:

$$PCRR_{q,\,DAM} = \sum_{r} PCRRR_{r,\,q,\,DAM}$$

The above variables are defined as follows:

Variable	Unit	Definition
$PCRRAMT_{q,\,DAM}$	$	*Procured Capacity for Responsive Reserve Amount per QSE in DAM*—The DAM Responsive Reserve payment for QSE *q* for the hour.
$PCRR_{q,\,DAM}$	MW	*Procured Capacity for Responsive Reserve per QSE in DAM*—The total Responsive Reserve Service capacity quantity awarded to QSE *q* in the DAM for all the Resources represented by this QSE for the hour.
$PCRRR_{r,\,q,\,DAM}$	MW	*Procured Capacity for Responsive Reserve from Resource per Resource per QSE in DAM*—The Responsive Reserve capacity quantity awarded to QSE *q* in the DAM for Resource *r* for the hour.
$MCPCRR_{DAM}$	$/MW per hour	*Market Clearing Price of Capacity for Responsive Reserve in DAM*—The DAM Market Clearing Price of Capacity for Responsive Reserve for the hour.
r	none	A Resource.

q	none	A QSE.

4.6.4.1.4 Non-Spinning Reserve Service Payment

ERCOT shall pay each QSE whose Ancillary Service Offers to provide Non-Spin to ERCOT were cleared in the DAM, for each hour as follows:

$$\mathbf{PCNSAMT}_{q,\,DAM} = (-1) * \mathbf{MCPCNS}_{DAM} * \mathbf{PCNS}_{q,\,DAM}$$

Where:

$$PCNS_{q,\,DAM} = \sum_{r} PCNSR_{r,\,q,\,DAM}$$

The above variables are defined as follows:

Variable	Unit	Definition
$PCNSAMT_{q,\,DAM}$	$	*Procured Capacity for Non-Spin Amount per QSE in DAM*—The DAM Non-Spin payment for QSE *q* for the hour.
$PCNS_{q,\,DAM}$	MW	*Procured Capacity for Non-Spin per QSE in DAM*—The total Non-Spin Service capacity quantity awarded to QSE *q* in the DAM for all the Resources represented by this QSE for the hour.
$PCNSR_{r,\,q,\,DAM}$	MW	*Procured Capacity for Non-Spin from Resource per Resource per QSE in DAM*—The Non-Spin capacity quantity awarded to QSE *q* in the DAM for Resource *r* for the hour.
$MCPCNS_{DAM}$	$/MW per hour	*Market Clearing Price of Capacity for Non-Spin in DAM*—The DAM Market Clearing Price of Capacity for Non-Spin for the hour.
r	none	A Resource.
q	none	A QSE.

4.6.4.2 Charges for Ancillary Services Procurement in the DAM

4.6.4.2.1 Regulation Up Service Charge

Each QSE shall pay to ERCOT a Reg-Up Service charge for each hour as follows:

$$\mathbf{DARUAMT}_{q} = \mathbf{DARUPR} * \mathbf{DARUQ}_{q}$$

Where:

$$DARUPR = (-1) * PCRUAMTTOT_{DAM} / DARUQTOT$$

$$PCRUAMTTOT_{DAM} = \sum_{q} PCRUAMT\text{~~TOT~~}_{q,\,DAM}$$

$$DARUQTOT = \sum_{q} DARUQ_{q}$$

$$DARUQ_{q} = DARUONET_{q} - RUSQ_{q,\,DAM}$$

$$DARUONET_q = DARUO_q + DARUCS_q - DARUCP_q$$

The above variables are defined as follows:

Variable	Unit	Definition
$DARUAMT_q$	$	*Day-Ahead Reg-Up Amount per QSE*—QSE *q*'s share of the DAM cost for Reg-Up, for the hour.
DARUPR	$/MW per hour	*Day-Ahead Reg-Up Price*—The Day-Ahead Reg-Up price for the hour.
$DARUQ_q$	MW	*Day-Ahead Reg-Up Quantity per QSE*—The portion of QSE *q*'s net Day-Ahead Ancillary Service obligation that is not self-supplied with its Resources capacity, for the hour.
$PCRUAMTTOT_{DAM}$	$	*Procured Capacity for Reg-Up Amount Total in DAM*—The total of the DAM Reg-Up payments for all QSEs for the hour.
$PCRUAMT_{q, DAM}$	$	*Procured Capacity for Reg-Up Amount per QSE in DAM*—The DAM Reg-Up payment for QSE *q* for the hour.
DARUQTOT	MW	*Day-Ahead Reg-Up Quantity Total*—The sum of every QSE's portion of its net Day-Ahead Ancillary Service obligation that is not self-supplied with its Resource, for the hour.
$DARUONET_q$	MW	*Day-Ahead Reg-Up Obligation Net per QSE*—The net Day-Ahead Ancillary Service obligation of QSE *q*, for the hour.
$DARUO_q$	MW	*Day-Ahead Reg-Up Obligation per QSE*—The Reg-Up capacity obligation for QSE *q* for the DAM for the hour.
$DARUCS_q$	MW	*Reg-Up Capacity Sale per QSE*—The total Reg-Up capacity shown in Ancillary Service Trades with QSE *q* as a seller for the DAM, for the hour.
$DARUCP_q$	MW	*Reg-Up Capacity ~~Sale~~ Purchase per QSE*—The total Reg-Up capacity shown in Ancillary Service Trades with QSE *q* as a buyer for the DAM, for the hour.
$RUSQ_{q, DAM}$	MW	*Reg-Up Supplied Quantity per QSE in DAM*—The capacity for Reg-Up to be supplied with Resources represented by QSE *q* to meet its Ancillary Service Obligation and/or its Ancillary Service trades, for the DAM, for the hour.

4.6.4.2.2 Regulation Down Service Charge

Each QSE shall pay to ERCOT a Reg-Down Service charge for each hour as follows:

$$\mathbf{DARDAMT_q = DARDPR * DARDQ_q}$$

Where:

$$DARDPR = (-1) * PCRDAMTTOT_{DAM} / DARDQTOT$$

$$PCRDAMTTOT_{DAM} = \sum_q PCRDAMT\text{~~TOT~~}_{q, DAM}$$

$$DARDQTOT = \sum_q DARDQ_q$$

$$DARDQ_q = DARDONET_q - RDSQ_{q,DAM}$$

$$DARDONET_q = DARDO_q + DARDCS_q - DARDCP_q$$

The above variables are defined as follows:

Variable	Unit	Definition
$DARDAMT_q$	$	*Day-Ahead Reg-Down Amount per QSE*—QSE *q*'s share of the DAM cost for Reg-Down, for the hour.
DARDPR	$/MW per hour	*Day-Ahead Reg-Down Price*—The Day-Ahead Reg-Down price for the hour.
$DARDQ_q$	MW	*Day-Ahead Reg-Down Quantity per QSE*—The portion of QSE *q*'s net Day-Ahead Ancillary Service obligation that is not self-supplied with its Resources capacity, for the hour.
$PCRDAMTTOT_{DAM}$	$	*Procured Capacity for Reg-Down Amount Total in DAM*—The total of the DAM Reg-Down payments for all QSEs for the hour.
$PCRDAMT_{q,DAM}$	$	*Procured Capacity for Reg-Down Amount per QSE in DAM*—The DAM Reg-Down payment for QSE *q* for the hour.
DARDQTOT	MW	*Day-Ahead Reg-Down Quantity Total*—The sum of every QSE's portion of its net Day-Ahead Ancillary Service obligation that is not self-supplied with its Resource, for the hour.
$DARDONET_q$	MW	*Day-Ahead Reg-Down Obligation Net per QSE*—The net Day-Ahead Ancillary Service obligation of QSE *q*, for the hour.
$DARDO_q$	MW	*Day-Ahead Reg-Down Obligation per QSE*—The Reg-Down capacity obligation for QSE *q* for the DAM for the hour.
$DARDCS_q$	MW	*Reg-Down Capacity Sale per QSE*—The total Reg-Down capacity shown in Ancillary Service Trades with QSE *q* as a seller for the DAM, for the hour.
$DARDCP_q$	MW	*Reg-Down Capacity ~~Sale~~ Purchase per QSE*—The total Reg-Down capacity shown in Ancillary Service Trades with QSE *q* as a buyer for the DAM, for the hour.
$RDSQ_{q,DAM}$	MW	*Reg-Down Supplied Quantity per QSE in DAM*—The capacity for Reg-Down to be supplied with Resources represented by QSE *q* to meet its Ancillary Service Obligation and/or its Ancillary Service trades, for the DAM, for the hour.

4.6.4.2.3 Responsive Reserve Service Charge

Each QSE shall pay to ERCOT a Responsive Reserve Service charge for each hour as follows:

$$\mathbf{DARRAMT_q = DARRPR * DARRQ_q}$$

Where:

$$DARRPR = (-1) * PCRRAMTTOT_{DAM} / DARRQTOT$$

$$PCRRAMTTOT_{DAM} = \sum_q PCRRAMT\text{~~TOT~~}_{q,DAM}$$

$$DARRQTOT = \sum_{q} DARRQ_{q}$$

$$DARRQ_{q} = DARRONET_{q} - RRSQ_{q,\,DAM}$$

$$DARRONET_{q} = DARRO_{q} + DARRCS_{q} - DARRCP_{q}$$

The above variables are defined as follows:

Variable	Unit	Definition
$DARRAMT_{q}$	$	*Day-Ahead Responsive Reserve Amount per QSE*—QSE *q*'s share of the DAM cost for Responsive Reserve, for the hour.
DARRPR	$/MW per hour	*Day-Ahead Responsive Reserve Price*—The Day-Ahead Responsive Reserve price for the hour.
$DARRQ_{q}$	MW	*Day-Ahead Responsive Reserve Quantity per QSE*—The portion of QSE *q*'s net Day-Ahead Ancillary Service obligation that is not self-supplied with its Resources capacity, for the hour.
$PCRRAMTTOT_{DAM}$	$	*Procured Capacity for Responsive Reserve Amount Total in DAM*—The total of the DAM Responsive Reserve payments for all QSEs for the hour.
$PCRRAMT_{q,\,DAM}$	$	*Procured Capacity for Responsive Reserve Amount per QSE for DAM*—The DAM Responsive Reserve payment for QSE *q* for the hour.
DARRQTOT	MW	*Day-Ahead Responsive Reserve Quantity Total*—The sum of every QSE's portion of its net Day-Ahead Ancillary Service obligation that is not self-supplied with its Resource, for the hour.
$DARRONET_{q}$	MW	*Day-Ahead Responsive Reserve Obligation Net per QSE*—The net Day-Ahead Ancillary Service obligation of QSE *q*, for the hour.
$DARRO_{q}$	MW	*Day-Ahead Responsive Reserve Obligation per QSE*—The Responsive Reserve capacity obligation for QSE *q* for the DAM for the hour.
$DARRCS_{q}$	MW	*Responsive Reserve Capacity Sale per QSE*—The total Responsive Reserve capacity shown in Ancillary Service Trades with QSE *q* as a seller for the DAM, for the hour.
$DARRCP_{q}$	MW	*Responsive Reserve Capacity ~~Sale~~ Purchase per QSE*—The total Responsive Reserve capacity shown in Ancillary Service Trades with QSE *q* as a buyer for the DAM, for the hour.
$RRSQ_{q,\,DAM}$	MW	*Responsive Reserve Supplied Quantity per QSE in DAM*—The capacity for Responsive Reserve to be supplied with Resources represented by QSE *q* to meet its Ancillary Service Obligation and/or its Ancillary Service trades, for the DAM, for the hour.

4.6.4.2.4 Non-Spinning Reserve Service Charge

Each QSE shall pay to ERCOT a Non-Spin Service charge for each hour as follows:

$$\mathbf{DANSAMT_{q} = DANSPR * DANSQ_{q}}$$

Where:

$$DANSPR = (-1) * PCNSAMTTOT_{DAM} / DANSQTOT$$

$$PCNSAMTTOT_{DAM} = \sum_{q} PCNSAMT\text{~~TOT~~}_{q, DAM}$$

$$DANSQTOT = \sum_{q} DANSQ_{q}$$

$$DANSQ_{q} = DANSONET_{q} - NSSQ_{q, DAM}$$

$$DANSONET_{q} = DANSO_{q} + DANSCS_{q} - DANSCP_{q}$$

The above variables are defined as follows:

Variable	Unit	Definition
$DANSAMT_{q}$	$	*Day-Ahead Non-Spin Amount per QSE*—QSE *q*'s share of the DAM cost for Non-Spin, for the hour.
DANSPR	$/MW per hour	*Day-Ahead Non-Spin Price*—The Day-Ahead Non-Spin price for the hour.
$DANSQ_{q}$	MW	*Day-Ahead Non-Spin Quantity per QSE*—The portion of QSE *q*'s net Day-Ahead Ancillary Service obligation that is not self-supplied with its Resources capacity, for the hour.
$PCNSAMTTOT_{DAM}$	$	*Procured Capacity for Non-Spin Amount Total in DAM*—The total of the DAM Non-Spin payments for all QSEs for the hour.
$PCNSAMT_{q, DAM}$	$	*Procured Capacity for Non-Spin Amount per QSE in DAM*—The DAM Non-Spin payment for QSE *q* for the hour.
DANSQTOT	MW	*Day-Ahead Non-Spin Quantity Total*—The sum of every QSE's portion of its net Day-Ahead Ancillary Service obligation that is not self-supplied with its Resource, for the hour.
$DANSONET_{q}$	MW	*Day-Ahead Non-Spin Obligation Net per QSE*—The net Day-Ahead Ancillary Service obligation of QSE *q*, for the hour.
$DANSO_{q}$	MW	*Day-Ahead Non-Spin Obligation per QSE*—The Non-Spin capacity obligation for QSE *q* for the DAM for the hour.
$DANSCS_{q}$	MW	*Non-Spin Capacity Sale per QSE*—The total Non-Spin capacity shown in Ancillary Service Trades with QSE *q* as a seller for the DAM, for the hour.
$DANSCP_{q}$	MW	*Non-Spin Capacity ~~Sale~~ Purchase per QSE*—The total Non-Spin capacity shown in Ancillary Service Trades with QSE *q* as a buyer for the DAM, for the hour.
$NSSQ_{q, DAM}$	MW	*Non-Spin Supplied Quantity per QSE in DAM*—The capacity for Non-Spin to be supplied with Resources represented by QSE *q* to meet its Ancillary Service Obligation and/or its Ancillary Service trades, for the DAM, for the hour.

4.6.5 Calculation of "Average Incremental Energy Cost" (AIEC)

The methodology of AIEC calculation is presented below. AIEC is used to account for the additional cost for a Generation Resource to produce energy above its LSL. This cost, the Minimum-Energy Cost, and the Startup Cost are used in the make-whole payment calculation for a Generation Resource committed in the DAM.

I. Energy Offer Curve

Index (i)	MW	$/MWh
1	Q_1	P_1
2	Q_2	P_2
⋮	⋮	⋮
N (N≤10)	Q_N	P_N

II. MW quantity corresponding with Energy Offer Curve Cap[1], $\overline{P}$ ($/MWh), where $P_i < \overline{P} \le P_{i+1}$ $(i = 1,2,\cdots,N-1)$

$\overline{Q}$ ($/MWh), where $\overline{Q} = Q_i + \frac{Q_{i+1} - Q_i}{P_{i+1} - P_i}(\overline{P} - P_i)$

III. Energy Offer Curve capped with the Energy Offer Curve Cap;

A. When $\overline{P} < P_N$

Index (j)	MW	$/MWh
1	Q_1	P_1
⋮	⋮	⋮
i	Q_i	P_i
i+1	$\overline{Q}$	$\overline{P}$
i+2	Q_N	$\overline{P}$

B. When $\overline{P} \ge P_N$:

Index (j)	MW	$/MWh
1	Q_1	P_1
⋮	⋮	⋮
N	Q_N	P_N

IV. Cleared offer on the capped Energy Offer Curve

A. When $\overline{P} < P_N$:

[1] If the Energy Offer Curve Cap is less than the lowest price of the energy offer curve, the AIEC is the Energy Offer Curve Cap. If the Energy Offer Curve Cap is greater than the highest price of the energy offer curve, then $\overline{Q}$ does not need to be calculated.

$$\text{Q (MW), where } Q_j < Q \le Q_{j+1} \ (j = 1, \cdots, i, i+1)$$

B. When $\overline{P} \ge P_N$:

$$\text{Q (MW), where } Q_j < Q \le Q_{j+1} \ (j = 1, \cdots, N-1)$$

V. Incremental energy price corresponding with cleared offer, on the capped Energy Offer Curve:

$$\text{P (\$/MWh), where } P = P_j + \frac{P_{j+1} - P_j}{Q_{j+1} - Q_j}(Q - Q_j)$$

VI. Average incremental energy cost corresponding with ($Q-Q_1>0$), on the capped Energy Offer Curve:

$$AIEC = \begin{cases} \dfrac{P_1 + P}{2}, \ for \ Q_1 < Q \le Q_2 \\ \left[\displaystyle\sum_{k=1}^{j-1} \frac{P_k + P_{k+1}}{2}(Q_{k+1} - Q_k) + \frac{P_j + P}{2}(Q - Q_j)\right] \Big/ (Q - Q_1), \ for \ Q > Q_2 \end{cases}$$

ERCOT Nodal Protocols
Section 9: Settlement and Billing

~~May 5, 2006~~August 1, 2006

(Effective Upon Texas Nodal Market Implementation)

9 SETTLEMENT AND BILLING

9.1 General

9.1.1 Settlement and Billing Process Overview

Settlement is the process used to resolve financial obligations between a Market Participant and ERCOT, including administrative and miscellaneous charges. Settlement also provides Transmission Billing Determinants to Transmission Service Providers (TSPs) and Distribution Service Providers (DSPs). The Settlement and billing timeline and process for the Day-Ahead Market (DAM) is separate from the Settlement and billing timeline and process for the Day-Ahead Reliability Unit Commitment (DRUC) process, the Adjustment Period, and Real-Time operations (after this referred to together in this Section as the Real-Time Market).

9.1.2 Settlement Calendar

(1) ERCOT shall post and maintain on the Market Information System (MIS) Public Area a "Settlement Calendar" to denote, for each Operating Day, when:

(a) Each scheduled Settlement Statement for the DAM will be issued under Section 9.2.4, DAM Statement, 9.2.5, DAM Resettlement Statement;

(b) Each Settlement Invoice for the DAM will be issued under Section 9.3, Settlement Invoices for the DAM;

(c) Payments for the DAM are due under Section 9.4, Payment Process for the DAM;

(d) Each Late Fee Invoice for the DAM will be issued under Section 9.4.5, Late Fees and Late Fee Invoices for the DAM;

(e) Each scheduled Settlement Statement for the Real-Time Market will be issued under Section 9.5.4, RTM Initial Statement, Section 9.5.5, RTM Final Statement, Section 9.5.6, RTM Resettlement Statement, and Section 9.5.8, RTM True-Up Statement;

(f) Each Settlement Invoice for the Real-Time Market will be issued under Section 9.6, Settlement Invoices for the Real-Time Market;

(g) Payments for the Real-Time Market are due under Section 9.7, Payment Process for the RTM;

(h) Each Late Fee Invoice for the Real-Time Market will be issued under Section 9.7.5, Late Fees and Late Fee Invoices for the RTM; and

(i) Settlement and Billing Disputes for each scheduled Settlement Statement and Settlement Invoice must be submitted to be considered timely under Section 9.8, Settlement and Billing Dispute Process.

(2) ERCOT shall notify Market Participants if any of the aforementioned data will not be available on the date specified in the Settlement Calendar.

9.1.3 Settlement Statement Access

A Statement Recipient may access its Settlement Statements electronically, using either the following methods:

(a) Secured entry on the MIS Certified Area;

(b) eXtensible Markup Language (XML) access to the MIS Certified Area.

9.1.4 Settlement Statement and Invoice Timing

Unless expressly stated otherwise, the publication of each Settlement Statement, Settlement Invoice, and Late Fee Invoice can occur as late as 2400 on its due date.

9.1.5 Settlement ~~Statement~~ Payment Convention

A Settlement Statement or Invoice reflecting a negative ~~settlement~~ amount represents a payment due by ERCOT to the Statement or Invoice Recipient. A Settlement Statement or Invoice reflecting a positive ~~settlement~~ amount represents a payment due to ERCOT by the Statement or Invoice Recipient.

9.2 Settlement Statements for the Day-Ahead Market

9.2.1 Settlement Statement Process for the DAM

ERCOT shall produce daily Settlement Statements for the Day-Ahead Market (DAM), as defined in Section 9.2.2, Settlement Statements for the DAM, that show a breakdown of Charge Types~~financial obligations between ERCOT and a Market Participant~~ incurred in the DAM, including any administrative and miscellaneous charges applicable to the DAM.

9.2.2 Settlement Statements for the DAM

(1) ERCOT shall make each Settlement Statement for a DAM available on the date specified on the Settlement Calendar for that DAM by posting it on the MIS Certified Area for the applicable Market Participant to which the Settlement Statement is addressed (Statement Recipient).

(2) A Settlement Statement for the DAM can be:

(a) A "DAM Statement," which is the Settlement Statement issued for a particular DAM;

(b) A "DAM Resettlement Statement," which corrects a DAM Statement.

(3) The Statement Recipient is responsible for accessing the statement from the MIS Certified Area.

(4) ERCOT shall create a DAM Statement for each DAM.

(5) ERCOT may create a DAM Resettlement Statement for the DAM, depending on the criteria set forth in Section 9.2.5, DAM Resettlement Statement.

(6) Each Settlement Statement for the DAM must denote:

(a) The applicable Operating Day;

(b) The Statement Recipient's name;

(c) The ERCOT identifier (settlement identification number issued by ERCOT);

(d) Status of the statement (DAM Statement or DAM Resettlement Statement);

(e) Statement version number;

(f) Unique statement identification code; and

(g) Charge Types settled.

(7) Settlement Statements for the DAM must break fees down by Charge Types into the appropriate one-hour Settlement Interval for that type. ~~When a Settlement and billing dispute has been entered for a one-hour Settlement Interval, the Settlement Statement must denote the Settlement and billing dispute status.~~

(8) The Settlement Statement for the DAM must have a summary page of the corresponding detailed documentation.

9.2.3 DAM Settlement Charge Types

ERCOT shall provide, on each Settlement Statement, the dollar amount for each DAM Settlement charge and payment. The DAM settlement "Charge Types" are:

(a) Section 4.6.2.1, Day-Ahead Energy Payment;

(b) Section 4.6.2.2, Day-Ahead Energy Charge;

(c) Section 4.6.2.3.1, Day-Ahead Make-Whole Payment;

(d) Section 4.6.2.3.2, Day-Ahead Make-Whole Charge;

(e) Section 4.6.2.3.3, Day-Ahead RMR Unit Charge;

(ef) Section 4.6.3, Settlement for PTP Obligations Bought in DAM;

(fg) Section 4.6.4.1.1, Regulation Up Service Payment;

(gh) Section 4.6.4.1.2, Regulation Down Service Payment;

(hi) Section 4.6.4.1.3, Responsive Reserve Service Payment;

(ij) Section 4.6.4.1.4, Non-Spinning Reserve Service Payment;

(jk) Section 4.6.4.2.1, Regulation Up Service Charge;

(kl) Section 4.6.4.2.2, Regulation Down Service Charge;

(lm) Section 4.6.4.2.3, Responsive Reserve Service Charge;

(mn) Section 4.6.4.2.4, Non-Spinning Reserve Service Charge;

(no) Section 7.9.1.1, Payments and Charges for PTP Obligations Settled in DAM;

(op) Section 7.9.1.2, Payments for PTP Options Settled in DAM;

(pq) Section 7.9.1.4, Payments for FGRs Settled in DAM;

(qr) Section 7.9.1.5, Payments and Charges for PTP Obligations with Refund Settled in DAM;

(rs) Section 7.9.1.6, Payments for PTP Options with Refund Settled in DAM; and

(st) Section 7.9.3.3, Shortfall Charges to CRR Owners in DAM, Item 2.

9.2.4 DAM Statement

ERCOT shall produce a DAM Statement for each Statement Recipient for the given DAM by 2400 on the second Business Day after the Operating Day.

9.2.5 DAM Resettlement Statement

(1) ERCOT shall issue DAM Resettlement Statements for a given DAM if the Board finds that the DAM LMPs, MCPCs, or Settlement Point Prices are significantly affected by a software or data error under Section 4.5.3, Communicating DAM Results. ERCOT shall

also produce DAM Resettlement Statements required by resolution of Settlement and billing disputes.

(2) ERCOT shall issue a DAM Resettlement Statement for a given DAM due to error in data other than prices when the total of all significant errors in data other than prices results in an impact greater than two percent of the total payments due to ERCOT for the DAM, excluding bilateral transactions. ERCOT shall issue DAM Resettlement Statements as soon as possible to correct the errors. ERCOT shall review this percentage on an annual basis. Upon the review, ERCOT may make a recommendation to revise this percentage under Section 21, Process for Protocol Revision.

(3) A DAM Resettlement Statement must reflect differences to financial records generated on the previous Settlement Statement for the given DAM.

9.2.6 Notice of Resettlement for the DAM

While maintaining confidentiality of all Market Participants, ERCOT shall post a notice on the MIS Public Area no later than one Business Day after the declaration of the resettlement, indicating that the DAM for a specific Operating Day will be resettled and the date that the DAM Resettlement Statements for that DAM will be issued by ERCOT. ERCOT shall include the following information in the notice of resettlement:

(a) Detailed description of reason(s) for resettlement;

(b) For the applicable Operating Day;

(c) Affected Charge Types; and

(d) Total resettled amount, by Charge Type.

9.2.7 Confirmation of Statement for the DAM

It is the responsibility of each Statement Recipient to notify ERCOT if a Settlement Statement for the DAM is not available on the MIS Certified Area on ~~and after~~ the date specified for posting of that Settlement Statement in the Settlement Calendar. Each Settlement Statement for the DAM is deemed to have been available on the posting date specified on the Settlement Calendar ~~and after that~~, unless ERCOT is notified to the contrary. If ERCOT receives notice that a Settlement Statement is not available, ERCOT shall make reasonable attempts to provide the Settlement Statement to the Statement Recipient, and ERCOT shall modify the Settlement and billing timeline accordingly for that Settlement Statement.

9.2.8 Validation of the Settlement Statement for the DAM

The Statement Recipient is deemed to have validated each Settlement Statement for the DAM unless it has raised a Settlement and billing dispute under Section 9.8, Settlement and Billing Dispute Process.

9.2.9 Suspension of Issuing Settlement Statements for the DAM

The Board may direct ERCOT to suspend the issuance of any Settlement Statement for the DAM to address unusual circumstances. Any proposal to suspend settlements must be presented to TAC for review and comment, in a reasonable manner under the circumstances, prior to such suspension.

9.3 Settlement Invoices for the DAM

(1) ERCOT shall issue Invoices for the DAM (DAM Invoice) by 2400 on the second Business Day after the Operating Day on the date specified in the Settlement Calendar. For each DAM Invoice, the Market Participant to whom the Invoice is addressed ("Invoice Recipient") is either a payee or payor. The Invoice Recipient is responsible for accessing the Invoice on the MIS Certified Area once posted by ERCOT.

(2) ERCOT shall issue DAM Invoices that are based on DAM Resettlement Statements on the same Business Day as the day that the DAM Resettlement Statement is posted to the MIS Certified Area.

(3) Each DAM Invoice must contain:

(a) Net Amount Due or Payable – the aggregate summary of all charges owed by, or due to, an Invoice Recipient for that DAM;

(b) Time Periods – the time period covered for each line item;

(c) Run Date – the date in which the DAM Invoice was created and published;

(d) Invoice Reference Number – a unique number generated by the ERCOT applications for payment tracking purposes;

(e) Statement Reference – an identification code used to reference the Settlement Statement invoiced;

(f) Payment Date and Time – the date and time that DAM Invoice amounts must be paid or received;

(g) Remittance Information Details – details including the account number, bank name, and electronic transfer instructions of the ERCOT account to which any amounts owed by the Invoice Recipient are to be paid or of the Invoice Recipient's account from which ERCOT may draw payments due; and

(h) Overdue Terms – the terms that would be applied if payments were received late.

9.4 Payment Process for the DAM

Payments for the DAM must be made on days that are both a Business Day and a Bank Business Day in a two-day, two-step process as detailed below. Payments for the DAM are due on the applicable payment due date, whether or not there is any Settlement and billing dispute regarding the amount of the payment.

9.4.1 Invoice Recipient Payment to ERCOT for the DAM

(1) The payment due date and time for the DAM Invoice, with funds owed by an Invoice Recipient, is 1700 on the fourth Business Day after the DAM Invoice date, unless that fourth Business Day is not a Bank Business Day. If the fourth Business Day is not a Bank Business Day, then the payment is due by 1700 on the next Business Day after the fourth Business Day that is also a Bank Business Day.

(2) All DAM Invoices due, with funds owed by an Invoice Recipient, must be paid to ERCOT in U.S. Dollars by either of the following:

(a) On or before the payment due date if the payment is made by Electronic Funds Transfer (EFT) in immediately available or good funds (i.e., not subject to reversal); or

(b) On or before two Bank Business Days before the payment due date if the payment is made by Automated Clearing House (ACH) funds.

9.4.2 ERCOT Payment to Invoice Recipients for the DAM

(1) Subject to the availability of funds as discussed in paragraph (2) below, DAM Invoices with funds owed to an Invoice Recipient must be paid by ERCOT to the Invoice Recipient by 1700 on the next Business Day after payments are due for that DAM under Section 9.4.1, Invoice Recipient Payment to ERCOT for the DAM, subject to ERCOT's right to withhold payments under Section 16, Registration and Qualification of Market Participants, unless that next Business Day is not a Bank Business Day. If that next Business Day is not a Bank Business Day, then the payment is due on the next Business Day thereafter that is also a Bank Business Day.

(2) ERCOT shall calculate the amounts available for distribution to Invoice Recipients no later than the next Business Day following the payment due date determined in paragraph (1) of Section 9.4.1 ~~(1)~~ above and shall give irrevocable instructions to the ERCOT financial institution to remit, to each Invoice Recipient for same day value, the amounts determined by ERCOT to be available for payment to that Invoice Recipient under paragraph (d) of Section 9.4.3, Partial Payments by Invoice Recipients for the DAM.

9.4.3 Partial Payments by Invoice Recipients for the DAM

If at least one Invoice Recipient owing funds does not pay its DAM Invoice in full (short-pays), then ERCOT shall follow the procedure set forth below:

(a) ERCOT shall make every reasonable attempt to collect payment from each short-paying Invoice Recipient before any payments owed by ERCOT for that DAM is due to be paid to applicable Invoice Recipient(s).

(b) ERCOT shall draw on any available security pledged to ERCOT by each short-paying Invoice Recipient that did not pay the amount due under paragraph (a) above.

(c) ERCOT shall offset or recoup any amounts owed, or to be owed, by ERCOT to a short-paying Invoice Recipient against amounts not paid by that Invoice Recipient, and ERCOT shall apply the amount offset or recouped to cover payment shortages by that Invoice Recipient.

(d) If, after taking the actions set forth in paragraphs (a), (b) and (c), above, ERCOT still does not have sufficient funds to pay all amounts that it owes to DAM Invoice Recipients in full, ERCOT shall deduct any applicable DAM administrative fees as specified in Section 9.10, Administrative Fees, from the amount received or collected and then reduce payments to all DAM Invoice Recipients owed monies from ERCOT. The reductions must be based on a pro rata basis of monies owed to each Invoice Recipient, to the extent necessary to clear ERCOT's accounts on the payment due date to achieve revenue neutrality for ERCOT. ERCOT shall provide to all Market Participants payment details on all short payments and subsequent reimbursements of short pays. Details must include the identity of each short-paying Invoice Recipient and the dollar amount attributable to that Invoice Recipient, broken down by Invoice numbers. In addition, ERCOT shall provide the aggregate total of all amounts due to all Invoice Recipients before applying the amount not paid on the Invoice.

(e) When ERCOT enters into a payment plan with a short-pay Invoice Recipient, ERCOT shall post to the MIS Secured Area:

  (i) The short-pay plan;

  (ii) The schedule of quantifiable expected payments, updated if and when modifications are made to the payment schedule; and

  (iii) Invoice dates to which the payments will be applied.

(f) To the extent ERCOT is able subsequently to collect past due funds owed by a short-paying Invoice Recipient, ERCOT shall allocate the collected funds to the earliest DAM Invoice for which that Invoice Recipient remains a short-payer. ERCOT shall use its best efforts to distribute collected past due funds on a pro rata basis of monies owed on the next Business Day that is also a Bank Business

Day after receipt of the monies, when sufficient funds for the relevant DAM are available in this Settlement process.

9.4.4 Enforcing the Security of a Short-Paying Invoice Recipient

ERCOT shall make reasonable efforts to enforce the security of the short-paying Invoice Recipient (pursuant to Section 16.11.6, Payment Default and Late Payments by Counter-Parties) to the extent necessary to cover the short-pay. A short-paying Invoice Recipient shall restore the level of its security under Section 16, Registration and Qualification of Market Participants.

9.4.5 Late Fees and Late Fee Invoices for the DAM

(1) A short-paying DAM Invoice Recipient shall pay late fees to ERCOT on the short-pay amount according to the late fee terms specified in the ERCOT fee schedule that is posted on the MIS Public Area for the period from, and including, the relevant payment due date to the date on which the payment, including any related transaction costs incurred by ERCOT, is received by ERCOT.

(2) ERCOT shall distribute any late fee revenues, less ERCOT's transaction costs, to the DAM Invoice Recipients that were underpaid, due to a short-pay, on a pro rata basis of monies owed to each DAM Invoice Recipient.

(3) ERCOT shall post to the MIS Certified Area for each DAM Invoice Recipient, an Invoice based on Late Fees (DAM Late Fee Invoice) by no later than the date specified in the Settlement Calendar. The DAM Late Fee Invoice Recipient is responsible for accessing the information from the MIS Certified Area once posted by ERCOT.

(4) ERCOT shall issue DAM Late Fee Invoices by 2400 on the 10th calendar day after the end of the month, unless the 10th day is not a Business Day. If that 10th day is not a Business Day, then ERCOT shall issue the DAM Late Fee Invoice by 2400 of the next day thereafter that is a Business Day.

(5) The payment due date and time for the DAM Late Fee Invoice, with funds owed by an Invoice Recipient, is 1700 on the fourth Business Day after the DAM Late Fee Invoice date, unless that fourth Business Day is not a Bank Business Day. If the fourth Business Day is not a Bank Business Day, then the payment is due by 1700 on the next Business Day after the fourth Business Day that is also a Bank Business Day.

(6) All DAM Late Fee Invoices due, with funds owed by an Invoice Recipient, must be paid to ERCOT in U.S. Dollars by either of the following:

(a) On or before the payment due date if the payment is made by Electronic Funds Transfer (EFT) in immediately available or good funds (i.e., not subject to reversal); or

(b) On or before two Bank Business Days before the payment due date if the payment is made by Automated Clearing House (ACH) funds.

(7) Subject to the availability of funds as discussed in paragraph (8) below, DAM Late Fee Invoices with funds owed to an Invoice Recipient must be paid by ERCOT to the Invoice Recipient by 1700 on the next Business Day after payments are due for that DAM Late Fee Invoice under paragraph (5) above, subject to ERCOT's right to withhold payments under Section 16, Registration and Qualification of Market Participants, unless that next Business Day is not a Bank Business Day. If that next Business Day is not a Bank Business Day, then the payment is due on the next Business Day thereafter that is also a Bank Business Day.

(8) If at least one Invoice Recipient owing funds does not pay it's DAM Late Fee Invoice in full (short-pays), then ERCOT shall reduce payments to all DAM Late Fee Invoice Recipients owed monies from ERCOT. The reductions must be based on a pro rata basis of monies owed to each Invoice Recipient, to the extent necessary to clear ERCOT's accounts on the payment due date to achieve revenue neutrality for ERCOT. ERCOT shall provide to all Market Participants payment details on all short payments and subsequent reimbursements of short pays. Details must include the identity of each short-paying Invoice Recipient and the dollar amount attributable to that Invoice Recipient, broken down by I3nvoice numbers. In addition, ERCOT shall provide the aggregate total of all amounts due to all Invoice Recipients before applying the amount not paid on the Invoice. ERCOT shall give irrevocable instructions to the ERCOT financial institution to remit, to each Invoice Recipient for same day value, the amounts determined by ERCOT to be available for payment.

(9) Each DAM Late Fee Invoice must contain:

(a) Net Amount Due or Payable – the aggregate summary of all charges owed or due by an Invoice Recipient;

(b) Time Periods – the time period covered for each line item;

(c) Run Date – the date in which the invoice was created and published;

(d) Invoice Reference Number – a unique number generated by the ERCOT applications for payment tracking purposes;

(e) Payment Date and Time – the date and time that invoice amounts are to be paid or received;

(f) Remittance Information Details – details including the account number, bank name and electronic transfer instructions of the ERCOT account to which any amounts owed by the Invoice Recipient are to be paid or of the Invoice Recipient's account from which ERCOT may draw payments due; and

(g) Overdue Terms – the terms that would be applied if payments were received late.

9.5 Settlement Statements for Real-Time Market

9.5.1 Settlement Statement Process for the Real-Time Market

ERCOT shall produce daily Settlement Statements for the Real-Time Market (RTM), as defined in Section 9.5.2, Settlement Statements for the RTM, that show a breakdown of Charge Types incurred in the RTM, including any administrative and miscellaneous charges applicable to the RTM.

9.5.2 Settlement Statements for the RTM

(1) ERCOT shall make each Settlement Statement for the RTM for an Operating Day available on the date specified on the Settlement Calendar for that Operating Day by posting it to the MIS Certified Area for the applicable Statement Recipient.

(2) A Settlement Statement for the RTM can be:

(a) An "RTM Initial Statement," which is the first iteration of a Settlement Statement issued for a particular Operating Day;

(b) An "RTM Final Statement," which is the statement issued at the end of the 59th day following the Operating Day;

(c) An "RTM Resettlement Statement," which is the statement using corrected Settlement data due to resolution of disputes and correction of data errors; or

(d) An "RTM True-Up Statement," which is a statement issued at the end of the 180th day after the Operating Day.

(3) The Statement Recipient is responsible for accessing the Statement from the MIS Certified Area.

(4) To issue an RTM Settlement Statement, ERCOT may use estimated, disputed, or calculated meter data.

(5) ERCOT shall create an RTM Initial Statement, RTM Final Statement, and RTM True-Up Statement for each Operating Day.

(6) ERCOT may create an RTM Resettlement Statement for any Operating Day, depending on the criteria set forth in Section 9.5.6, RTM Resettlement Statement. When actual validated data is available and all of the Settlement and billing disputes raised by Statement Recipients in accordance with Section 9.8.4, ERCOT Processing of Disputes, during the validation process have been resolved, ERCOT shall recalculate the amounts payable and receivable by the affected RTM Statement Recipients, as described in Section 9.5.6, RTM Resettlement Statement.

(7) Each RTM Settlement Statement must denote:

(a) Operating Day;

(b) The Statement Recipient's name;

(c) The ERCOT identifier (settlement identification number issued by ERCOT);

(d) Status of the statement (Initial, Final, Resettlement, or True-Up);

(e) Statement version number;

(f) Unique statement identification code; and

(g) Charge Types settled.

(8) A Settlement Statement for the RTM must break the fees down by Charge Type into the appropriate 15-minute or one-hour Settlement Interval for that type. ~~When a Settlement and billing dispute has been entered for a Settlement Interval, the Settlement Statement must denote the Settlement and billing dispute status.~~

(9) A RTM Settlement Statement must have a summary page of the corresponding detailed documentation.

9.5.3 Real-Time Market Settlement Charge Types

ERCOT shall provide, on each RTM Settlement Statement, the dollar amount for each RTM Settlement charge and payment. The RTM Settlement "Charge Types" are:

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

(b) Section 5.7.2, RUC Clawback Charge;

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

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

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

(f) Section 5.7.5, RUC Clawback Payment;

(g) Section 5.7.6, RUC Decommitment Charge;

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

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

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

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

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

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

(n) Section 6.6.3.7, Real-Time Energy Charge for a Block Load Transfer Point;

~~(o) Section 6.6.5, Generation Resource Base-Point Deviation Charge;~~

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

(p) Section 6.6.5.1.1, Base Point Deviation Charge for Over Generation,

(q) Section 6.6.5.1.2, Base Point Deviation Charge for Under Generation,

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

(s) Section 6.6.5.4, Base Point Deviation Payment;

(t) Section 6.6.6.1, RMR Standby Payment;

(u) Section 6.6.6.2, RMR Payment for Energy;

(v) Section 6.6.6.3, RMR Adjustment Charge;

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

(x) Section 6.6.6.5, RMR Service Charge;

(y) Item (2)(a) of Section 6.6.7.1, Voltage Support Service Payments;

(z) Item (3)(a) of Section 6.6.7.1, Voltage Support Service Payments;

(~~z~~aa) Section 6.6.7.2, Voltage Support Charge;

(~~aa~~bb) Section 6.6.8.1, Black Start Capacity Payment;

(~~bb~~cc) Section 6.6.8.2, Black Start Capacity Charge;

(~~ee~~dd) Section 6.6.9.1, Payment for Emergency Power Increase directed by ERCOT;

(~~dd~~ee) Section 6.6.9.2, Charge for Emergency Power Increases;

(~~ee~~ff) Section 6.6.10, Real-Time Revenue Neutrality Allocation;

(~~ff~~gg) Paragraph (1) of Section 6.7.1, Payments for Ancillary Service Capacity Sold in a Supplemental Ancillary Service Market;

(hh) Paragraph (2) of Section 6.7.1, Payments for Ancillary Service Capacity Sold in a Supplemental Ancillary Service Market;

(ii) Paragraph (3) of Section 6.7.1, Payments for Ancillary Service Capacity Sold in a Supplemental Ancillary Service Market;

(jj) Paragraph (4) of Section 6.7.1, Payments for Ancillary Service Capacity Sold in a Supplemental Ancillary Service Market;

(~~gg~~kk) Paragraph (1) of Section 6.7.2, Charges for Ancillary Service Capacity replaced due to Failure to Provide;

(ll) Paragraph (2) of Section 6.7.2, Charges for Ancillary Service Capacity replaced due to Failure to Provide;

(mm) Paragraph (3) of Section 6.7.2, Charges for Ancillary Service Capacity replaced due to Failure to Provide;

(nn) Paragraph (4) of Section 6.7.2, Charges for Ancillary Service Capacity replaced due to Failure to Provide;

(oo) Paragraph (1) of Section 6.7.3, Adjustments to Cost Allocations for Ancillary Services Procurement;

(pp) Paragraph (2) of Section 6.7.3, Adjustments to Cost Allocations for Ancillary Services Procurement;

(qq) Paragraph (3) of Section 6.7.3, Adjustments to Cost Allocations for Ancillary Services Procurement;

(rr) Paragraph (4) of Section 6.7.3, Adjustments to Cost Allocations for Ancillary Services Procurement;

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

(~~ii~~tt) Section 7.9.2.2, Payments for PTP Options Settled in Real-Time;

(~~jj~~uu) Section 7.9.2.3, Payments for NOIE PTP Options with Refund Settled in Real-Time;

(~~kk~~vv) Section 7.9.3.3, Shortfall Charges to CRR Owners in Real-Time, Item 3;

(~~ll~~ww) Section 9.10.1, ERCOT System Administration Charge.

9.5.4 RTM Initial Statement

ERCOT shall issue an RTM Initial Statement for each Statement Recipient for a given Operating Day by 2400 on the 10th day after the Operating Day, unless that 10th day is not a Business Day.