Control Number: 24055

Item Number: 242

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PROJECT NO. 24055

PROTOCOL REVISION	§	**PUBLIC UTILITY COMMISSION**
INFORMATIONAL FILINGS BY THE	§	
ELECTRIC RELIABILITY	§	**OF TEXAS**
COUNCIL OF TEXAS	§	

NOTICE OF ERCOT NODAL PROTOCOL REVISIONS (AUGUST 24, 2011)

COMES NOW, Electric Reliability Council of Texas, Inc. (ERCOT) and respectfully informs the Public Utility Commission of Texas (PUCT, Commission) of revisions to the ERCOT Nodal Protocols.

Summary of Revisions

In accordance with the process set forth in Section 21 of the ERCOT Protocols, ERCOT adopted Nodal Protocol Revision Requests (NPRRs) 323 and 350 (effective upon system implementation). These NPRRs were developed in the ERCOT committee process, and approved by the ERCOT Board of Directors (ERCOT Board) on March 22, 2011 (NPRR 323), and May 17, 2011 (NPRR 350). These NPRRs are described below.

NPRR	Description	ERCOT Nodal Protocol Sections Modified
323 **(Unboxed language)**	**Correct DAM Credit Exposure Language and Enable Qualified Expiring CRRs to Offset PTP Bid Exposure.** This NPRR revises language to match the implemented Day-Ahead Market (DAM) credit exposure calculations for Three-Part Supply Offers as they relate to combined cycle and to Point-to-Point (PTP) bid calculations; to right size the credit exposure calculation for DAM transactions submitted via the use of an energy-only bid curve to equate to the maximum exposure; and to right size the credit exposure calculation for DAM PTP bids where a qualified expiring Congestion Revenue Right	Section 4, Subsection 4.4.10 (Attachment A)

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	(CRR) offsets cleared DAM exposure.	
350 **(Unboxed language)**	**Change to the Security Classification of the System Ancillary Service Capacity Monitor Dashboard.** This NPRR changes the posting category of items that make up the System Ancillary Service Capacity Monitor Dashboard from Market Information System (MIS) Secure Area to MIS Public Area.	Section 6, Subsections 6.3.2 and 6.5.7.5 (Attachment B)

The changes to the Nodal Protocol language as revised by the above NPRRs are shown in Attachment A through B in redline format.

The ERCOT Nodal Protocols, including this revision, may be accessed on ERCOT's website at http://nodal.ercot.com/protocols/index.html.

Respectfully submitted,

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LIST OF ATTACHMENTS

ATTACHMENT A – Section – 04-082411 Redline

ATTACHMENT B – Section – 06-082411 Redline

ERCOT Nodal Protocols

Section 4: Day-Ahead Operations

August 24~~1~~, 2011

4 DAY-AHEAD OPERATIONS

4.4 Inputs into DAM and Other Trades

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 credit exposure from the QSE's bids and offers being within the credit limit for DAM participation established for the entire Counter-Party of which the QSE is part, as specified in item (1) of Section 16.11.4.6.2, Credit Requirements for DAM Participation, and taking into account the credit exposure of accepted DAM bid and offers of the Counter-Party's other QSEs.

(2) DAM bids and offers of all QSEs of the Counter-Party are accepted in the order submitted while ensuring that the credit exposure from accepted bids and offers do not exceed the Counter-Party's credit limit for DAM participation.

(3) ERCOT shall reject the QSE's individual bids and offers whose credit exposure, as calculated in item (6) below, exceeds the Counter-Party's credit limit for DAM participation as described in items (1) and (2) above, and shall notify the QSE through the MIS Certified Area as soon as practicable.

(4) The QSE may revise and resubmit such rejected bids and offers described in item (3) above, provided that the resubmitted bids and offers are valid and within the Counter-Party's credit limit for DAM participation adjusted for all accepted DAM bids and offers of the Counter-Party's QSE's limit and that such resubmission occurs prior to 1000 of the Operating Day.

(5) The DAM shall use the Counter-Party's credit limit for DAM participation provided and adjusted for accepted bids and offers for DAM transactions cleared, until a new credit limit for DAM participation is available.

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

(a) For a DAM Energy Bid, the credit exposure shall be calculated as the quantity of the bid multiplied by a bid exposure price that is calculated as follows:

(i) If the price of the DAM Energy Bid is less than or equal to zero, the bid exposure price for that quantity will equal zero.

(ii) If the price of the DAM Energy Bid is greater than zero, the bid exposure price for that quantity will equal the greater of zero or the sum of (A) and (B):

(A) The lesser of:

(1) The "d"th percentile of the Day-Ahead Settlement Point Price (DASPP) for the hour over the previous 30 days; and

(2) The bid price.

(B) "e1" multiplied by (bid price minus (A)) when the bid price is greater than (A).

(iii) For DAM Energy Bids of curve quantity type, the credit exposure shall be the credit exposure, as calculated above, at the price and MW quantity of the bid curve that produces the maximum credit exposure for the DAM Energy Bid. A QSE is expected to submit any DAM Energy Bids of curve quantity type in such a way as to not negatively impact market timeline and system performance of the DAM. If an Entity negatively impacts ERCOT system performance or market timelines through its submission behavior more than once in a six month period, ERCOT may, in its sole discretion, make a QSE ineligible to receive the credit exposure calculated in this paragraph for submissions after 0700 and may use the calculations in paragraphs (6)(a)(i) and (6)(a)(ii) above instead until ERCOT is assured, in its sole discretion, that the QSE will adjust its submission behavior accordingly. The QSE will be notified one Operating Day prior to ERCOT changing the QSE eligibility.~~(6) ERCOT shall calculate credit exposure for bids and offers in the DAM as follows:~~

~~(a) For each DAM Energy Bid, the credit exposure shall be calculated as the quantity of the bid multiplied by a bid exposure price that is calculated as follows:~~

~~(i) For each MW portion of the DAM Energy Bid where the price is less than or equal to zero, the bid exposure price for that MW portion will equal zero.~~

~~(ii) For each MW portion of the DAM Energy Bid where the price is greater than zero, the bid exposure price for that MW portion will equal the greater of zero or the sum of (A) and (B):~~

~~(A) The lesser of:~~

~~(1) The "d"th percentile of the Day-Ahead Settlement Point Price for the hour over the previous 30 days; and~~

~~(2) The bid price.~~

~~(B) "e1" times (bid price minus (A)) when the bid price is greater than (A).~~

~~*[NPRR323: Replace paragraph (6)(a) above with the following upon system implementation:]*~~

~~(6) ERCOT shall calculate credit exposure for bids and offers in the DAM as follows:~~

~~(a) For a DAM Energy Bid, the credit exposure shall be calculated as the quantity of~~

~~the bid multiplied by a bid exposure price that is calculated as follows:~~

~~(i) If the price of the DAM Energy Bid is less than or equal to zero, the bid exposure price for that quantity will equal zero.~~

~~(ii) If the price of the DAM Energy Bid is greater than zero, the bid exposure price for that quantity will equal the greater of zero or the sum of (A) and (B):~~

~~(A) The lesser of:~~

~~(1) The "d"th percentile of the Day-Ahead Settlement Point Price for the hour over the previous 30 days; and~~

~~(2) The bid price.~~

~~(B) "e1" multiplied by (bid price minus (A)) when the bid price is greater than (A).~~

~~(iii) For DAM Energy Bids of curve quantity type, the credit exposure shall be the credit exposure, as calculated above, at the price and MW quantity of the bid curve that produces the maximum credit exposure for the DAM Energy Bid. A QSE is expected to submit any DAM Energy Bids of curve quantity type in such a way as to not negatively impact market timeline and system performance of the DAM. If an Entity negatively impacts ERCOT system performance or market timelines through its submission behavior more than once in a six month period, ERCOT may, in its sole discretion, make a QSE ineligible to receive the credit exposure calculated in this paragraph for submissions after 0700 and may use the calculations in paragraphs (6)(a)(i) and (6)(a)(ii) above instead until ERCOT is assured, in its sole discretion, that the QSE will adjust its submission behavior accordingly. The QSE will be notified one Operating Day prior to ERCOT changing the QSE eligibility.~~

(b) For each MW portion of a DAM Energy-Only Offer:

(i) That has an offer price that is less than or equal to the "a"th percentile of the ~~Day-Ahead Settlement Point Price~~DASPP for the hour over the previous 30 days, the sum of (A) and (B) shall apply.

(A) Credit exposure will be:

(1) Reduced (when the "b"th percentile Settlement Point Price for the hour is positive). The reduction shall be the quantity of the offer multiplied by the "b"th percentile of the Day-Ahead Settlement Point Price for the hour over the previous 30 days multiplied by "e2"; or

(2) Increased (when the "b"th percentile Settlement Point Price for the hour is negative). The increase shall be the quantity of the offer multiplied by the "b"th percentile of the Day-Ahead Settlement Point Price for the hour over the previous 30 days.

(B) Credit exposure will be increased by the product of the quantity of the offer multiplied by the 90th percentile of any positive hourly difference of Real-Time Settlement Point Price and Day-Ahead Settlement Point Price over the previous 30 days for the hour multiplied by "e3."

(ii) That has an offer price that is greater than the "a"th percentile of the Day-Ahead Settlement Point Price for the hour over the previous 30 days, credit exposure will be increased by the product of the quantity of the offer multiplied by the 90th percentile of any positive hourly difference of Real-Time Settlement Point Price and Day-Ahead Settlement Point Price over the previous 30 days for the hour multiplied by "e3."

(iii) ERCOT may, in its sole discretion, use a percentile other than the 90th percentile of any positive hourly difference of Real-Time Settlement Point Price and ~~Day-Ahead Settlement Point Price~~DASPP over the previous 30 days of the hour in determining credit exposure per this paragraph (6)(b) in evaluating DAM Energy-Only Offers.

(c) For each MW portion of the Energy Offer Curve of a Three-Part Supply Offer:

(i) That has an offer price that is less than or equal to the "y"th percentile of the Day-Ahead Settlement Point Price for the hour over the previous 30 days, credit exposure will be reduced (when the "z"th percentile Settlement Point Price is positive) or increased (when the "z"th percentile Settlement Point Price is negative) by the quantity of the offer multiplied by the "z"th percentile of the Day-Ahead Settlement Point Price for the hour over the previous 30 days.

(ii) That has an offer price that is greater than the "y"th percentile of the Day-Ahead Settlement Point Price for the hour over the previous 30 days, the credit exposure will be zero.

(iii) For a Combined Cycle Generation Resource with Three-Part Supply Offers for multiple generator configurations, the reduction in credit exposure will be the maximum credit exposure reduction created by the individual Three-Part Supply Offers' Offer Curves (when the "z"th percentile Settlement Point Price is positive). If the Three-Part Supply Offer causes a credit increase (when the "z"th percentile Settlement Point Price is negative), the increase in credit exposure will be the maximum

credit exposure increase created by the individual Three-Part Supply Offers.

(d) For PTP Obligation Bids:

(i) That have a bid price greater than zero, the sum of the quantity of the bid multiplied by the bid price, plus the "u"th percentile of the hourly positive price difference between the source Real-Time Settlement Point Price minus the sink Real-Time Settlement Point Price over the previous 30 days multiplied by the quantity of the bid.

(ii) That have a bid price less than or equal to zero, the "u"th percentile of the hourly positive price difference between the source Real-Time Settlement Point Price minus the sink Real-Time Settlement Point Price over the previous 30 days multiplied by the quantity of the bid.

(iii) Each tenth of a MW quantity (0.1 MW) of an expiring CRR for a Counter-Party can provide credit reduction for only one-tenth of a MW (0.1 MW) of a PTP Obligation bid for that Counter-Party.

(A) The QSE must submit the PTP Obligation bid at the same source and sink pair for the same hour, for the same operating date where the QSE submitting the PTP Obligation bid is represented by the same Counter-Party as the CRR Account Holder that is the owner of record for an expiring CRR, or group of CRRs. To reduce both market timeline and system performance impact, the QSE is expected to submit these PTP Obligation bids by 0630 of the Day-Ahead. If an Entity negatively impacts ERCOT system performance or market timelines through its submission behavior more than once in a six month period, ERCOT may, in its sole discretion disclose the names of entities negatively impacting performance and/or make a QSE ineligible to receive CRR credit exposure offsetting for submissions after 0700 until ERCOT is assured, in its sole discretion, that a QSE will adjust its submission behavior accordingly. The QSE will be notified one Operating Day prior to ERCOT changing the QSE eligibility.

(B) A portion or all of the PTP Obligation bid quantity must be less than or equal to the total of the quantity of all expiring CRRs at the specified source and sink pair and delivery period, less all valid previously submitted PTP Obligation bids at the specified source and sink pair and delivery period.

(iv) For qualified PTP Obligation bids, ERCOT shall reduce the credit exposure in paragraph (6)(d)(i) above, by the product of the bid price, if positive, and the quantity of the bid less than or equal to the quantity of the total of all expiring CRRs at the specified source and sink pair and

delivery period, less all valid previously submitted PTP Obligation bids at the specified source and sink pair and delivery period multiplied by a factor initially set at 80% and to be reviewed by TAC and approved by the ERCOT Board at least annually. The factor can be adjusted up or down at ERCOT's sole discretion with at least two Bank Business Day's notice. ERCOT may adjust this factor up with less notice, if needed. The expiring CRR may be PTP Options and/or PTP Obligations. If a QSE later cancels the PTP Obligation bid then the amount of exposure credited back to the Counter-Party will be treated as though this PTP Obligation bid was previously offset by expiring CRRs if a matching CRR source and sink pair exists up to the maximum expiring CRR quantity. If a QSE updates the PTP Obligation bid then it will be treated as a cancel followed by a new submission for purposes of credit exposure calculation. Outcome of this calculation is dependent of the sequence of submittals for updates and cancels.

[NPRR322: Insert paragraph(6)(e) below and renumber accordingly upon system implementation:]

(e) For PTP Obligation bids with Links to an Option:

(i) That have a bid price greater than zero, the sum of the quantity of the bid multiplied by the bid price, multiplied by one minus the reduction factor in paragraph (6)(d)(iv) above.

(ii) That have a bid price less than or equal to zero, zero.

(e) For Ancillary Services not self-arranged, the product of the quantity of Ancillary Service not self-arranged multiplied by the "t"th percentile of the hourly Market Clearing Price for Capacity (MCPC) for that Ancillary Service over the previous 30 days for that hour.

[NPRR316: Replace paragraph (6)(e) above with the following upon system implementation:]

(e) For Ancillary Service Obligations not self-arranged, the product of the quantity of Ancillary Service Obligation not self-arranged multiplied by the "t"th percentile of the hourly Market Clearing Price for Capacity (MCPC) for that Ancillary Service over the previous 30 days for that hour. For negative Self-Arranged Ancillary Service Quantities, the absolute value of the product of the quantity of the negative Self-Arranged Ancillary Service Quantity times the "t"th percentile of the hourly MCPC for that Ancillary Service over the previous 30 days for that hour.

(f) Variables "e1," "e2," or "e3", which are applicable to items (a) through (c) above, under conditions described below, will be determined and applied at ERCOT's sole discretion. Within the application parameters identified below, ERCOT shall establish values for "e1," "e2," and "e3" and provide notice to an affected Counter-Party of any changes to "e1," "e2," or "e3" before 0900 generally two Bank Business Days prior to the normally scheduled DAM 1000 by a minimum of two of these methods: written, electronic, or telephonic. However, ERCOT may adjust any "e" factor immediately if, in its sole discretion, ERCOT determines that the "e" factor(s) set for a Counter-Party do not adequately match the financial risk created by that Counter-Party's activities in the market. ERCOT shall review the values for "e1," "e2," or "e3" for each Counter-Party no less than once every two weeks. ERCOT shall provide written or electronic notice to the Counter-Party of the basis for ERCOT's assessment, or change of assessment, of the exposure adjustment variable established for the Counter-Party and the impact of the adjustment.

(i) The value of each exposure adjustment "e1," "e2," and "e3" is a value between zero and one, rounded to the nearest hundredth decimal place, set by ERCOT by Counter-Party. The values ERCOT establishes for "e1," "e2," and "e3" for a Counter-Party shall be applied equally to the portfolio of all QSEs represented by such Counter-Party.

(ii) A TAC-recommended and ERCOT Board-approved procedure ("Procedures for Setting Nodal Day-Ahead Market Credit Requirement Parameters"), which will be reviewed at least annually and posted on the MIS Public Area, will be used to define and modify the values of "e1," "e2," and "e3."

(7) The variables to define the pre-DAM credit validation process referenced in item (6) above (including the standard setting for the "e1," "e2," and "e3," if any) shall be posted on the MIS Public Area. TAC shall review these variables at least annually and may recommend to the ERCOT Board, changes to these values. If changes to these values are approved by the ERCOT Board, such revised values shall be posted on the MIS Public Area within three Business Days of ERCOT Board approval.

ERCOT Nodal Protocols

Section 6: Adjustment Period and Real-Time Operations

August 24~~1~~, 2011

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6 ADJUSTMENT PERIOD AND REAL-TIME OPERATIONS

6.3 Adjustment Period and Real-Time Operations Timeline

6.3.2 Activities for Real-Time Operations

(1) Activities for Real-Time operations begin at the end of the Adjustment Period and conclude at the close of the Operating Hour.

(2) The following table summarizes the timeline for the Operating Period and the activities of QSEs and ERCOT during Real-Time operations where "T" represents any instant within the Operating Hour. The table is intended to be only a general guide and not controlling language, and any conflict between this table and another section of the Protocols is controlled by the other section:

Operating Period	QSE Activities	ERCOT Activities
During the first hour of the Operating Period		Execute the Hour-Ahead Sequence, including HRUC, beginning with the second hour of the Operating Period Review and communicate HRUC commitments Snapshot the Scheduled Power Consumption for Controllable Load Resources
Before the start of each SCED run	Update Output Schedules for DSRs	Validate Output Schedules for DSRs Execute Real-Time Sequence
SCED run		Execute SCED
During the Operating Hour	Telemeter the Ancillary Service Resource Responsibility for each Resource Acknowledge receipt of Dispatch Instructions Comply with Dispatch Instruction Review Resource Status to assure current state of the Resources is properly telemetered Update COP with actual Resource Status and limits and Ancillary Service Schedules Communicate Resource Forced Outages	Communicate all Base Points, Dispatch Instructions and LMPs for energy and Ancillary Services using Inter-Control Center Communications Protocol (ICCP) or Verbal Dispatch Instructions (VDIs) Monitor Resource Status and identify discrepancies between COP and telemetered Resource Status Restart Real-Time Sequence on major change of Resource or Transmission Element Status Monitor ERCOT total system capacity providing Ancillary Services

Operating Period	QSE Activities	ERCOT Activities
	to ERCOT Communicate to ERCOT Resource changes to Ancillary Service Resource Responsibility via telemetry in the time window beginning 30 seconds prior to the five-minute clock interval and ending ten seconds prior to that five-minute clock interval	Validate COP information Monitor ERCOT control performance Distribute by ICCP, and post to the MIS Public Area, the LMPs created by each SCED process for each Resource Node. These prices shall be posted immediately subsequent to deployment of Base Points from SCED with the time stamp the prices are effective Post Hub LMP, Load Zone LMP, and LMPs for each Electrical Bus via the MIS Public Area. These prices shall be posted immediately subsequent to deployment of Base Points from SCED with the time stamp the prices are effective Post each hour on the MIS Public Area SCED Shadow Prices and active binding transmission constraints by Transmission Element name (contingency /overloaded element pairs) Post the Settlement Point Prices for each Settlement Point immediately following the end of each Settlement Interval Post parameters as required by Section 6.4.8, Ancillary Services Capacity During the Adjustment Period and in Real-Time, to the MIS Public Area

~~(2) The following table summarizes the timeline for the Operating Period and the activities of QSEs and ERCOT during Real-Time operations where "T" represents any instant within the Operating Hour. The table is intended to be only a general guide and not controlling language, and any conflict between this table and another section of the Protocols is controlled by the other section:~~

~~Operating Period~~	~~QSE Activities~~	~~ERCOT Activities~~
~~During the first hour of the Operating Period~~		~~Execute the Hour-Ahead Sequence, including HRUC, beginning with the second hour of the Operating Period~~ ~~Review and communicate HRUC commitments~~ ~~Snapshot the Scheduled Power Consumption for Controllable Load Resources~~

Operating Period	QSE Activities	ERCOT Activities
Before the start of each SCED run	Update Output Schedules for DSRs	Validate Output Schedules for DSRs Execute Real-Time Sequence
SCED run		Execute SCED
During the Operating Hour	Telemeter the Ancillary Service Resource Responsibility for each Resource Acknowledge receipt of Dispatch Instructions Comply with Dispatch Instruction Review Resource Status to assure current state of the Resources is properly telemetered Update COP with actual Resource Status and limits and Ancillary Service Schedules Communicate Resource Forced Outages to ERCOT Communicate to ERCOT Resource changes to Ancillary Service Resource Responsibility via telemetry in the time window beginning 30 seconds prior to the five-minute clock interval and ending ten seconds prior to that five-minute clock interval	Communicate all Base Points, Dispatch Instructions and LMPs for energy and Ancillary Services using Inter-Control Center Communications Protocol (ICCP) or Verbal Dispatch Instructions (VDIs) Monitor Resource Status and identify discrepancies between COP and telemetered Resource Status Restart Real-Time Sequence on major change of Resource or Transmission Element Status Monitor ERCOT total system capacity providing Ancillary Services Validate COP information Monitor ERCOT control performance Distribute by ICCP, and post to the MIS Public Area, the LMPs created by each SCED process for each Resource Node. These prices shall be posted immediately subsequent to deployment of Base Points from SCED with the time stamp the prices are effective Post Hub LMP, Load Zone LMP, and LMPs for each Electrical Bus via the MIS Public Area. These prices shall be posted immediately subsequent to deployment of Base Points from SCED with the time stamp the prices are effective Post each hour on the MIS Public Area SCED Shadow Prices and active binding transmission constraints by Transmission Element name (contingency /overloaded element pairs) Post the Settlement Point Prices for each Settlement Point immediately following the end of each Settlement Interval Post parameters as required by Section 6.4.8,

Operating Period	QSE Activities	ERCOT Activities
		Ancillary Services Capacity During the Adjustment Period and in Real-Time, to the MIS Secure Area

[NPRR350: Replace paragraph (2) above with the following upon system implementation:]

(2) The following table summarizes the timeline for the Operating Period and the activities of QSEs and ERCOT during Real-Time operations where "T" represents any instant within the Operating Hour. The table is intended to be only a general guide and not controlling language, and any conflict between this table and another section of the Protocols is controlled by the other section:

Operating Period	QSE Activities	ERCOT Activities
During the first hour of the Operating Period		Execute the Hour-Ahead Sequence, including HRUC, beginning with the second hour of the Operating Period Review and communicate HRUC commitments Snapshot the Scheduled Power Consumption for Controllable Load Resources
Before the start of each SCED run	Update Output Schedules for DSRs	Validate Output Schedules for DSRs Execute Real-Time Sequence
SCED run		Execute SCED
During the Operating Hour	Telemeter the Ancillary Service Resource Responsibility for each Resource Acknowledge receipt of Dispatch Instructions Comply with Dispatch Instruction Review Resource Status to assure current state of the Resources is properly telemetered Update COP with actual Resource Status and limits and Ancillary Service Schedules Communicate Resource Forced Outages to ERCOT Communicate to ERCOT Resource	Communicate all Base Points, Dispatch Instructions and LMPs for energy and Ancillary Services using Inter-Control Center Communications Protocol (ICCP) or Verbal Dispatch Instructions (VDIs) Monitor Resource Status and identify discrepancies between COP and telemetered Resource Status Restart Real-Time Sequence on major change of Resource or Transmission Element Status Monitor ERCOT total system capacity providing Ancillary Services Validate COP information Monitor ERCOT control performance

	~~changes to Ancillary Service Resource Responsibility via telemetry in the time window beginning 30 seconds prior to the five-minute clock interval and ending ten seconds prior to that five-minute clock interval~~	~~Distribute by ICCP, and post to the MIS Public Area, the LMPs created by each SCED process for each Resource Node. These prices shall be posted immediately subsequent to deployment of Base Points from SCED with the time stamp the prices are effective~~ ~~Post Hub LMP, Load Zone LMP, and LMPs for each Electrical Bus via the MIS Public Area. These prices shall be posted immediately subsequent to deployment of Base Points from SCED with the time stamp the prices are effective~~ ~~Post each hour on the MIS Public Area SCED Shadow Prices and active binding transmission constraints by Transmission Element name (contingency /overloaded element pairs)~~ ~~Post the Settlement Point Prices for each Settlement Point immediately following the end of each Settlement Interval~~ ~~Post parameters as required by Section 6.4.8, Ancillary Services Capacity During the Adjustment Period and in Real-Time, to the MIS Public Area~~

(3) At the beginning of each hour, ERCOT shall post on the MIS Public Area the following information:

(a) Changes in ERCOT System conditions that could affect the security and dynamic transmission limits of the ERCOT System, including:

(i) Changes or expected changes, in the status of Transmission Facilities as recorded in the Outage Scheduler for the remaining hours of the current Operating Day and all hours of the next Operating Day; and

(ii) Any conditions such as adverse weather conditions as determined from the ERCOT-designated weather service;

(b) Updated system-wide Load forecasts;

(c) The quantities of Reliability Must-Run (RMR) Services deployed by ERCOT for each previous hour of the current Operating Day;

(d) Total ERCOT System Demand, from Real-Time operations, integrated over each Settlement Interval; and

(e) Updated Electrical Bus Load distribution factors and other information necessary to forecast Electrical Bus Loads for each hour of the current Operating Day and all hours of the next Operating Day.

6.5 Real-Time Energy Operations

6.5.7 Energy Dispatch Methodology

6.5.7.5 Ancillary Services Capacity Monitor

(1) ERCOT shall calculate the following every ten seconds and provide Real-Time summaries to ERCOT Operators and all Market Participants using ICCP, giving updates of calculations every ten seconds, and posting on the MIS Public Area, giving updates of calculations every five minutes, which show the Real-Time total system amount of:

(a) RRS capacity from Generation Resources;

(b) RRS capacity from Load Resources excluding Controllable Load Resources;

(c) RRS capacity from Controllable Load Resources;

(d) Non-Spin available from On-Line Generation Resources with Energy Offer Curves;

(e) Non-Spin available from undeployed Load Resources;

(f) Non-Spin available from Off-Line Generation Resources;

(g) Non-Spin available from Resources with Output Schedules;

(h) Undeployed Reg-Up and undeployed Reg-Down;

(i) Available capacity with Energy Offer Curves in the ERCOT System that can be used to increase Base Points in SCED;

(j) Available capacity with Energy Offer Curves in the ERCOT System that can be used to decrease Base Points in SCED;

(k) Available capacity without Energy Offer Curves in the ERCOT System that can be used to increase Base Points in SCED;

(l) Available capacity without Energy Offer Curves in the ERCOT System that can be used to decrease Base Points in SCED; and

(m) The ERCOT-wide Physical Responsive Capability (PRC) calculated as follows:

$$PRC_1 = \sum_{i=\text{online generation resource}}^{\text{All online generation resources}} \text{Min}(\text{Max}((RDF*HSL - \text{Actual Net Telemetered Output})_i, 0.0), 0.2*RDF*HSL_i)$$

$$PRC_2 = \sum_{i=\text{online generation resource}}^{\text{All online generation resources}} ((\text{Hydro-synchronous condenser output})_i \text{ as qualified by item (6) of Operating Guide Section 2.3.1.2, Additionl Operational Details for Responsive Reserve Providers))}$$

$$PRC = PRC_1 + PRC_2$$

The above variables are defined as follows:

Variable	Unit	Description
PRC_1	MW	Generation On-Line greater than 0 MW
PRC_2	MW	Hydro-synchronous condenser output
PRC	MW	Physical Responsive Capability
RDF		The currently approved Reserve Discount Factor

~~(1) ERCOT shall calculate the following every ten seconds and provide Real-Time summaries to ERCOT Operators and all Market Participants using ICCP, giving updates of calculations every ten seconds, and posting on the MIS Secure Area, giving updates of calculations every five minutes, which show the Real-Time total system amount of:~~

~~(a) RRS capacity from Generation Resources;~~

~~(b) RRS capacity from Load Resources excluding Controllable Load Resources;~~

~~(c) RRS capacity from Controllable Load Resources;~~

~~(d) Non-Spin available from On-Line Generation Resources with Energy Offer Curves;~~

~~(e) Non-Spin available from undeployed Load Resources;~~

~~(f) Non-Spin available from Off-Line Generation Resources;~~

~~(g) Non-Spin available from Resources with Output Schedules;~~

~~(h) Undeployed Reg-Up and undeployed Reg-Down;~~

~~(i) Available capacity with Energy Offer Curves in the ERCOT System that can be used to increase Base Points in SCED;~~

~~(j) Available capacity with Energy Offer Curves in the ERCOT System that can be used to decrease Base Points in SCED;~~

~~(k) Available capacity without Energy Offer Curves in the ERCOT System that can be used to increase Base Points in SCED;~~

~~(l) Available capacity without Energy Offer Curves in the ERCOT System that can be used to decrease Base Points in SCED; and~~

~~(m) The ERCOT-wide Physical Responsive Capability (PRC) calculated as follows:~~

$$PRC_1 = \sum_{\substack{i=online\ generation\ resource}}^{\substack{All\ online\ generation\ resources}} Min(Max((RDF*HSL - Actual\ Net\ Telemetered\ Output)_i, 0.0), 0.2*RDF*HSL_i)$$

$$PRC_2 = \sum_{\substack{i=online\ generation\ resource}}^{\substack{All\ online\ generation\ resources}} ((Hydro\text{-}synchronous\ condenser\ output)_i\ as\ qualified\ by\ item\ (6)\ of\ Operating\ Guide\ Section\ 2.3.1.2,\ Additionl\ Operational\ Details\ for\ Responsive\ Reserve\ Providers))$$

$$PRC = PRC_1 + PRC_2$$

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

~~Variable~~	~~Unit~~	~~Description~~
~~PRC_1~~	~~MW~~	~~Generation On-Line greater than 0 MW~~
~~PRC_2~~	~~MW~~	~~Hydro-synchronous condenser output~~
~~PRC~~	~~MW~~	~~Physical Responsive Capability~~
~~RDF~~		~~The currently approved Reserve Discount Factor~~

[NPRR350: Replace paragraph (l) above with the following upon system implementation:]

~~(l) ERCOT shall calculate the following every ten seconds and provide Real-Time summaries to ERCOT Operators and all Market Participants using ICCP, giving updates of calculations every ten seconds, and posting on the MIS Public Area, giving updates of calculations every five minutes, which show the Real-Time total system amount of:~~

~~(a) RRS capacity from Generation Resources;~~

~~(b) RRS capacity from Load Resources excluding Controllable Load Resources;~~

~~(c) RRS capacity from Controllable Load Resources;~~

~~(d) Non-Spin available from On-Line Generation Resources with Energy Offer Curves;~~

~~(e) Non-Spin available from undeployed Load Resources;~~

~~(f) Non-Spin available from Off-Line Generation Resources;~~

~~(g) Non-Spin available from Resources with Output Schedules;~~

~~(h) Undeployed Reg-Up and undeployed Reg-Down;~~

~~(i) Available capacity with Energy Offer Curves in the ERCOT System that can be used to increase Base Points in SCED;~~

~~(j) Available capacity with Energy Offer Curves in the ERCOT System that can be used to decrease Base Points in SCED;~~

~~(k) Available capacity without Energy Offer Curves in the ERCOT System that can be used to increase Base Points in SCED;~~

~~(l) Available capacity without Energy Offer Curves in the ERCOT System that can be used to decrease Base Points in SCED; and~~

~~(m) The ERCOT-wide Physical Responsive Capability (PRC) calculated as follows:~~

$$PRC_t = \sum_{i=\text{online generation resource}}^{\text{All online generation resources}} \text{Min}(\text{Max}((RDF*HSL - \text{Actual Net Telemetered Output}), 0.0), 0.2*RDF*HSL)$$

~~$PRC_2 = \sum_{i=\text{online generation resources}}$ ((Hydro synchronous condenser output), as qualified by item (6) of Operating Guide Section 2.3.1.2, Additional Operational Details for Responsive Reserve Providers))$_{i=\text{online generation resource}}$~~

~~$PRC = PRC_1 + PRC_2$~~

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

~~Variable~~	~~Unit~~	~~Description~~
~~PRC_1~~	~~MW~~	~~Generation On Line greater than 0 MW~~
~~PRC_2~~	~~MW~~	~~Hydro synchronous condenser output~~
~~PRC~~	~~MW~~	~~Physical Responsive Capability~~
~~RDF~~		~~The currently approved Reserve Discount Factor~~

(2) Each QSE shall operate Resources providing Ancillary Service capacity to meet its obligations. If a QSE experiences temporary conditions where its total obligation for providing Ancillary Service cannot be met on the QSE's Resources, then the QSE may add additional capability from other Resources that it represents. It adds that capability by changing the Resource Status and updating the Ancillary Service Schedules and Ancillary Services Resource Responsibility of the affected Resources and notifying ERCOT under Section 6.4.8.1, Evaluation and Maintenance of Ancillary Service Capacity Sufficiency. If the QSE is unable to meet its total obligations to provide committed Ancillary Services capacity, the QSE shall notify ERCOT immediately of the expected duration of the QSE's inability to meet its obligations. ERCOT shall determine whether replacement Ancillary Services will be procured on behalf of the affected QSE according to Section 6.4.8.1.