Control Number: 24055

Item Number: 252

Addendum StartPage: 0

PROJECT NO. 24055

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

NOTICE OF ERCOT NODAL PROTOCOL REVISIONS (JANUARY 1, 2012)

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) 351, 377, and 395 (effective upon system implementation); 403 (effective upon system implementation of PR11002_01, Texas SET 4.0); 398, 399, 401, 404, 406, and ERCOT Fee Schedule (effective January 1, 2012); 426, 427, and 428 (effective January 5, 2012). These NPRRs were developed in the ERCOT committee process, and approved by the ERCOT Board of Directors (ERCOT Board) on December 12, 2011; and ERCOT Fee Schedule (approved by the ERCOT Board on October 18, 2011). These NPRRs are described below.

NPRR	Description	ERCOT Nodal Protocol Sections Modified
351 **(Effective Upon System Implementation)**	**SCED Look-Ahead Step 1: Pricing: Calculate Non-Binding Prices and Base Points for Initial Research into SCED Look-Ahead and allow Consumers to have a Forward Price Projection (formerly "Calculate and Post Projected Non-Binding LMPs for the Next 15 Minutes").** Using the inputs specified in this NPRR, ERCOT will calculate prices and base points over the next hour, using an hour-long optimization instead of a five-minute optimization.	Section 6, Subsections 6.3.2 and 6.5.7.3 (Attachment A)

252

000001

	These calculated prices and base points will initially be non-binding, although it is anticipated that these will become binding as Security-Constrained Economic Dispatch (SCED) Look-Ahead progresses in future phases.	
377 **(Effective Upon System Implementation)**	**Alternate Inputs to Base Point Deviation Charge.** This NPRR aligns the Adjusted Aggregated Base Points (AABP) formula with the inputs to the Generation Resource Energy Deployment Performance (GREDP) measure; and includes bill determinants to track the over- and under-generated volumes and correct language for bill determinants P1 and P2.	Section 6, Subsections 6.6.5, 6.6.5.1, 6.6.5.1.1, 6.6.5.1.2, 6.6.5.2, and 6.6.5.3 (Attachment A)
395 **(Effective Upon System Implementation)**	**CRR Auction Offer Award Disclosure.** This NPRR requires ERCOT to post Congestion Revenue Right (CRR) Auction offer awards following each CRR Auction in the exact fashion CRR Auction bid awards are currently posted on the Market Information System (MIS) Public Area.	Section 7, Subsection 7.5.3.1 (Attachment B)
398	**Changes to Resource Category Minimum-Energy Generic Heat Rates.** This NPRR changes the Resource Category Minimum-Energy Generic Heat Rates for several fuel type Resource categories.	Section 4, Subsection 4.4.9.2.3 (Attachment C)
399	**Updates to Protocol Sections Related to Settlements and Billing.** This NPRR revises Protocol sections related to Settlements and billing to include corrections to Protocol references and clarifications to variables.	Section 4, Subsections 4.4.9.3.3, 4.6.2.3.2, and 4.6.3 (Attachment C) Section 5, Subsection 5.6.1 (Attachment D) Section 6, Subsections 6.6.3.4, 6.6.3.5, 6.6.5, 6.6.6.3, and 6.6.9 (Attachment A)

		Section 7, Subsections 7.5.6.1, 7.5.6.2, and 7.5.6.3 (Attachment B) Section 9, Subsections 9.2.3 and 9.5.6 (Attachment E)
401	**Clarification of Timing for a Generation Resource to be Considered Self-Committed.** This NPRR removes language that broadly allows Qualified Scheduling Entities (QSEs) to self-commit between the time Reliability Unit Commitment (RUC) executes and the time that the QSE receives the RUC instruction, but does not speak to the Settlement treatment and can result in conflicting commitment information. This NPRR also clarifies the timing by which a QSE may self-commit a Generation Resource, specifically the timing of the self-commitment required in order for the Generation Resource to be considered self-committed by a RUC process and in Settlement of that same RUC process.	Section 2, Subsection 2.1 (Attachment F) Section 5, Subsections 5.3, 5.5.2 and 5.6.2 (Attachment D)
403 **(Effective Upon System Implementation of PR11002_01, Texas SET 4.0)**	**Revised FASD Calculation for TX SET Version 4.0 Release.** This NPRR revises the First Available Switch Date (FASD) calculation to include the availability of same day switches on Saturday.	Section 15, Subsection 15.1.1 (Attachment G)
404	**Clarification of Form of Notification of Suspension of Operations.** This NPRR removes an obsolete reference to excess energy payment options from the form of Notification of Suspension of Operations in Section 22, Attachment E, Notification of Suspension of Operations.	Section 22, Attachment E (Attachment H)

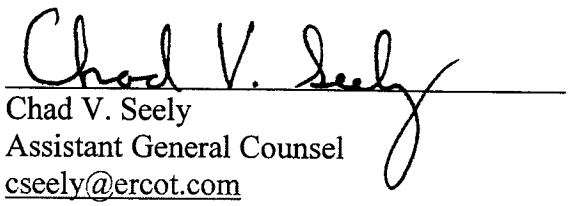
406	**Clarification of the Timeline for Calculating the Value of X at Minimum Energy Level.** This NPRR clarifies that the effective date for the value of X as applied to fuel at the minimum energy level is described in the Verifiable Cost Manual.	Section 5, Subsection 5.6.1.2 (Attachment D)
426 **(Effective January 5, 2012)**	**Standing Non-Spin Deployment in the Operating Hour for Generation Resources Providing On-Line Non-Spin.** This NPRR requires QSE action that routinely releases certain On-Line Non-Spinning Reserve (Non-Spin) energy to SCED without the need for ERCOT to issue a Non-Spin deployment Instruction. The changes in Section 6.5.7.6.2.3 do not invalidate any other existing requirements contained in this section. Those Generation Resources not subject to the provisions contained in paragraph (5) of Section 6.5.7.6.2.3 must respond to any Non-Spin deployment or recall Instruction issued by ERCOT Operators in accordance with the Technical Advisory Committee (TAC)-approved procedure to deploy Resources providing Non-Spin Service.	Section 6, Subsection 6.5.7.6.2.3 (Attachment A)
427 **(Effective January 5, 2012)**	**Energy Offer Curve Requirements for Generation Resources Assigned Reg-Up and RRS.** This NPRR requires for the Energy Offer Curve to be set at the System-Wide Offer Cap (SWCAP) for the capacity reserved for Responsive Reserve (RRS) Service Ancillary Service Resource Responsibility and Regulation Up (Reg-Up) Ancillary Service Resource Responsibility because of the Day-Ahead Market (DAM) or Supplemental Ancillary Services Market (SASM) Ancillary Service awards, or Self-Arranged Ancillary Service Quantity.	Section 6, Subsection 6.4.3.2 (Attachment A)

428 **(Effective January 5, 2012)**	**Energy Offer Curve Requirements for Generation Resources Assigned Non-Spin Responsibility.** This NPRR requires for the Energy Offer Curve to be at or above $120 for On-Line Non-Spin capacity and at or above $180 for Off-Line Non-Spin capacity.	Section 6, Subsection 6.4.3.1 (Attachment A)
ERCOT Fee Schedule	**ERCOT Fee Schedule.** Changes were made to the ERCOT Wide Area Network (WAN) Management Fee to (1) increase the not-to exceed fee from $18,000 to $25,000 per connection for initial equipment installations which includes a set $6,000 activation fee; and (2) increase the not-to-exceed fee from $865 to $1,500 per connection for monthly network management which includes additional unbilled ERCOT Staff support and vendor costs for private WAN.	ERCOT Fee Schedule (Attachment I)

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

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

Respectfully submitted,



Chad V. Seely
Assistant General Counsel
cseely@ercot.com
Texas Bar No. 24037466
(512) 225-7035 (Phone)
(512) 225-7079 (Fax)

ERCOT
7620 Metro Center Drive
Austin, Texas 78744

ATTORNEY FOR ELECTRIC RELIABILITY
COUNCIL OF TEXAS, INC.

LIST OF ATTACHMENTS

ATTACHMENT A – Section 06-010112 Redline

ATTACHMENT B – Section 07-010112 Redline

ATTACHMENT C – Section 04-010112 Redline

ATTACHMENT D – Section 05-010112 Redline

ATTACHMENT E – Section 09-010112 Redline

ATTACHMENT F – Section 02-010112 Redline

ATTACHMENT G – Section 15-010112 Redline

ATTACHMENT H – Section 22 – Attachment E-010112 Redline

ATTACHMENT I – ERCOT Fee Schedule 010112 Redline

ERCOT Nodal Protocols

Section 6: Adjustment Period and Real-Time Operations

~~December 9, 2011~~January 1, 2012

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 to ERCOT Communicate to ERCOT Resource changes to Ancillary Service 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

Operating Period	QSE Activities	ERCOT Activities
	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 ~~onto~~ the MIS Public Area, the LMPs created by each SCED process for each Resource Node, Load Zone and Hub. These prices shall be posted immediately subsequent to deployment of Base Points from SCED with the time stamp the prices are effective Post LMPs for each Electrical Bus ~~via~~ on 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~~ on the MIS Public Area

[NPRR351: 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 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 binding 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 on the MIS Public Area, the LMPs created by each SCED process for each Resource Node, Load Zone and Hub. These prices shall be posted immediately subsequent to deployment of Base Points from SCED with the time stamp the prices are effective Post LMPs for each Electrical Bus on the MIS Public Area. These prices shall be posted immediately subsequent to deployment of Base Points from each binding SCED with the time stamp the prices are effective Post on the MIS Public Area the projected non-binding LMPs created by each SCED process for each Resource Node, the projected Hub LMPs and Load Zone LMPs. These projected prices shall be posted at a frequency of every five minutes from SCED for at least 15 minutes in the future with the time stamp of the SCED process that produced the projections Post on the MIS Certified Area the projected non-binding Base Points for each Resource created by each SCED process. These projected non-binding Base Points shall be posted at a frequency of every five minutes from SCED for at least 15 minutes in the future with the time stamp of the SCED process that produced the projections

		Post each hour on the MIS Public Area binding 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, on 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.

6.4 Adjustment Period

6.4.3 Energy Offer Curve

[NPRR428: Insert Section 6.4.3.1 below on January 5, 2012:]

6.4.3.1 Energy Offer Curve for Non-Spinning Reserve Capacity

The following applies to Generation Resources that a QSE assigns Non-Spinning Reserve (Non-Spin) Ancillary Service Resource Responsibility in its Current Operating Plan (COP) to meet the QSE's Ancillary Service Supply Responsibility for Non-Spin and includes both On-Line and Off-Line Non-Spin assignments arising as the result of Day-Ahead Market (DAM) or Supplemental Ancillary Services Market (SASM) Ancillary Service awards, or Self-Arranged Ancillary Service Quantity.

(a) Prior to the end of the Adjustment Period for an Operating Hour during which a Generation Resource is assigned Non-Spin Ancillary Service Resource Responsibility, the QSE shall ensure that a valid Output Schedule or Energy Offer Curve for the Operating Hour has been submitted and accepted by ERCOT. The Energy Offer Curves submitted by the QSE for these Generation Resources must meet the following requirements:

(i) If the Generation Resource is providing On-Line Non-Spin capacity, the energy from this capacity may not be offered at less than $120 per MWh; or

(ii) If the Generation Resource is providing Off-Line Non-Spin capacity, the energy from this capacity may not be offered at less than $180 per MWh.

(b) Paragraph (a) above shall not restrict the ability of the QSE to update the Energy Offer Curves for its Generation Resources in accordance with these Protocols provided that in those Operating Hours in which a Generation Resource is assigned Non-Spin Ancillary Service Resource Responsibility, the portion of the Energy Offer Curve reserved for this Ancillary Service meets those requirements.

(c) If, in accordance with an ERCOT Dispatch Instruction or in accordance with Section 6.4.6, QSE-Requested Decommitment of Resources and Changes to Ancillary Service Resource Responsibility of Resources, the QSE moves Non-Spin Ancillary Service Resource Responsibility from a Generation Resource that experiences a Forced Outage, Derate or Startup Loading Failure during the Operating Period described in paragraph (a) above, the QSE shall ensure that a valid Output Schedule or Energy Offer Curve that meets the requirements of this Section has been submitted as soon as reasonably practicable after the event.

(d) For the portion of the Non-Spin Ancillary Service Resource Responsibility provided from power augmentation participating as Off-Line, the criteria described in paragraph (a)(ii) above applies.

(e) To ensure that the Energy Offer Curves submitted in accordance with this section meets the requirement for a monotonically increasing Energy Offer Curve, the energy offer for capacity reserved for Responsive Reserve (RRS) and Regulation Up (Reg-Up) must also be offered by the QSE at no less than the minimums set forth in paragraph (a) above.

[NPRR427: Insert Section 6.4.3.2 below on January 5, 2012:]

6.4.3.2 Energy Offer Curve for Responsive Reserve and Regulation Up Capacity

The following applies to Generation Resources that a QSE assigns RRS and/or Reg-Up Ancillary Service Resource Responsibility in its COP to meet the QSE's Ancillary Service Supply Responsibility for RRS and/or Reg-Up in each Operating Hour. This includes RRS and Reg-Up Ancillary Service Resource Responsibility arising as the result of DAM or SASM Ancillary Service awards, or Self-Arranged Ancillary Service Quantity.

(a) Prior to the end of the Adjustment Period that precedes an Operating Period that includes an Operating Hour during which a Generation Resource is assigned RRS and/or Reg-Up Ancillary Service Resource Responsibility, the QSE shall ensure that a valid Output Schedule or Energy Offer Curve for the Operating Hour has been submitted and accepted by ERCOT. The Energy Offer Curves submitted by the QSE for these Generation Resources must meet the following requirements:

(i) All energy output from the Generation Resource's capacity reserved to provide Reg-Up must be priced at the System-Wide Offer Cap (SWCAP) in $/MWh; and

(ii) All energy output for the Generation Resource's capacity reserved to provide RRS must be priced at the SWCAP in $/MWh.

(b) Paragraph (a) above shall not restrict the ability of the QSE to update the Energy Offer Curves for its Generation Resources in accordance with these Protocols, provided that in those Operating Hours in which a Generation Resource is assigned RRS and/or Reg-Up Ancillary Service Resource Responsibility, the portion of the Energy Offer Curve reserved for these Ancillary Services meet the requirements set forth in paragraph (a) above.

(c) If, in accordance with an ERCOT Dispatch Instruction, or in accordance with Section 6.4.6, QSE-Requested Decommitment of Resources and Changes to Ancillary Service Resource Responsibility of Resources, the QSE moves RRS and/or Reg-Up Ancillary Service Resource Responsibility from a Generation Resource that experiences a Forced Outage, Derate, or Startup Loading Failure during the Operating Period described in paragraph (a) above, the QSE shall ensure that a valid Output Schedule or Energy Offer Curve that meets the requirements of this Protocol section has been submitted as soon as reasonably practicable after the event.

6.5 Real-Time Energy Operations

6.5.7 Energy Dispatch Methodology

6.5.7.3 Security Constrained Economic Dispatch

(1) The SCED process is designed to simultaneously manage energy, the system power balance and network congestion through Resource Base Points and calculation of LMPs every five minutes. The SCED process uses a two-step methodology that applies mitigation prospectively to resolve network Non-Competitive Constraints for the current Operating Hour. The SCED process evaluates Energy Offer Curves and Output Schedules to produce a least cost dispatch of On-Line Generation Resources to the total current generation requirement determined by LFC, subject to power balance and network constraints. The SCED process uses the Resource Status provided by SCADA telemetry under Section 6.5.5.2, Operational Data Requirements, and validated by the Real-Time Sequence, instead of the Resource Status provided by the COP.

[NPRR257: Replace paragraph (1) above with the following upon system implementation:]

(1) The SCED process is designed to simultaneously manage energy, the system power balance and network congestion through Resource Base Points and calculation of LMPs every five minutes. The SCED process uses a two-step methodology that applies mitigation prospectively to resolve Non-Competitive Constraints for the current Operating Hour. The SCED process evaluates Energy Offer Curves and Output Schedules to produce a least cost dispatch of On-Line Generation Resources to the total current generation requirement determined by LFC, subject to power balance and network constraints. The SCED process uses the Resource Status provided by SCADA telemetry under Section 6.5.5.2, Operational Data Requirements, and validated by the Real-Time Sequence, instead of the Resource Status provided by the COP.

(2) The SCED solution must monitor cumulative deployment of Regulation Services and ensure that Regulation Services deployment is minimized over time.

(3) For use as SCED inputs, ERCOT shall use the available capacity of all committed Generation Resources by creating proxy Energy Offer Curves for certain Resources as follows:

(a) Non-WGRs and Dynamically Scheduled Resources (DSRs) without Energy Offer Curves

ERCOT shall create a monotonically increasing proxy Energy Offer Curve as described below for:

(i) Each non-WGR for which its QSE has submitted an Output Schedule instead of an Energy Offer Curve; and

(ii) Each DSR that has not submitted Incremental and Decremental Energy Offer Curves.

MW	Price (per MWh)
HSL	System-Wide Offer Cap (SWCAP)
Output Schedule MW plus 1 MW	SWCAP minus $0.01
Output Schedule MW	-$249.99
LSL	-$250.00

(b) DSRs with Energy Offer Curves

For each DSR that has submitted incremental and decremental Energy Offer Curves, ERCOT shall create a monotonically increasing proxy Energy Offer Curve. That curve must consist of the incremental Energy Offer Curve that reflects the available capacity above the Resource's Output Schedule to its HSL and the decremental Energy Offer Curve that reflects the available capacity below the Resource's Output Schedule to the LSL. The curve must be created as described below:

MW	Price (per MWh)
Output Schedule MW plus 1 MW to HSL	Incremental Energy Offer Curve
LSL to Output Schedule MW	Decremental Energy Offer Curve

(c) Non-WGRs without full-range Energy Offer Curves

For each non-WGR for which its QSE has submitted an Energy Offer Curve that does not cover the full range of the Resource's available capacity, ERCOT shall create a proxy Energy Offer Curve that extends the submitted Energy Offer Curve to use the entire available capacity of the Resource using the SWCAP above the highest point on the Energy Offer Curve to the Resource's HSL and the offer floor from the lowest point on the Energy Offer Curve to its LSL, using these points:

MW	Price (per MWh)
HSL (if more than highest MW in Energy Offer Curve)	SWCAP
1 MW above highest MW in Energy Offer Curve (if less than HSL)	SWCAP minus $0.01
Energy Offer Curve	Energy Offer Curve
1 MW below lowest MW in Energy Offer Curve (if more than LSL)	-$249.99
LSL (if less than lowest MW in Energy Offer Curve)	-$250.00

(d) WGRs

(i) For each WGR that has not submitted an Energy Offer Curve, ERCOT shall create a monotonically increasing proxy Energy Offer Curve as described below:

MW	Price (per MWh)
HSL	SWCAP
HSL minus 1 MW	-$249.99
LSL	-$250.00

(ii) For each WGR for which its QSE has submitted an Energy Offer Curve, ERCOT shall create a monotonically increasing proxy Energy Offer Curve as described below:

MW	Price (per MWh)
HSL (if more than highest MW in Energy Offer Curve)	SWCAP
1 MW above highest MW in Energy Offer Curve (if less than HSL)	SWCAP minus $0.01
Energy Offer Curve	Energy Offer Curve
1 MW below lowest MW in Energy Offer Curve (if more than LSL)	-$249.99
LSL (if less than lowest MW in Energy Offer Curve)	-$250.00

(4) The Entity with decision making authority, as more fully described in Section 3.19.1, Annual Competitiveness Test, over how a Resource or Split Generation Resource is offered or scheduled, shall be responsible for all offers associated with each Resource, including offers represented by a proxy Energy Offer Curve.

[NPRR240: Insert paragraph (5) and renumber accordingly upon system implementation:]

(5) Energy Offer Curves that were constructed in whole or in part with proxy Energy Offer Curves shall be so marked in all ERCOT postings or references to the energy offer.

(5) The two-step SCED methodology referenced in paragraph (1) above is:

(a) The first step is to execute the SCED process to determine Reference LMPs. In this step, ERCOT executes SCED using the full Network Operations Model while only observing limits of Competitive Constraints. Energy Offer Curves for all On-Line Generation Resources, whether submitted by QSEs or created by ERCOT under this Section, are used in the SCED to determine "Reference LMPs."

(b) The second step is to execute the SCED process to produce Base Points, Shadow Prices, and LMPs, subject to security constraints (including Competitive and Non-Competitive Constraints) and other Resource constraints. The second step must:

(i) Use Energy Offer Curves for all On-Line Generation Resources, whether submitted by QSEs or created by ERCOT. Each Energy Offer Curve must be capped at the greater of the Reference LMP (from Step 1) at the Resource Node or the appropriate Mitigated Offer Cap and bounded at the lesser of the Reference LMP (from Step 1) at the Resource Node or the appropriate Mitigated Offer Floor; and

(ii) Observe all Competitive and Non-Competitive Constraints.

(c) ERCOT shall archive information and provide monthly summaries of security violations and any binding transmission constraints identified in Step 2 of the SCED process. The summary must describe the limiting element (or identified operator-entered constraint with operator's comments describing the reason and the Resource-specific impacts for any manual overrides). ERCOT shall provide the summary to Market Participants on the MIS Secure Area and to the Independent Market Monitor (IMM).

[NPRR351: Insert paragraph (6) below with the following upon system implementation:]

(6) For each SCED process, in addition to the binding Base Points and LMPs, ERCOT shall calculate a non-binding projection of the Base Points and Resource Node LMPs, Hub LMPs and Load Zone LMPs at a frequency of every five minutes for at least 15 minutes into the future based on the same inputs to the SCED process as described in this Section, except that the Resource's HDL and LDL and the total generation requirement will be as estimated at future intervals. The Resource's HDL and LDL will be calculated for each interval of the projection based on the ramp rate capability over the study period. ERCOT shall estimate the projected total generation requirement by calculating a Load forecast for the study period. ERCOT shall post the projected non-binding Base Points for each Resource for each interval study period on the MIS Certified Area and the projected non-binding LMPs for Resource Nodes, Hub LMPs and Load Zone LMPs on the MIS Public Area pursuant to Section 6.3.2, Activities for Real-Time Operations.

6.5.7.6.2.3 Non-Spinning Reserve Service Deployment

(1) ERCOT shall deploy Non-Spin Service by operator Dispatch Instruction for On-Line Generation Resources with Energy Offer Curves, Resources with Output Schedules, Off-Line Generation Resources and Load Resources. ERCOT shall develop a procedure approved by TAC to deploy Resources providing Non-Spin Service. ERCOT Operators shall implement the deployment procedure when a specified threshold(s) in MW of capability available to SCED to increase generation is reached. ERCOT Operators may implement the deployment procedure to recover deployed RRS or when other Emergency

Conditions exist. The deployment of Non-Spin must always be 100% of that scheduled on an individual Resource.

[NPRR426: Replace paragraph (1) above with the following on January 5, 2012:]

(1) ERCOT shall deploy Non-Spin Service by operator Dispatch Instruction for the portion of On-Line Generation Resources that is only available through power augmentation and participating as Off-Line Non-Spin, Off-Line Generation Resources and Load Resources. ERCOT shall develop a procedure approved by TAC to deploy Resources providing Non-Spin Service. ERCOT Operators shall implement the deployment procedure when a specified threshold(s) in MW of capability available to SCED to increase generation is reached. ERCOT Operators may implement the deployment procedure to recover deployed RRS or when other Emergency Conditions exist. The deployment of Non-Spin must always be 100% of that scheduled on an individual Resource.

(2) Once Non-Spin capacity from Off-Line Generation Resources providing Non-Spin is deployed and the Generation Resources are On-Line, ERCOT shall use SCED to determine the amount of energy to be dispatched from those Resources.

(3) Off-Line Generation Resources providing Non-Spin (OFFNS Resource Status) are required to provide an Energy Offer Curve for use by SCED.

(4) On receipt of a Dispatch Instruction, Load Resource providing Non-Spin must, at a minimum, provide the requested deployment energy within 30 minutes of the Dispatch Instruction. On receipt of a Dispatch Instruction, Off-Line generation providing Non-Spin must be On-Line at an output level at least equal to the Resource's LSL within 25 minutes and must be able to dispatch to its Non-Spin Resource Responsibility within 30 minutes of the Dispatch Instruction. Once the Generation Resource is On-Line, the QSE shall reduce the Non-Spin Ancillary Service Schedule by the amount of the deployment to make the capacity available for SCED to dispatch.

[NPRR354: Replace paragraph (4) above with the following upon system implementation:]

(4) On receipt of a deployment instruction, Load Resources providing Non-Spin must, at a minimum, provide the requested deployment energy within 30 minutes of the Dispatch Instruction. Within 20 minutes after receipt of the deployment instruction, the QSE shall reduce the Non-Spin Ancillary Service Schedule by the amount of the deployment to make the capacity available for SCED to dispatch.

-(5) For On-Line Generation Resources with Energy Offer Curves, on deployment of Non-Spin capacity, the QSE shall reduce the Non-Spin Ancillary Service Schedule by the amount of the deployment. As described in Section 6.5.7.2, Resource Limit Calculator, ERCOT shall adjust the HASL and LASL based on the QSE's telemetered Non-Spin

Ancillary Service Schedule to account for such deployment. These Resources should be able to dispatch to their Non-Spin Resource Responsibility within 30 minutes of the Dispatch Instruction.

[NPRR426: Replace paragraph (5) above with the following on January 5, 2012:]

(5) Subject to the exceptions described in paragraphs (a) and (b) below, On-Line Generation Resources that are assigned Non-Spin Ancillary Service Resource Responsibility during an Operating Hour shall always be deployed in that Operating Hour. This deployment shall be considered as a standing Protocol-directed Non-Spin deployment Dispatch Instruction. Within the 30-second window prior to the top-of-hour clock interval described in paragraph (2) of Section 6.3.2, Activities for Real-Time Operations, the QSE shall respond to the standing Non-Spin deployment Dispatch Instruction for those Generation Resources assigned Non-Spin Ancillary Service Resource Responsibility effective at the top-of-hour by adjusting the Non-Spin Ancillary Service Schedule telemetry. The QSE shall set the Non-Spin Ancillary Service Schedule telemetry equal to the difference between the total Non-Spin Ancillary Service Resource Responsibility less the portion being provided from power augmentation if the portion being provided from power augmentation is participating as Off-Line Non-Spin otherwise it shall be set to 0. As described in Section 6.5.7.2, Resource Limit Calculator, ERCOT shall adjust the HASL and LASL based on the QSE's telemetered Non-Spin Ancillary Service Schedule to account for such deployment and to make the energy from the full amount of the Non-Spin Ancillary Service Resource Responsibility available to SCED. A Non-Spin deployment Dispatch Instruction from ERCOT is not required and these Generation Resources must be able to Dispatch their Non-Spin Ancillary Service Resource Responsibility in response to a SCED Base Point Dispatch Instruction. The provisions of this paragraph (5) do not apply to:

(a) Quick Start Generation Resources (QSGRs) assigned Off-Line Non-Spin Ancillary Service Resource Responsibility and provided to SCED for deployment, which must follow the provisions of Section 3.8.3, Quick Start Generation Resources; or

(b) The portion of On-Line Generation Resources that is only available through power augmentation if participating as Off-Line Non Spin.

[NPRR354: Replace paragraph (5) above with the following upon system implementation:]

(5) ~~For~~ Subject to the exceptions described in paragraphs (a) and (b) below, On-Line Generation Resources that are assigned Non-Spin Ancillary Service Resource Responsibility during an Operating Hour shall always be deployed in that Operating Hour. This deployment shall be considered as a standing Protocol-directed Non-Spin deployment Dispatch Instruction. Within the 30-second window prior to the top-of-hour clock interval described in paragraph (2) of Section 6.3.2, Activities for Real-Time Operations, the QSE shall respond to the standing Non-Spin deployment Dispatch Instruction for those Generation Resources assigned Non-Spin Ancillary Service

Resource Responsibility effective at the top-of-hour by adjusting the Non-Spin Ancillary Service Schedule telemetry. QSE shall set the Non-Spin Ancillary Service Schedule telemetry equal to the difference between the total Non-Spin Ancillary Service Resource Responsibility less the portion being provided from power augmentation if the portion being provided from power augmentation is participating as Off-Line Non-Spin otherwise it shall be set to 0.~~with Energy Offer Curves, on deployment of Non-Spin capacity, the QSE shall reduce the Non-Spin Ancillary Service Schedule by the amount of the deployment.~~ As described in Section 6.5.7.2, Resource Limit Calculator, ERCOT shall adjust the HASL and LASL based on the QSE's telemetered Non-Spin Ancillary Service Schedule to account for such deployment and to make the energy from the full amount of the Non-Spin Ancillary Service Resource Responsibility available to SCED. A Non-Spin deployment Dispatch Instruction from ERCOT is not required and ~~These~~ these Generation Resources ~~should~~ must be able to ~~D~~dispatch ~~to~~ their Non-Spin Ancillary Service Resource Responsibility in response to a SCED Base Point ~~within 30 minutes of the~~ deployment instruction. The provisions of this paragraph (5) do not apply to:

(a) Quick Start Generation Resources (QSGRs) assigned Off-Line Non-Spin Ancillary Service Resource Responsibility and provided to SCED for deployment, which must follow the provisions of Section 3.8.3, Quick Start Generation Resources; or

(b) The portion of On-Line Generation Resources that is only available through power augmentation if participating as Off-Line Non Spin. ~~The adjustment of the Non-Spin Ancillary Service Schedule by the QSE must be done in a time frame that would allow SCED to fully dispatch the deployed Non-Spin capacity within the 30 minute timeframe according to the Resource's Normal Ramp Rate curve.~~

[NPRR354: Insert paragraph (6) below and renumber accordingly upon system implementation:]

(6) Off-Line Generation Resources providing Non-Spin, while Off-Line and before the receipt of any deployment instruction, shall be capable of being dispatched to their Non-Spin Resource Responsibility within 30 minutes of a deployment instruction. Following a deployment instruction, the QSE shall reduce the Non-Spin Ancillary Service Schedule by the amount of the deployment. An Off-Line Generation Resource providing Non-Spin must also be brought On-Line with an Energy Offer Curve at an output level greater than or equal to P1 multiplied by LSL where P1 is defined in the "ERCOT and QSE Operations Business Practices During the Operating Hour." These actions must be done within a time frame that would allow SCED to fully dispatch the Resource's Non-Spin Resource Responsibility within the 30 minute period using the Resource's Normal Ramp Rate curve. The Resource Status indicating that a Generation Resource has come On-Line with an Energy Offer Curve is ON as described in paragraph (4)(b)(i) of Section 3.9.1, Current Operating Plan (COP) Criteria.

(6) For DSRs providing Non-Spin, on deployment of Non-Spin, the DSR's QSE shall adjust its Resource Output Schedule to reflect the amount of deployment. For non-DSRs with Output Schedules providing Non-Spin, on deployment of Non-Spin, ERCOT shall adjust the Resource Output Schedule for the remainder of the Operating Period to reflect the amount of deployment. ERCOT shall notify the QSEs representing the non-DSR of the adjustment through the MIS Certified Area.

(7) For On-Line Generation Resources with Energy Offer Curves, Base Points include Non-Spin energy as well as any other energy dispatched as a result of SCED.

[NPRR426: Replace paragraph (7) above with the following on January 5, 2012:]

(7) For On-Line Generation Resources providing Non-Spin, Base Points include Non-Spin energy as well as any other energy dispatched as a result of SCED. These Resources' Non-Spin Ancillary Service Resource Responsibility and Normal Ramp Rate curve should allow SCED to fully Dispatch the Resource's Non-Spin Resource Responsibility within the 30-minute time frame according to the Resources' Normal Ramp Rate curve. For the portion of the Non-Spin Ancillary Service Resource Responsibility provided from power augmentation participating as Off-Line, SCED should be able to be dispatch it within 30 minutes of the Non-Spin deployment instruction.

(8) Each QSE providing Non-Spin from a Resource shall inform ERCOT of the Non-Spin Resource availability using the Resource Status and Non-Spin Ancillary Service Resource Responsibility indications for the Operating Hour using telemetry and shall use the COP to inform ERCOT of Non-Spin Resource Status and Non-Spin Ancillary Service Resource Responsibility for hours in the Adjustment Period through the end of the Operating Day.

(9) ERCOT may deploy Non-Spin at any time in a Settlement Interval.

(10) ERCOT's Non-Spin deployment Dispatch Instructions must include:

(a) The Resource name;

(b) A MW level of capacity deployment for Generation Resources with Energy Offer Curve, a MW level of energy for Generation Resources with Output Schedules, and interrupted amount for Load Resources; and

(c) The anticipated duration of deployment.

[NPRR354: Insert paragraph (11) below and renumber accordingly upon system implementation:]

(11) ERCOT shall provide a signal via ICCP to the QSE of a deployed Generation or Load

The above variables are defined as follows:

Variable	Unit	Definition
AABP	MW	*Adjusted Aggregated Base Point*—The Generation Resource's aggregated Base Point adjusted for Ancillary Service deployments, for the 15-minute Settlement Interval. Where for a Combined Cycle Train, AABP is calculated for the Combined Cycle Train considering all SCED Dispatch Instructions to any Combined Cycle Generation Resources within the Combined Cycle Train.
BP_y	MW	*Base Point by interval*—The Base Point for the Generation Resource at the Resource Node, for the SCED interval *y*.
BP_{y-1}	MW	*Base Point by interval*—The Base Point for the Generation Resource at the Resource Node, for the Emergency or SCED interval *y-1*.
$TLMP_y$	second	*Duration of SCED interval per interval*—The duration of the portion of the SCED interval *y* within the 15-minute Settlement Interval.
TWAR	MW	*Time-Weighted Average Regulation*—The amount of regulation that the Generation Resource should have produced based on the deployment signals as calculated by the Load Frequency Control (LFC) within the 15-minute Settlement Interval.
ARI_y	MW	*Average Regulation Instruction*—The amount of regulation that the Generation Resource should have produced based on the deployment signals as calculated by the LFC within the SCED interval.
Y	none	A SCED interval in the Settlement Interval. The summation is over the total number of SCED runs that cover the 15-minute Settlement Interval.

[NPRR348 and NPRR377: Replace applicable portions of Section 6.6.5 above with the following upon system implementation:]

6.6.5 Generation Resource Base Point Deviation Charge

A QSE for a Generation Resource shall pay a Base Point Deviation Charge if the Resource did not follow Dispatch Instructions and Ancillary Services deployments within defined tolerances, except when the Dispatch Instructions and Ancillary Services deployments violate the Resource Parameters. The Base Point Deviation Charge does not apply to Generation Resources when AABP is less than the Resource's average telemetered LSL or any time during the Settlement Interval when the telemetered Resource Status is set to ONTEST or STARTUP. The desired output from a Generation Resource during a 15-minute Settlement Interval is calculated as follows:

$$AABP_{q,r,p,i} = AVGBP_{q,r,p,i} + AVGREG_{q,r,p,i}$$

$$AVGBP_{q,r,p,i} = \sum_{y} (AVGBP5M_{q,r,p,i,y}) / 3$$

$$AVGREG_{q,r,p,i} = \sum_{y} (AVGREG5M_{q,r,p,i,y}) / 3 \quad AABP = \sum_{y} ((BP_y + BP_{y-1})/2 * TLMP_y) / (\sum_{y} TLMP_y) + TWAR$$

Where:

$$AVGREG5M_{q,r,p,i,y} = (AVGREGUP5M_{q,r,p,i,y} - AVGREGDN5M_{q,r,p,i,y})TWAR$$

~~$= \sum_y ((ARI_y * TLMP_y) / (\sum_y TLMP_y)$~~

The above variables are defined as follows:

Variable	Unit	Definition
$AABP_{q,r,p,i}$	MW	*Adjusted Aggregated Base Point per QSE per Settlement Point per Resource* – The aggregated Base Point adjusted for Ancillary Service deployments of Generation Resource *r* represented by QSE *q* at Resource Node *p*, ~~Generation Resource's aggregated Base Point adjusted for Ancillary Service deployments,~~ for the 15-minute Settlement Interval *i*. Where for a Combined Cycle Train, AABP is calculated for the Combined Cycle Train considering all SCED Dispatch Instructions to any Combined Cycle Generation Resources within the Combined Cycle Train.
~~BP_y~~	~~MW~~	~~*Base Point by interval* – The Base Point for the Generation Resource at the Resource Node, for the SCED interval *y*.~~
~~$TLMP_y$~~	~~second~~	~~*Duration of SCED interval per interval* – The duration of the portion of the SCED interval *y* within the 15-minute Settlement Interval.~~
~~TWAR~~	~~MW~~	~~*Time Weighted Average Regulation* – The amount of regulation that the Generation Resource should have produced based on the deployment signals as calculated by the Load Frequency Control (LFC) within the 15-minute Settlement Interval.~~
~~ARI_y~~	~~MW~~	~~*Average Regulation Instruction* – The amount of regulation that the Generation Resource should have produced based on the deployment signals as calculated by the LFC within the SCED interval.~~
$AVGBP_{q,r,p,i}$	MW	*Average Base Point per QSE per Settlement Point per Resource* – The average of the five-minute clock interval Base Points over the 15-minute Settlement Interval *i* for Generation Resource *r* represented by QSE *q* at Resource Node *p*.
$AVGBP5M_{q,r,p,i,y}$	MW	*Average five-minute clock interval Base Point per QSE per Settlement Point per Resource* – The average Base Point for the Generation Resource *r* represented by QSE *q* at Resource Node *p*, for the five-minute clock interval *y* within the 15-minute Settlement Interval *i*. The time-weighted average of the linearly ramped Base Points in a five-minute clock interval *y*. The linearly ramped Base Point is calculated every four seconds such that it ramps from its initial value to the SCED Base Point over a five-minute clock interval *y*. The initial value of the linearly ramped Base Point will be the four second value of the previous linearly ramped Base Point at the time the new SCED Base Point is received into the ERCOT Energy Management System (EMS). The linear ramp is recalculated each time that a new Base Point is received from SCED. ABGBP5M is equal to the ABP value calculated for use in Generation Resource Energy Deployment Performance (GREDP), as described in Section 8.1.1.4, Ancillary Service and Energy Deployment Compliance Criteria.
$AVGREG_{q,r,p,i}$	MW	*Average Regulation Instruction per QSE per Settlement Point per Resource* – The average of the five-minute clock interval *y* Regulation Instruction Generation Resource *r* represented by QSE *q* at Resource Node *p* over the 15-minute Settlement Interval *i*.
$AVGREG5M_{q,r,p,i,y}$	MW	*Total Average five-minute clock interval Regulation Instruction per QSE per Settlement Point per Resource* – The total amount of regulation that the Generation Resource *r* represented by QSE *q* at Resource Node *p* should have produced based on Load Frequency Control (LFC) deployment signals over the five-minute clock interval *y* within the 15-minute Settlement Interval *i*.

$AVGREGUP5M_{qrpiy}$	MW	*Average Regulation Instruction Up per QSE per Settlement Point per Resource*—The amount of Regulation Up (Reg-Up) that the Generation Resource *r* represented by QSE *q* at Resource Node *p* should have produced based on LFC deployment signals over the five-minute clock interval *y* within the 15-minute Settlement Interval *i*.
$AVGREGDN5M_{qrpiy}$	MW	*Average Regulation Instruction Down per QSE per Settlement Point per Resource*—The amount of Regulation Down (Reg-Down) that the Generation Resource *r* represented by QSE *q* at Resource Node *p* should have produced based on LFC deployment signals over the five-minute clock interval *y* within the 15-minute Settlement Interval *i*.
q	none	A QSE.
p	none	A Resource Node Settlement Point.
r	none	A Generation Resource.
i	None	A 15-minute Settlement Interval
y	none	A ~~SCED~~ five-minute clock interval in the Settlement Interval. ~~The summation is over the total number of SCED runs that cover the 15-minute Settlement Interval.~~

6.6.5.1 General Generation Resource Base Point Deviation Charge

(1) Unless one of the exceptions specified in paragraphs (2) and (3) below applies, ERCOT shall charge a Generation Resource Base Point Deviation Charge for a Generation Resource other than those described in Section 6.6.5.2, IRR Generation Resource Base Point Deviation Charge, and Section 6.6.5.3, Generators Exempt from Deviation Charges, when the telemetered generation of the Generation Resource over the 15-minute Settlement Interval is outside the tolerances defined later in this Section 6.6.5.1.

(2) ERCOT may not charge a QSE a Generation Resource Base Point Deviation Charge under paragraph (1) above when both of the following apply:

(a) The generation deviation of the Generation Resource over the 15-minute Settlement Interval is in a direction that contributes to frequency corrections that resolve an ERCOT System frequency deviation; and

(b) The ERCOT System frequency deviation is greater than +/-0.05 Hz at any time during the 15-minute Settlement Interval.

(3) ERCOT may not charge a QSE a Generation Resource Base Point Deviation Charge under paragraph (1) above for any 15-minute Settlement Interval during which Responsive Reserve (RRS) is deployed.

(4) ERCOT may not charge a QSE a Generation Resource Base Point Deviation Charge under paragraph (1) above for any 15-minute Settlement Interval which includes a SCED interval that is less than four minutes in duration.

[NPRR377: Delete paragraph (4) above upon system implementation.]

6.6.5.1.1 Base Point Deviation Charge for Over Generation

(1) ERCOT shall charge a QSE for a Generation Resource for over-generation that exceeds the following tolerance. The tolerance is the greater of:

(a) 5% of the average of the Base Points in the Settlement Interval adjusted for any Ancillary Service deployments; or

(b) Five MW for metered generation above the average of the Base Points in the Settlement Interval adjusted for any Ancillary Service deployments.

(2) The charge to each QSE for over-generation of each Generation Resource at each Resource Node Settlement Point, if the Real-Time metered generation is greater than the upper tolerance during a given 15-minute Settlement Interval, is calculated as follows:

$$\mathbf{BPDAMT}_{q,r,p} = \mathbf{Max}(\mathbf{PR1}, \mathbf{RTSPP}_{p}) * \mathbf{Max}[0, (\mathbf{TWTG}_{q,r,p} - \tfrac{1}{4} * \mathbf{Max}(((1 + \mathbf{K1}) * \mathbf{AABP}_{q,r,p}), (\mathbf{AABP}_{q,r,p} + \mathbf{Q1})))]$$

Where:

$$\mathbf{TWTG}_{q,r,p} = \sum_{y} (\mathbf{ATG}_{q,r,p,y} * \mathbf{TLMP}_{y} / 3600)$$

The above variables are defined as follows:

Variable	Unit	Definition
$BPDAMT_{q,r,p}$	$	*Base Point Deviation Charge per QSE per Settlement Point per Resource*—The charge to QSE *q* for Generation Resource *r* at Resource Node *p*, for its deviation from Base Point, for the 15-minute Settlement Interval. The Base Point Deviation Charge is charged to the Combined Cycle Train for all Combined Cycle Generation Resources.
$RTSPP_{p}$	$/MWh	*Real-Time Settlement Point Price per Settlement Point*—The Real-Time Settlement Point Price at Settlement Point *p*, for the 15-minute Settlement Interval.
$TWTG_{q,r,p}$	MWh	*Time-Weighted Telemetered Generation per QSE per Settlement Point per Resource*—The telemetered generation of Generation Resource *r* represented by QSE *q* at Resource Node *p*, for the 15-minute Settlement Interval. Where for a Combined Cycle Train, the Resource *r* is the Combined Cycle Train.
$AABP_{q,r,p}$	MW	*Adjusted Aggregated Base Point per QSE per Settlement Point per Resource*—The aggregated Base Point adjusted for Ancillary Service deployments, of Generation Resource *r* represented by QSE *q* at Resource Node *p*, for the 15-minute Settlement Interval. Where for a Combined Cycle Train, AABP is calculated for the Combined Cycle Train considering all SCED Dispatch Instructions to any Combined Cycle Generation Resources within the Combined Cycle Train.
$ATG_{q,r,p,y}$	MW	*Average Telemetered Generation*—The average telemetered generation of Generation Resource *r* represented by QSE *q* at Resource Node *p*, for the SCED interval.
$TLMP_{y}$	second	*Duration of SCED interval per interval*—The duration of the portion of the SCED interval *y* within the 15-minute Settlement Interval.
PR1	$/MWh	The minimum price to use for the charge calculation when RTSPP is positive, $20.
K1	none	The percentage tolerance for over-generation, 5%.
Q1	MW	The MW tolerance for over-generation, five MW.
q	none	A QSE.

Variable	Unit	Definition
3600	none	The number of seconds in one hour.
p	none	A Resource Node Settlement Point.
r	none	A non-exempt, non-Intermittent Renewable Resource (IRR) Generation Resource.
y	none	An Emergency Base Point interval or SCED interval that overlaps the 15-minute Settlement Interval.

[NPRR377: Replace paragraph (2) above with the following upon system implementation:]

(2) The over-generation charge to each QSE for each Generation Resource at each Resource Node Settlement Point is calculated as follows:

$$BPDAMT_{q,r,p,i} = Max(PR1, RTSPP_{p,i}) * OGEN_{q,r,p,i}$$

Where:

$$OGEN_{q,r,p,i} = -Max[0, (TWTG_{q,r,p,i} - \frac{1}{4} * Max(((1 + K1) * AABP_{q,r,p,i}), (AABP_{q,r,p,i} + Q1)))]$$

$$TWTG_{q,r,p,i} = (\sum_{y} (AVGTG5M_{q,r,p,i,y}) / 3) * 1/4$$

The above variables are defined as follows:

Variable	Unit	Definition
$BPDAMT_{q,r,p,i}$	$	*Base Point Deviation Charge per QSE per Settlement Point per Resource*—The charge to QSE *q* for Generation Resource *r* at Resource Node *p*, for its deviation from Base Point, for the 15-minute Settlement Interval *i*. The Base Point Deviation Charge is charged to the Combined Cycle Train for all Combined Cycle Generation Resources.
$RTSPP_{p,i}$	$/MWh	*Real-Time Settlement Point Price per Settlement Point*—The Real-Time Settlement Point Price at Settlement Point *p*, for the 15-minute Settlement Interval *i*.
$TWTG_{q,r,p,i}$	MWh	*Time-Weighted Telemetered Generation per QSE per Settlement Point per Resource*—The telemetered generation of Generation Resource *r* represented by QSE *q* at Resource Node *p*, for the 15-minute Settlement Interval *i*. Where for a Combined Cycle Train, the Resource *r* is the Combined Cycle Train.
$AABP_{q,r,p,i}$	MW	*Adjusted Aggregated Base Point per QSE per Settlement Point per Resource*—The aggregated Base Point adjusted for Ancillary Service deployments, of Generation Resource *r* represented by QSE *q* at Resource Node *p*, for the 15-minute Settlement Interval *i*. Where for a Combined Cycle Train, AABP is calculated for the Combined Cycle Train considering all SCED Dispatch Instructions to any Combined Cycle Generation Resources within the Combined Cycle Train.
$AVGTG5M_{q,r,p,i,y}$	MW	*Average Telemetered Generation for the 5 Minutes*—The average telemetered generation of Generation Resource *r* represented by QSE *q* at Resource Node *p*, for the five-minute clock interval *y*, within the 15-minute Settlement Interval *i*.

$OGEN_{q,r,p,i}$	MW	*Over Generation Volumes per QSE per Settlement Point per Resource*—The amount over-generated by the Generation Resource *r* represented by QSE *q* at Resource Node *p* for the 15- minute Settlement Interval *i*.
PR1	$/MWh	The price to use for the Base Point Deviation Charge for over-generation when RTSPP is less than $20.
K1	none	The percentage tolerance for over-generation, 5%.
Q1	MW	The MW tolerance for over-generation, five MW.
q	none	A QSE.
p	none	A Resource Node Settlement Point.
r	none	A non-exempt, non-Intermittent Renewable Resource (IRR).
y	none	A five-minute clock interval in the Settlement Interval.
i	none	A 15-minute Settlement Interval.

6.6.5.1.2 Base Point Deviation Charge for Under Generation

(1) ERCOT shall charge a QSE for a Generation Resource for under generation if the metered generation is below the lesser of:

(a) 95% of the average of the Base Points in the Settlement Interval adjusted for any Ancillary Service deployments; or

(b) The average of the Base Points in the Settlement Interval adjusted for any Ancillary Service deployments minus five MW.

(2) The charge to each QSE for under-generation of each Generation Resource at each Resource Node Settlement Point for a given 15-minute Settlement Interval is calculated as follows:

$$\mathbf{BPDAMT}_{q,r,p} = \mathbf{(-1) * Min\ (PR2, RTSPP}_{p}\mathbf{) * Min\ (1, KP) * Max\ \{0, \{Min\ [((1 - K2) * \tfrac{1}{4}(AABP}_{q,r,p}\mathbf{)) , \tfrac{1}{4}(AABP}_{q,r,p}\mathbf{ - Q2)] - TWTG}_{q,r,p}\mathbf{\}\}}$$

Where:

$$\mathbf{TWTG}_{q,r,p} = \sum_{y} \mathbf{(ATG}_{q,r,p,y}\mathbf{ * TLMP}_{y}\mathbf{ / 3600)}$$

The above variables are defined as follows:

Variable	Unit	Definition
$BPDAMT_{q,r,p}$	$	*Base Point Deviation Charge per QSE per Settlement Point per Resource*—The charge to QSE *q* for Generation Resource *r* at Resource Node *p*, for its deviation from Base Point, for the 15-minute Settlement Interval. A Base Point Deviation Charge is charged to the Combined Cycle Train for all Combined Cycle Generation Resources.
$RTSPP_{p}$	$/MWh	*Real-Time Settlement Point Price per Settlement Point*—The Real-Time Settlement Point Price at Settlement Point *p*, for the 15-minute Settlement Interval.
$TWTG_{q,r,p}$	MWh	*Time-Weighted Telemetered Generation per QSE per Settlement Point per Resource*—The telemetered generation of Generation Resource *r* represented by QSE *q* at Resource Node *p*, for the 15-minute Settlement Interval. Where for a Combined Cycle Train, the Resource *r* is the Combined Cycle Train.

$AABP_{q, r, p}$	MW	*Adjusted Aggregated Base Point*—The aggregated Base Point adjusted for Ancillary Service deployments of Generation Resource *r* represented by QSE *q* at Resource Node *p*, for the 15-minute Settlement Interval. Where for a Combined Cycle Train, AABP is calculated for the Combined Cycle Train considering all SCED Dispatch Instructions to any Combined Cycle Generation Resources within the Combined Cycle Train.
$ATG_{q, r, p, y}$	MW	*Average Telemetered Generation*—The average telemetered generation of Generation Resource *r* represented by QSE *q* at Resource Node *p*, for the SCED interval.
$TLMP_{y}$	second	*Duration of SCED interval per interval*—The duration of the portion of the SCED interval *y* within the 15-minute Settlement Interval.
KP	None	The coefficient applied to the Settlement Point Price for under-generation charge, 1.0.
PR2	$/MWh	The minimum price to use for the charge calculation when RTSPP is negative, $-20.
K2	None	The percentage tolerance for under-generation, 5%.
Q2	MW	The MW tolerance for under-generation, five MW.
q	none	A QSE.
p	none	A Resource Node Settlement Point.
r	none	A non-exempt, non-IRR Generation Resource.
y	none	An Emergency Base Point interval or SCED interval that overlaps the 15-minute Settlement Interval.

[NPRR377: Replace paragraph (2) above with the following upon system implementation:]

(2) The under-generation charge to each QSE for each Generation Resource at each Resource Node Settlement Point for a given 15-minute Settlement Interval is calculated as follows:

$$BPDAMT_{q, r, p, i} = -1 * Min (PR2, RTSPP_{p,i}) * Min (1, KP) * UGEN_{q, r, p, i}$$

Where:

$$UGEN_{q, r, p, i} = Max [0, [Min ((1 - K2) * ¼ * AABP_{q, r, p, i}), ¼ * (AABP_{q, r, p, i} - Q2) - TWTG_{q, r, p, i}]]$$

$$TWTG_{q, r, p, i} = (\Sigma_{y} (AVGTG5M_{q, r, p, i, y}) / 3) * 1/4$$

The above variables are defined as follows:

Variable	Unit	Definition
$BPDAMT_{q, r, p, i}$	$	*Base Point Deviation Charge per QSE per Settlement Point per Resource*—The charge to QSE *q* for Generation Resource *r* at Resource Node *p*, for its deviation from Base Point, for the 15-minute Settlement Interval *i*. A Base Point Deviation Charge is charged to the Combined Cycle Train for all Combined Cycle Generation Resources.
$RTSPP_{p, i}$	$/MWh	*Real-Time Settlement Point Price per Settlement Point*—The Real-Time Settlement Point Price at Settlement Point *p*, for the 15-minute Settlement Interval *i*.

$TWTG_{q,r,p,i}$	MWh	*Time-Weighted Telemetered Generation per QSE per Settlement Point per Resource*—The telemetered generation of Generation Resource *r* represented by QSE *q* at Resource Node *p*, for the 15-minute Settlement Interval *i*. Where for a Combined Cycle Train, the Resource *r* is the Combined Cycle Train.
$AABP_{q,r,p,i}$	MW	*Adjusted Aggregated Base Point*—The aggregated Base Point adjusted for Ancillary Service deployments of Generation Resource *r* represented by QSE *q* at Resource Node *p*, for the 15-minute Settlement Interval *i*. Where for a Combined Cycle Train, AABP is calculated for the Combined Cycle Train considering all SCED Dispatch Instructions to any Combined Cycle Generation Resources within the Combined Cycle Train.
$AVGTG5M_{q,r,p,i,y}$	MW	*Average Telemetered Generation for the 5 Minutes*—The average telemetered generation of Generation Resource *r* represented by QSE *q* at Resource Node *p*, for the five-minute clock interval *y*, within the 15-minute Settlement Interval *i*.
$UGEN_{q,r,p,i}$	MWh	*Under Generation Volumes per QSE per Settlement Point per Resource*—The amount under-generated by the Generation Resource *r* represented by QSE *q* at Resource Node *p* for the 15-minute Settlement Interval *i*.
KP	None	The coefficient applied to the Settlement Point Price for under-generation charge, 1.0.
PR2	$/MWh	The price to use for the Base Point Deviation Charge for under-generation calculation when RTSPP is greater than -$20.
K2	None	The percentage tolerance for under-generation, 5%.
Q2	MW	The MW tolerance for under-generation, five MW.
q	none	A QSE.
p	none	A Resource Node Settlement Point.
r	none	A non-exempt, non-IRR.
y	none	A five-minute clock interval in the Settlement Interval.
i	none	A 15-minute Settlement Interval.

6.6.5.2 IRR Generation Resource Base Point Deviation Charge

(1) ERCOT shall charge a QSE for an IRR a Base Point Deviation Charge if the IRR metered generation is more than 10% above its Adjusted Aggregated Base Point and the flag signifying that the IRR has received a Base Point below the High Dispatch Limit (HDL) used by SCED has been received.

(2) The charge to each QSE for non-excused over-generation of each IRR at each Resource Node Settlement Point, if the Real-Time metered generation is greater than the upper tolerance during a 15-minute Settlement Interval, is calculated as follows:

If the flag signifying that the IRR has received a Base Point below the HDL used by SCED is not set in all SCED intervals within the 15-minute Settlement Interval:

$$\mathbf{BPDAMT}_{q,r,p} = 0$$

If the flag signifying that the IRR has received a Base Point below the HDL used by SCED is set in all SCED intervals within the 15-minute Settlement Interval:

$$\mathbf{BPDAMT}_{q,r,p} = \mathbf{Max\ (PR1, RTSPP}_{p}\mathbf{) * Max\ (0, TWTG}_{q,r,p} - \tfrac{1}{4} * \mathbf{AABP}_{q,r,p} * (1 + \mathbf{KIRR}))$$

Where:

$$\mathbf{TWTG}_{q,r,p} = \sum_{y} (\mathbf{ATG}_{q,r,p,y} * \mathbf{TLMP}_{y} / 3600)$$

The above variables are defined as follows:

Variable	Unit	Definition
$BPDAMT_{q,r,p}$	$	*Base Point Deviation Charge per QSE per Settlement Point per Resource*—The charge to QSE *q* for Generation Resource *r* at Resource Node *p*, for its deviation from Base Point, for the 15-minute Settlement Interval.
$RTSPP_{p}$	$/MWh	*Real-Time Settlement Point Price per Settlement Point*—The Real-Time Settlement Point Price at Resource Node *p*, for the 15-minute Settlement Interval.
$TWTG_{q,r,p}$	MWh	*Time-Weighted Telemetered Generation per QSE per Settlement Point per Resource*—The telemetered generation of Generation Resource *r* represented by QSE *q* at Resource Node *p*, for the 15-minute Settlement Interval.
$AABP_{q,r,p}$	MW	*Adjusted Aggregated Base Point Generation per QSE per Settlement Point per Resource*—The aggregated Base Point adjusted for Ancillary Service deployments, of Generation Resource *r* represented by QSE *q* at Resource Node *p*, for the 15-minute Settlement Interval.
$ATG_{q,r,p,y}$	MW	*Average Telemetered Generation*—The average telemetered generation of Generation Resource *r* represented by QSE *q* at Resource Node *p*, for the SCED interval.
$TLMP_{y}$	second	*Duration of SCED interval per interval*—The duration of the portion of the SCED interval *y* within the 15-minute Settlement Interval.
PR1	$/MWh	The minimum price to use for the charge calculation when RTSPP is positive, $20.
KIRR		The percentage tolerance for over-generation of an IRR, 10%.
q	none	A QSE.
p	none	A Resource Node Settlement Point.
r	none	An IRR Generation Resource.
y	none	An Emergency Base Point interval or SCED interval that overlaps the 15-minute Settlement Interval.

[NPRR377: Replace paragraph (2) above with the following upon system implementation:]

(2) The charge to each QSE for non-excused over-generation of each IRR at each Resource Node Settlement Point during a 15-minute Settlement Interval, is calculated as follows:

If the flag signifying that the IRR has received a Base Point below the HDL used by SCED is not set in all SCED intervals within the 15-minute Settlement Interval:

$$\mathbf{BPDAMT}_{q,r,p,i} = 0$$

Otherwise, if the flag signifying that the IRR has received a Base Point below the HDL used by SCED is set in all SCED intervals within the 15-minute Settlement Interval:

$$BPDAMT_{q,r,p,i} = Max(PR1, RTSPP_{p,i}) * OGENIRR_{q,r,p,i}$$

Where:

$$OGENIRR_{q,r,p,i} = Max[0, TWTG_{q,r,p,i} - \frac{1}{4} * AABP_{q,r,p,i} * (1 + KIRR)]$$

$$TWTG_{q,r,p,i} = \left(\sum_{v} (AVGTG5M_{q,r,p,i,v}) / 3\right) * 1/4$$

The above variables are defined as follows:

Variable	Unit	Definition
$BPDAMT_{q,r,p,i}$	$	*Base Point Deviation Charge per QSE per Settlement Point per Resource*—The charge to QSE *q* for Generation Resource *r* at Resource Node *p*, for its deviation from Base Point, for the 15-minute Settlement Interval *i*.
$RTSPP_{p,i}$	$/MWh	*Real-Time Settlement Point Price per Settlement Point*—The Real-Time Settlement Point Price at Resource Node *p*, for the 15-minute Settlement Interval *i*.
$TWTG_{q,r,p,i}$	MWh	*Time-Weighted Telemetered Generation per QSE per Settlement Point per Resource*—The telemetered generation of Generation Resource *r* represented by QSE *q* at Resource Node *p*, for the 15-minute Settlement Interval *i*.
$AABP_{q,r,p,i}$	MW	*Adjusted Aggregated Base Point Generation per QSE per Settlement Point per Resource*—The aggregated Base Point adjusted for Ancillary Service deployments, of Generation Resource *r* represented by QSE *q* at Resource Node *p*, for the 15-minute Settlement Interval *i*.
$AVGTG5M_{q,r,p,i,v}$	MW	*Average Telemetered Generation for the 5 Minutes*—The average telemetered generation of Generation Resource *r* represented by QSE *q* at Resource Node *p*, for the five-minute clock interval *v*, within the 15-minute Settlement Interval *i*.
$OGENIRR_{q,r,p,i}$	MW	*Over Generation Volumes per QSE per Settlement Point per IRR Generation Resource*—The amount over generated by the IRR *r* represented by QSE *q* at Resource Node *p* for the 15-minute Settlement Interval *i*.
PR1	$/MWh	The price to use for the charge calculation when RTSPP is less than $20.
KIRR		The percentage tolerance for over-generation of an IRR, 10%.
q	none	A QSE.
p	none	A Resource Node Settlement Point.
r	none	An IRR.
i	none	A 15-minute Settlement Interval.
v	none	A five-minute clock interval in the Settlement Interval.

6.6.5.3 Generators Exempt from Deviation Charges

Generation Resource Base Point Deviation Charges do not apply to the following:

(a) Reliability Must-Run (RMR) Units;

(b) Dynamically Scheduled Resources (DSRs) (except as described in Section 6.4.2.2, Output Schedules for Dynamically Scheduled Resources);

(c) Qualifying Facilities (QFs) that do not submit an Energy Offer Curve for the Settlement Interval; or

(d) Quick Start Generation Resources (QSGRs) during the 15-minute Settlement Interval(s) that includes any part of the first ten minutes after the start of the first SCED interval in which the QSGR is deployed.

[NPRR377: Replace paragraph (d) above with the following upon system implementation:]

(d) Quick Start Generation Resources (QSGRs) during the 15-minute Settlement Interval after the start of the first SCED interval in which the QSGR is deployed.

6.6.6 Reliability Must-Run Settlement

6.6.6.3 RMR Adjustment Charge

(1) Each QSE that represents an RMR Unit shall pay a charge designed to recover the net total revenues from RUC settlements, and from Real-Time settlements received by that QSE for all RMR Units that it represents, except that the charge does not include net revenues received by the QSE for the RMR Standby Payments calculated under Section 6.6.6.1, RMR Standby Payment, and the RMR energy payments calculated under Section 6.6.6.2, RMR Payment for Energy.

(2) The charge for each QSE representing an RMR Unit for a given Operating Hour is calculated as follows:

$$\mathbf{RMRAAMT}_{q} = \mathbf{(-1)} * [\sum_{p}\sum_{r}(((\mathbf{-1)} * \sum_{i=1}^{4}(\mathbf{RTMG}_{q,r,p,i} * \mathbf{RTSPP}_{p,i})) + \sum_{i=1}^{4}\mathbf{EMREAMT}_{q,r,p,i} + \mathbf{RUCMWAMT}_{q,r,p} + \mathbf{RUCCBAMT}_{q,r,p} + \mathbf{RUCDCAMT}_{q,r,p} + \sum_{i=1}^{4}\mathbf{VSSEAMT}_{q,r,p,i} + \sum_{i=1}^{4}\mathbf{VSSVARAMT}_{q,r,i})]$$

The above variables are defined as follows:

Variable	Unit	Definition
$RMRAAMT_q$	$	*RMR Adjustment Charge per QSE*—The adjustment from QSE *q* Standby Payments and energy payments for all RMR Units represented by this QSE, for the revenues received for the same RMR Units from RUC and Real-Time operations, for the hour.
~~$RTEIAMT_{q,p,i}$~~	~~$~~	~~*Real-Time Energy Imbalance Amount per QSE per Settlement Point*—The payment or charge to QSE *q* for Real-Time Energy Imbalance Service at Settlement Point *p*, for the 15-minute Settlement Interval.~~

Variable	Unit	Definition
$EMREAMT_{q, r, p, i}$	$	*Emergency Energy Amount per QSE per Settlement Point per unit per interval*—The payment to QSE *q* for the additional energy produced by RMR Unit *r* at Resource Node *p* in Real-Time during the Emergency Condition, for the 15-minute Settlement Interval *i*. Payment for emergency energy is made to the Combined Cycle Train.
$RUCMWAMT_{q, r, p}$	$	*RUC Make-Whole Amount per QSE per Settlement Point per unit*—The amount calculated for RMR Unit *r* committed in RUC at Resource Node *p* to make whole the Startup Cost and minimum-energy cost of this unit, for the hour. See Section 5.7.1, RUC Make-Whole Payment. When one or more Combined Cycle Generation Resources are committed by RUC, payment is made to the Combined Cycle Train for all RUC-committed Combined Cycle Generation Resources.
$RUCCBAMT_{q, r}$	$	*RUC Clawback Charge per QSE per unit*—The RUC Clawback Charge to QSE *q* for RMR Unit *r*, for the hour. See Section 5.7.2, RUC Clawback Charge. When one or more Combined Cycle Generation Resources are committed by RUC, a charge is made to the Combined Cycle Train for all RUC-committed Combined Cycle Generation Resources.
$RUCDCAMT_{q, r, p}$	$	*RUC Decommitment Amount per QSE per Settlement Point per unit*—The amount calculated for RMR Unit *r* at Resource Node *p* represented by QSE *q* due to ERCOT de-commitment, for the hour. When one or more Combined Cycle Generation Resources are decommitted by RUC, payment is made to the Combined Cycle Train for all RUC-decommitted Combined Cycle Generation Resources.
$VSSEAMT_{q, r, p, i}$	$	*Voltage Support Service Energy Amount per QSE per Settlement Point per unit per interval* —The compensation to QSE *q* for ERCOT-directed power reduction from RMR Unit *r* at Resource Node *p* to provide Voltage Support Service (VSS), for the 15-minute Settlement Interval *i*. Payment for VSS is made to the Combined Cycle Train.
$VSSVARAMT_{q, r, i}$	$	*Voltage Support Service VAr Amount per QSE per Unit*—The payment to QSE *q* for the VSS provided by RMR Unit *r*, for the 15-minute Settlement Interval *i*. Payment for VSS is made to the Combined Cycle Train.
$RTSPP_{p, i}$	$/MWh	*Real-Time Settlement Point Price per Settlement Point*—The Real-Time Settlement Point Price at Settlement Point *p*, for the 15-minute Settlement Interval *i*.
$RTMG_{q, r, p, i}$	MWh	*Real-Time Metered Generation per QSE per Settlement Point per Resource*—The Real-Time energy produced by the Generation Resource *r* represented by QSE *q* at Resource Node *p*, for the 15-minute Settlement Interval *i*. Where for a Combined Cycle Train, the Resource *r* is the Combined Cycle Train.
q	none	A QSE.
p	none	A Resource Node Settlement Point.
r	none	An RMR Unit.
i	none	A 15-minute Settlement Interval in the hour.

6.6.9 *Emergency Operations Settlement*

(1) Due to Emergency Conditions, additional compensation for each Generation Resource for which ERCOT provides an Emergency Base Point may be awarded to the QSE

representing the Generation Resource. If the Emergency Base Point is higher than the SCED Base Point immediately before the Emergency Condition and the Settlement Point Price at the Resource Node is lower than the Generation Resource's Energy Offer Curve price at the Emergency Base Point, ERCOT shall pay the QSE additional compensation for the additional energy above the SCED Base Point.

(2) In accordance with paragraph (7) of Section 8.1.1.2, General Capacity Testing Requirements, QSEs that receive a VDI to operate the designated Generation Resource for an unannounced Generation Resource test may be considered for additional compensation utilizing the formula as stated in Section 6.6.9.1, Payment for Emergency Power Increase Directed by ERCOT. If the test period SCED Base Point is higher than the SCED Base Point immediately before the test period and the Settlement Point Price at the Resource Node is lower than the Generation Resource's Energy Offer Curve price, or Mitigated Offer Cap if no offer exists, at the test Base Point, and the test was not a retest requested by the QSE, ERCOT shall pay the QSE additional compensation for the additional energy above the pre-test SCED Base Point. For the purpose of this settlement, and limited to Settlement Intervals inclusive of the unannounced Generation Resource test, SCED Base Points will be used in place of the Emergency Base Point.

(3) In accordance with paragraph (8) of Section 3.8.3, Quick Start Generation Resources, a QSE that represents a QSGR that comes On-Line as a result of a Base point less than its Resource Registration applicable seasonal net minimum sustainable rating shall be considered for additional compensation using the formula in Section 6.6.9.1. If the Resource Settlement Point Price at the QSGR's Resource Node is lower than the Energy Offer Curve price, capped per the Mitigated Offer Cap pursuant to Section 4.4.9.4.1, Mitigated Offer Cap, at the aggregated Base Point during the 15-minute Settlement Interval, ERCOT shall pay the QSE additional compensation for the amount of energy from the Off-Line zero Base Point to the aggregated output level. For the purpose of this settlement, and limited to the first q Settlement Intervals inclusive of the first Settlement Interval in which the QSGR is deployed by SCED from a current SCED Base Point equal to zero MW to a Base Point greater than zero and less than the QSGR's Resource Registration applicable seasonal net minimum sustainable rating LSL for the Operating Hour that includes the first Settlement Interval, SCED Base Points will be used in place of the Emergency Base Point.

(4) QSEs that received Base Points that are inconsistent with Real-Time Settlement Point Prices and QSEs that receive a manual override from the ERCOT Operator shall be considered for additional compensation using the formula in Section 6.6.9.1. If the Resource Settlement Point Price at the Resource Node is lower than the Energy Offer Curve price, capped per the Mitigated Offer Cap pursuant to Section 4.4.9.4.1, at the held Base Point during the 15-minute Settlement Interval, ERCOT shall pay the QSE additional compensation for the amount of energy from a zero Base Point to the held Base Point. The held Base Point is the Base Point that the QSE received due to a manual override by ERCOT Operator or the Base Point received by the QSE that ERCOT identified as inconsistent with Real-Time Settlement Point Prices. For the purpose of this settlement, and limited to the held Settlement Intervals inclusive of the manual override or Base Points identified as inconsistent with prices, SCED Base Points will be used in

place of the Emergency Base Point. For purposes of this paragraph (4), for a QSGR that received a manual override due to Base Points being lower than its Current Operating Plan (COP) LSL, the Mitigated Offer Cap curve used to cap the Energy Offer Curve shall not include the variable Operations and Maintenance (O&M) adjustment described in paragraph (cd) of Section 4.4.9.4.1.

(5) In accordance with paragraph (3) of Section 6.3, Adjustment Period and Real-Time Operations Timeline, if ERCOT sets any SCED interval as failed, then QSEs shall be considered for additional compensation using the formula in Section 6.6.9.1. For the purpose of this settlement, and limited to the failed SCED interval, SCED Base Points will be used in place of the Emergency Base Point.

ERCOT Nodal Protocols

Section 7: Congestion Revenue Rights

~~December 1, 2011~~January 1, 2012

---

7 CONGESTION REVENUE RIGHTS

7.5 CRR Auctions

7.5.3 ERCOT Responsibilities

7.5.3.1 Data Transparency

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

(a) Unique identifier of each CRR;

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

(c) Clearing price and, if applicable, the Pre-Assigned Congestion Revenue Right (PCRR) pricing factor of each CRR;

(d) Except for FGRs, the source and sink of each CRR;

(e) FGR identity and direction;

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

(g) Total MW of each PTP pair of CRR, awarded, sold or allocated, or total MW for each flowgate, awarded, sold or allocated.

(2) Following each CRR Auction, ERCOT shall post to the MIS Public Area the following information for all outstanding CRRs following this auction:

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

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

(c) FGRs – the identity of each directional flowgate, and the magnitude of positive flow (MW) on each directional network element represented by each flowgate;

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

(e) The clearing prices for each strip of CRR blocks awarded in the CRR Auction;

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

(g) All CRR Auction Bids and CRR Auction Offers, without identifying the name of the CRR Account Holder that submitted the bid or offer.

[NPRR395: Replace paragraph (2) above with the following upon system implementation:]

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

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

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

(c) FGRs – the identity of each directional flowgate; and the magnitude of positive flow (MW) on each directional network element represented by each flowgate;

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

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

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

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

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

7.5.6 CRR Auction Settlements

7.5.6.1 Payment of an Awarded CRR Auction Offer

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

$$\mathbf{OBLSAMT}_{crrh,\,(j,\,k),\,a} = \mathbf{(-1)} * \mathbf{OBLPR}_{(j,\,k),\,a} * \mathbf{OBLS}_{crrh,\,(j,\,k),\,a}$$

The above variables are defined as follows:

Variable	Unit	Definition

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

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

OPTSAMT $_{crrh, (j, k), a}$ = **(-1) * OPTPR** $_{(j, k), a}$ * **OPTS** $_{crrh, (j, k), a}$

The above variables are defined as follows:

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

(3) ERCOT shall pay each CRR Account Holder of its FGR offers awarded in each CRR Auction. The payment for each flowgate for a given ~~Operating Hour~~TOU period is calculated as follows:

FGRSAMT $_{crrh, f, a}$ = **(-1) * FGRPR** $_{f, a}$ * **FGRS** $_{crrh, f, a}$

The above variables are defined as follows:

Variable	Unit	Definition
FGRSAMT $_{crrh, f, a}$	$	*Flowgate Right Sale Amount per CRR Account Holder per flowgate per CRR Auction*—The payment calculated for CRR Account Holder *crrh* of the MW quantity that represents the total FGR offers associated with FGR *f* awarded in CRR Auction *a*, for the hour.
FGRPR $_{f, a}$	$/MWh ~~per hour~~	*Flowgate Right Price per flowgate per CRR Auction*—The clearing price of FGR *f* in CRR Auction *a*, for the hour.
FGRS $_{crrh, f, a}$	MW	*Flowgate Right Sale per CRR Account Holder per flowgate per CRR Auction*—The MW quantity that represents the total of CRR Account Holder *ccrh*'s FGR offers associated with FGR *f* awarded in CRR Auction *a*, for the hours of the TOU period.
crrh	none	A CRR Account Holder.
f	none	An FGR.
a	none	A CRR Auction.

7.5.6.2 Charge of an Awarded CRR Auction Bid

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

OBLPAMT $_{crrh, (j, k), a}$ = **OBLPR** $_{(j, k), a}$ * **OBLP** $_{crrh, (j, k), a}$

The above variables are defined as follows:

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

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

$$\mathbf{OPTPAMT}_{crrh,\,(j,\,k),\,a} = \mathbf{OPTPR}_{(j,\,k),\,a} * \mathbf{OPTP}_{crrh,\,(j,\,k),\,a}$$

The above variables are defined as follows:

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

(3) ERCOT shall charge each CRR Account Holder of its flowgate bids awarded in each CRR Auction. The charge for each flowgate for a given ~~Operating Hour~~TOU period is calculated as follows:

$$\mathbf{FGRPAMT}_{crrh,\,f,\,a} = \mathbf{FGRPR}_{f,\,a} * \mathbf{FGRP}_{crrh,\,f,\,a}$$

The above variables are defined as follows:

Variable	Unit	Definition
$\text{FGRPAMT}_{crrh,\,f,\,a}$	$	*Flowgate Right Purchase Amount per CRR Account Holder per flowgate per CRR Auction*—The charge calculated for CRR Account Holder *crrh* of the MW quantity that represents the total FGR bids associated with FGR *f* awarded in CRR Auction *a*, for the hour.
$\text{FGRPR}_{f,\,a}$	$/MWh ~~per hour~~	*Flowgate Right Price per flowgate per CRR Auction*—The clearing price of FGR *f* in CRR Auction *a*, for the hour.
$\text{FGRP}_{crrh,\,f,\,a}$	MW	*Flowgate Right Purchase per CRR Account Holder flowgate per CRR Auction*—The MW quantity that represents the total of CRR Account Holder *ccrh*'s FGR bids associated with FGR *f* awarded in CRR Auction *a*, for the hours of the TOU period.
crrh	none	A CRR Account Holder.
f	none	An FGR.
a	none	A CRR Auction.

7.5.6.3 Charge of PCRRs Pertaining to a CRR Auction

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

If $OBLPR_{(j, k), a} > 0$

$$\mathbf{PCRROBLAMT}_{crrh, (j, k), a, tech} = \mathbf{PCRROBLF}_{tech} * \mathbf{OBLPR}_{(j, k), a} * \mathbf{PCRROBL}_{crrh, (j, k), a, tech}$$

Otherwise

$$\mathbf{PCRROBLAMT}_{crrh, (j, k), a, tech} = \mathbf{OBLPR}_{(j, k), a} * \mathbf{PCRROBL}_{crrh, (j, k), a, tech}$$

The above variables are defined as follows:

Variable	Unit	Definition
$PCRROBLAMT_{crrh, (j, k), a, tech}$	$	*PCRR PTP Obligation Amount per CRR Account Holder per source and sink pair per CRR Auction by resource technology*—The charge calculated for CRR Account Holder *crrh* of the MW quantity that represents its total PTP Obligations associated with the source *j* and the sink *k* allocated before CRR Auction *a* based on Resources of the technology *tech*, for the hour.
$PCRROBLF_{tech}$		*PCRR PTP Obligation pricing Factor per resource technology*—The pricing factor of pre-allocated PTP Obligations based on Resources of the technology *tech*. See item (h)(ii) of Section 7.4.2, PCRR Allocation Terms and Conditions~~, item (f)(ii)~~.
$OBLPR_{(j, k), a}$	$/MWh ~~per hour~~	*PTP Obligation Price per source and sink pair per CRR Auction*—The clearing price of a PTP Obligation with the source *j* and the sink *k* in CRR Auction *a*, for the hour.
$PCRROBL_{crrh, (j, k), a, tech}$	MW	*PCRR PTP Obligation per CRR Account Holder per source and sink pair per CRR Auction by resource technology*—The MW quantity that represents the total of CRR Account Holder *ccrh*'s PTP Obligations associated with the source *j* and the sink *k* allocated before CRR Auction *a* based on Resources of the technology *tech*, for the hours of the TOU period.
crrh	none	A CRR Account Holder.
j	none	A source Settlement Point.
k	none	A sink Settlement Point.
a	none	A CRR Auction.
tech	none	A Resource technology. See item (h) of Section 7.4.2~~, PCRR Allocation Terms and Conditions, item (f)~~.

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

$$\mathbf{PCRROPTAMT}_{crrh, (j, k), a, tech} = \mathbf{PCRROPTF}_{tech} * \mathbf{OPTPR}_{(j, k), a} * \mathbf{PCRROPT}_{crrh, (j, k), a, tech}$$

The above variables are defined as follows:

Variable	Unit	Definition
PCRROPTAMT $_{crrh, (j, k), a, tech}$	$	*PCRR PTP Option Amount per CRR Account Holder per source and sink pair per CRR Auction by resource technology*—The charge calculated for CRR Account Holder *crrh* of the MW quantity that represents its total PTP Options associated with the source *j* and the sink *k* allocated before CRR Auction *a* based on Resources of the technology *tech*, for the hour.
PCRROPTF $_{tech}$		*PCRR PTP Option pricing Factor per resource technology*—The pricing factor of pre-allocated PTP Options based on Resources of the technology *tech*. See item (h)(i) of Section 7.4.2, ~~PCRR Allocation Terms and Conditions, item (f) (i)~~.
OPTPR $_{(j, k), a}$	$/MWh ~~per hour~~	*PTP Option Price per source and sink pair per CRR Auction*—The clearing price of a PTP Option with the source *j* and the sink *k* in CRR Auction *a*, for the hour.
PCRROPT $_{crrh, (j, k), a, tech}$	MW	*PCRR PTP Option per CRR Account Holder per source and sink pair per CRR Auction by resource technology*—The MW quantity that represents the total of CRR Account Holder *crrh*'s PTP Options with the source *j* and the sink *k* allocated before CRR Auction *a* based on Resources of the technology *tech*, for the hours of the TOU period.
crrh	none	A CRR Account Holder.
j	none	A source Settlement Point.
k	none	A sink Settlement Point.
a	none	A CRR Auction.
tech	none	A Resource technology. See item (h) of Section 7.4.2, ~~PCRR Allocation Terms and Conditions, item (f)~~.

ERCOT Nodal Protocols

Section 4: Day-Ahead Operations

~~December 9, 2011~~January 1, 2012

4 DAY-AHEAD OPERATIONS

4.4 Inputs into DAM and Other Trades

4.4.9 Energy Offers and Bids

4.4.9.2 Startup Offer and Minimum-Energy Offer

4.4.9.2.3 Startup Offer and Minimum-Energy Offer Generic Caps

(1) The Resource Category Startup Offer Generic Cap, by applicable Resource category, is determined by the following Operations and Maintenance (O&M) costs by Resource category:

Resource Category	O&M Costs ($)
Nuclear, coal, lignite and hydro	7,200
Combined Cycle Generation Resource with a combustion turbine ≥ 90 MW, as determined by the largest combustion turbine in the Combined Cycle Generation Resource and for each combustion turbine in the Combined Cycle Generation Resource	6,810
Combined Cycle Generation Resource with a combustion turbine < 90 MW, as determined by the largest combustion turbine in the Combined Cycle Generation Resource and for each combustion turbine in the Combined Cycle Generation Resource	6,810
Gas steam supercritical boiler	4,800
Gas steam reheat boiler	3,000
Gas steam non-reheat or boiler w/o air-preheater	2,310
Simple cycle greater than 90 MW	5,000
Simple cycle less than or equal to 90 MW	2,300
Reciprocating Engines	487
RMR Resource	Not Applicable
Wind generation Resources	0
Any Resources not defined above	0

(2) The Resource Category Minimum-Energy Generic Cap is the cost per MWh of energy for a Resource to produce energy at the Resource's LSL and is as follows:

(a) Hydro = $10.00/MWh;

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

(c) Combined-cycle greater than 90 MW = 8~~10~~ MMBtu/MWh * ((Percentage of FIP * FIP) + (Percentage of FOP * FOP))/100, as specified in Minimum-Energy Offer;

(d) Combined-cycle less than or equal to 90 MW = 9~~10~~ MMBtu/MWh * ((Percentage of FIP * FIP) + (Percentage of FOP * FOP))/100, as specified in Minimum-Energy Offer;

(e) Gas steam supercritical boiler = 1~~6.5~~ MMBtu/MWh * ((Percentage of FIP * FIP) + (Percentage of FOP * FOP))/100, as specified in Minimum-Energy Offer;

(f) Gas steam reheat boiler = 14.5~~7.0~~ MMBtu/MWh * ((Percentage of FIP * FIP) + (Percentage of FOP * FOP))/100, as specified in Minimum-Energy Offer;

(g) Gas steam non-reheat or boiler without air-preheater = 16~~9~~.0 MMBtu/MWh * ((Percentage of FIP * FIP) + (Percentage of FOP * FOP))/100, as specified in Minimum-Energy Offer;

(h) Simple-cycle greater than 90 MW = 15.0 MMBtu/MWh * ((Percentage of FIP * FIP) + (Percentage of FOP * FOP))/100, as specified in Minimum-Energy Offer;

(i) Simple-cycle less than or equal to 90 MW = 14~~5~~.0 MMBtu/MWh * ((Percentage of FIP * FIP) + (Percentage of FOP * FOP))/100, as specified in Minimum-Energy Offer;

(j) Reciprocating engines = 16.0 MMBtu/MWh * ((Percentage of FIP * FIP) + (Percentage of FOP * FOP))/100, as specified in the Minimum-Energy Offer;

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

(l) Nuclear = Not Applicable;

(m) Wind generation Resources = $0; and

(n) Other Resources not defined above = $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 the Resource Category Minimum-Energy Generic Cap must be calculated before the FIP or FOP is available for the particular Operating Day, the FIP and FOP 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 (2)(c) and (2)(d) above are determined by capacity of largest simple-cycle combustion turbine in the train.

4.4.9.3 Energy Offer Curve

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) Coal and Lignite = $18.00/MWh;

(c) Combined Cycle greater than 90 MW = 9 MMBtu/MWh * ((Percentage of FIP * FIP) + (Percentage of FOP * FOP))/100, as specified in the Energy Offer Curve;

(d) Combined Cycle less than or equal to 90 MW = 10 MMBtu/MWh * ((Percentage of FIP * FIP) + (Percentage of FOP * FOP))/100, as specified in the Energy Offer Curve;

(e) Gas - Steam Supercritical Boiler = 10.5 MMBtu/MWh * ((Percentage of FIP * FIP) + (Percentage of FOP * FOP))/100, as specified in the Energy Offer Curve;

(f) Gas Steam Reheat Boiler = 11.5 MMBtu/MWh * ((Percentage of FIP * FIP) + (Percentage of FOP * FOP))/100, as specified in the Energy Offer Curve;

(g) Gas Steam Non-reheat or boiler without air-preheater = 14.5 MMBtu/MWh * ((Percentage of FIP * FIP) + (Percentage of FOP * FOP))/100, as specified in the Energy Offer Curve;

(h) Simple Cycle greater than 90 MW = 14 MMBtu/MWh * ((Percentage of FIP * FIP) + (Percentage of FOP * FOP))/100, as specified in the Energy Offer Curve;

(i) Simple Cycle less than or equal to 90 MW = 15 MMBtu/MWh * ((Percentage of FIP * FIP) + (Percentage of FOP * FOP))/100, as specified in the Energy Offer Curve;

(j) Reciprocating Engines = 16 MMBtu/MWh * ((Percentage of FIP * FIP) + (Percentage of FOP * FOP))/100, as specified in the Energy Offer Curve;

(k) Hydro = $10.00/MWh;

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

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

(2) Items in paragraphs (1)(cd) and (de) above are determined by capacity of largest simple-cycle combustion turbine in the train selected.

(3) The FIP and FOP used to calculate the Energy Offer Curve Cap for Make-Whole Payment calculation purposes shall be the FIP or FOP for the Operating Day. In the event the Energy Offer Curve Cap for Make-Whole Payment calculation purposes must be calculated before the FIP or FOP is available for the particular Operating Day, the FIP and FOP 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 or if no Energy Offer Curve exists, then the minimum of FIP or FOP shall be used.