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PROJECT NO. 54445

REVIEW OF PROTOCOLS ADOPTED BY THE INDEPENDENT ORGANIZATION	**§ § §**	**PUBLIC UTILITY COMMISSION OF TEXAS**

NOTICE OF RECOMMENDED APPROVAL OF REVISION REQUESTS BY ERCOT BOARD OF DIRECTORS

Effective June 8, 2021, rules adopted by Electric Reliability Council of Texas, Inc. (ERCOT) under delegated authority from the Public Utility Commission of Texas (Commission) are subject to Commission oversight and review and may not take effect before receiving Commission approval.

At its meeting on October 10, 2024, the ERCOT Board of Directors (Board) recommended Commission approval of the following proposed revisions to the ERCOT rules (Revision Requests), (Nodal Protocol Revision Requests (NPRRs), Nodal Operating Guide Revision Request (NOGRR), Other Binding Documents Revision Request (OBDRR), and Retail Market Guide Revision Request (RMGRR)):

- NPRR1188, Implement Nodal Dispatch and Energy Settlement for Controllable Load Resources;
- NPRR1215, Clarifications to the Day-Ahead Market (DAM) Energy-Only Offer Calculation;
- NPRR1221, Related to NOGRR262, Provisions for Operator Controlled Manual Load Shed;
- NPRR1227, Related to RMGRR181, Alignment of Defined Term Usage and Resolution of Inconsistencies;
- NPRR1236, RTC+B Modifications to RUC Capacity Short Calculations;
- NPRR1237, Retail Market Qualification Testing Requirements;
- NPRR1244, Clarification of Controllable Load Resource Primary Frequency Response Responsibilities;
- NOGRR262, Provisions for Operator-Controlled Manual Load Shed;
- NOGRR263, Related to NPRR1244, Clarification of Controllable Load Resource Primary Frequency Response Responsibilities;

- OBDRR046, Related to NPRR1188, Implement Nodal Dispatch and Energy Settlement for Controllable Load Resources; and
- RMGRR181, Alignment of Defined Term Usage and Resolution of Inconsistencies.

Included for Commission review are the Board Reports—each of which includes an ERCOT Market Impact Statement—and ERCOT Impact Analyses for these Revision Requests.

Also included for Commission review is the Alignment Nodal Operating Guide Revision Request form for NOGRR270 Alignment Changes for December 1, 2024 Nodal Operating Guide – NPRR1221. Alignment Revision Requests do not go through the stakeholder process, but still require Commission approval.

Dated: October 16, 2024

Respectfully submitted,

/s/ Brandt Rydell

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ATTORNEYS FOR ELECTRIC RELIABILITY COUNCIL OF TEXAS, INC.

Board Report

NPRR Number	1188	NPRR Title	Implement Nodal Dispatch and Energy Settlement for Controllable Load Resources
Date of Decision		October 10, 2024	
Action		Recommended Approval	
Timeline		Normal	
Estimated Impacts		Cost/Budgetary: Between $1.8M and $2.5M Project Duration: 18 to 24 months	
Proposed Effective Date		Upon system implementation	
Priority and Rank Assigned		Priority – 2026; Rank – 390	
Nodal Protocol Sections Requiring Revision		1.3.1.1, Items Considered Protected Information 2.1, Definitions 2.2, Acronyms and Abbreviations 3.2.5, Publication of Resource and Load Information 3.6.1, Load Resource Participation 3.9.1, Current Operating Plan (COP) Criteria 4.2.4, Posting Secure Forecasted ERCOT System Conditions 4.4.7.2, Ancillary Service Offers 4.4.9.8, Energy Bid Curves (new) 4.4.9.8.1, Energy Bid Curve Criteria (new) 4.4.9.8.2, Energy Bid Curve Validation (new) 4.4.10, Credit Requirement for DAM Bids and Offers 4.5.1, DAM Clearing Process 4.5.3, Communicating DAM Results 4.6.2.2, Day-Ahead Energy Charge 4.6.2.3.2, Day-Ahead Make-Whole Charge 6.3.1, Activities for the Adjustment Period 6.4.3, Real-Time Market (RTM) Energy Bids and Offers (delete) 6.4.3.1, RTM Energy Bids (delete) 6.4.3.1.1, RTM Energy Bid Criteria (delete) 6.4.3.1.2, RTM Energy Bid Validation (delete) 6.5.7.3, Security Constrained Economic Dispatch 6.5.7.3.1, Determination of Real-Time Reliability Deployment Price Adder 6.5.7.4, Base Points 6.5.7.5, Ancillary Services Capacity Monitor 6.5.7.6.2.3, Non-Spinning Reserve Service Deployment 6.6.1.2, Real-Time Settlement Point Price for a Load Zone 6.6.1.4, Load Zone LMPs 6.6.3.1, Real-Time Energy Imbalance Payment or Charge at a Resource Node	

Board Report

	6.6.3.2, Real-Time Energy Imbalance Payment or Charge at a Load Zone 6.6.5.1, Resource Base Point Deviation Charge 6.6.5.6, Resources Exempt from Deviation Charges 7.9.1.3, Minimum and Maximum Resource Prices 7.9.3.1, DAM Congestion Rent 8.1.1.1, Ancillary Service Qualification and Testing 8.1.1.4.3, Non-Spinning Reserve Service Energy Deployment Criteria 9.14.10, Settlement for Market Participants Impacted by Omitted Procedures or Manual Actions to Resolve the DAM 9.17.1, Billing Determinant Data Elements 9.19.1, Default Uplift Invoices 10.2.2, TSP and DSP Metered Entities 10.2.3, ERCOT-Polled Settlement Meters 10.3.2.3, Generation Netting for ERCOT-Polled Settlement Meters 11.1.6, ERCOT-Polled Settlement Metter Netting 16.11.4.1, Determination of Total Potential Exposure for a Counter-Party 16.11.4.3.2, Real-Time Liability Estimate 26.2, Securitization Default Charges
Related Documents Requiring Revision/Related Revision Requests	OBDRR046, Related to NPRR1188, Implement Nodal Dispatch and Energy Settlement for Controllable Load Resources Settlement Metering Operating Guide, Section 8, Transformer and Line Loss Compensation Factors
Revision Description	This Nodal Protocol Revision Request (NPRR) changes the dispatch and pricing of Controllable Load Resources (CLRs) in response to items in Phase 1 of Public Utility Commission of Texas' (PUCT's) market design blueprint related to demand response and increasing the "...utilization of load resources for grid reliability". Specifically, this NPRR is focused on the blueprint language discussing the pursuit of "…market modifications and technical measures to improve transparency of price signals for load resources, such as changing demand response pricing from zonal to locational marginal pricing (LMP)". To address the above directive from the PUCT, this NPRR changes the market participation model for CLRs that are not Aggregate Load Resources (ALRs) such that they are dispatched at a nodal shift factor and settled for their energy consumption at a nodal price. Below is a summary of the proposed changes for CLRs that are not ALRs: • Assign a Resource Node Settlement Point;

	• The shift factor used to dispatch these CLRs will be the shift factor of the nodal location of the CLR; • The total energy consumed by the CLR will be settled based on its nodal price; • Real-Time Market (RTM) Energy Bids currently used by all CLRs will be replaced with Energy Bid Curves; • In the Day-Ahead Market (DAM), Resource-specific Energy Bid Curves will be co-optimized with Ancillary Service offers from that same Resource; • OUTL status can only be used if the CLR (that is not an ALR) is truly outaged and is consuming zero MWh; • New Resource Status of ONTEST for a Load Resource; • New Resource Status of ONHOLD for a CLR (including ALRs); • Settlement metering shall be such that the total energy consumption of a CLR (that is not ALR) will be separately metered from all other Load and generation at the site; • Sites with a net metering arrangement using ERCOT-Polled Settlement (EPS) Meters will have the total CLR consumption settled in the same manner as the charging load of Non-Wholesale Storage Load (non-WSL) is settled. This Settlement approach will allow the CLR and co-located Generation Resource, where the CLR is behind the Point of Interconnection (POI) of a Generation Resource, as reflected in an ERCOT-approved EPS Meter Design Proposal, to each offer their full capacity to the ERCOT system for the DAM and RTM; • CLR energy consumption, as measured by the meter, will be adjusted for losses for the portion of energy supplied by the grid. Non-WSL charging Load will also be adjusted in the same manner; and • For Load Ratio Share (LRS) calculation, 4-Coincident Peak (4-CP) allocation, and Unaccounted For Energy (UFE) allocation, the total consumption of CLR will be used. In addition, language is added to clarify that all Resources dispatched by Security-Constrained Economic Dispatch (SCED) shall follow Updated Desired Base Point plus deployment of Regulation Service.
Reason for Revision	☐ Strategic Plan Objective 1 – Be an industry leader for grid reliability and resilience

Board Report

	☐ Strategic Plan Objective 2 - Enhance the ERCOT region's economic competitiveness with respect to trends in wholesale power rates and retail electricity prices to consumers ☐ Strategic Plan Objective 3 - Advance ERCOT, Inc. as an independent leading industry expert and an employer of choice by fostering innovation, investing in our people, and emphasizing the importance of our mission ☐ General system and/or process improvement(s) ☐ Regulatory requirements ☒ ERCOT Board/PUCT Directive *(please select ONLY ONE – if more than one apply, please select the ONE that is most relevant)*
Justification of Reason for Revision and Market Impacts	Implementation of this NPRR will provide the following benefits: • Currently, in the DAM, CLR Ancillary Service offers are not co-optimized with their submitted RTM Energy Bids. Once this NPRR is implemented, Resource-specific Energy Bid Curves will be co-optimized with Ancillary Service offers in DAM. This will increase efficiency of the DAM. • Dispatching Resources using their locational nodal shift factor is essential for efficient congestion management. This NPRR will replace the current approach of dispatching and settling CLRs using zonal shift factors and zonal pricing. The current approach does not provide the correct price incentive for withdrawal levels of the CLRs, and the use of the zonal dispatch factors misrepresents the impact of the withdrawal levels of these Resources on transmission constraints. The nodal approach implemented with this NPRR replaces the existing problematic approach with the more appropriate approach. It was recently reported at the April 26, 2022, Large Flexible Load Task Force (LFLTF) that the current estimate for Large Load interconnection requests is about 17,000 MW by 2026. Some of these loads have shown interest in registering with ERCOT as CLRs. Because the individual MW sizes of these loads are significant, nodal Dispatch and Settlement is crucial for reliable operation of the grid. • This NPRR creates a construct in which the full capacity of a CLR, along with the full capacity of Generation Resources, where the CLR is behind the POI of a Generation Resource, as reflected in an ERCOT-approved EPS Meter Design Proposal, will be visible to ERCOT operations and markets. The Qualified

	Scheduling Entity (QSE) representing the CLR as well as the QSE representing the Generation Resource will be able to monetize the full capacity of these assets. This is currently not allowed due to the different manner in which these Resources are dispatched and priced. This NPRR will allow ERCOT to see Ancillary Service capability that it currently does not see and therefore will likely increase the Ancillary Service-qualified MWs available in DAM, Supplemental Ancillary Service Markets (SASMs), and through self-arrangement. This also eliminates existing cumbersome coordination required by QSEs representing the Generation Resources and CLRs that are co-located today. • Currently all the ESRs and Distributed Energy Storage Resources (DESRs) operating today are receiving WSL treatment. In the event that there is an ESR or DESR that does not request WSL treatment or is not eligible for WSL treatment, this NPRR includes language to "clean-up" how non-WSL charging load must be adjusted for losses and UFE. • This NPRR addresses the instruction related to Demand Response in the PUCT's Blueprint – Phase 1 Enhancements to the Current Market Design, issued in PUCT Project 52373.
PRS Decision	On 7/13/23, PRS voted unanimously to table NPRR1188. All Market Segments participated in the vote. On 8/8/24, PRS voted unanimously to recommend approval of NPRR1188 as amended by the 7/15/24 Oncor comments. All Market Segments participated in the vote. On 9/12/24, PRS voted unanimously to endorse and forward to TAC the 8/8/24 PRS Report as revised by PRS and the 6/27/23 Impact Analysis for NPRR1188 with a recommended priority of 2026 and rank of 390. All Market Segments participated in the vote.
Summary of PRS Discussion	On 7/13/23, ERCOT Staff provided an overview of NPRR1188. Participants requested tabling to allow for additional time to review and for continued discussion at the LFLTF. On 8/8/24, participants reviewed the 7/15/24 Oncor comments. Some participants voiced support for expanding the nodal treatment proposed within NPRR1188 to all large Loads, rather than only CLRs. On 9/12/24, PRS reviewed the 6/27/23 Impact Analysis for NPRR1188 and proposed edits to Section 10.3.2.3 clarifying the communication related to installation of EPS Meters.

Board Report

TAC Decision	On 9/19/24, TAC voted unanimously to recommend approval of NPRR1188 as recommended by PRS in the 9/12/24 PRS Report. All Market Segments participated in the vote.
Summary of TAC Discussion	On 9/19/24, there was no additional discussion beyond TAC review of the items below.
TAC Review/Justification of Recommendation	☒ Revision Request ties to Reason for Revision as explained in Justification ☒ Impact Analysis reviewed and impacts are justified as explained in Justification ☒ Opinions were reviewed and discussed ☒ Comments were reviewed and discussed (if applicable) ☐ Other: (explain)
ERCOT Board Decision	On 10/10/24, the ERCOT Board voted unanimously to recommend approval of NPRR1188 as recommended by TAC in the 9/19/24 TAC Report.

Opinions	
Credit Review	ERCOT Credit Staff and the Credit Finance Sub Group (CFSG) have reviewed NPRR1188 and do not believe that it requires changes to credit monitoring activity or the calculation of liability.
Independent Market Monitor Opinion	IMM supports approval of NPRR1188.
ERCOT Opinion	ERCOT supports approval of NPRR1188.
ERCOT Market Impact Statement	ERCOT Staff has reviewed NPRR1188 and believes the market impact for NPRR1188 implements nodal pricing and Settlement for CLRs and provides several positive impacts, including increased efficiency of the DAM and improved CLR visibility to ERCOT operations and markets.

Sponsor	
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Company	ERCOT

Board Report

Phone Number	512-248-6633
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Market Segment	Not applicable

Market Rules Staff Contact	
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Comments Received	
Comment Author	**Comment Summary**
Lancium 100523	Proposed edits to calculate the Load Ratio Share (LRS) used in Settlements using the net Load from the grid instead of the total Load
ERCOT 040424	Responded to issues raised in the 10/5/23 Lancium and proposed additional clarifying edits
Oncor 071524	Proposed additional edits to the 4/4/24 ERCOT comments requiring all behind-the-meter Entities to agree to any metering arrangements envisioned by NPRR1188's modifications to Section 10.3.2.3

Market Rules Notes

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

- NPRR1026, BESTF-7 Self-Limiting Facilities (unboxed 3/1/24)
  - Section 3.9.1
- NPRR1058, Resource Offer Modernization (unboxed 8/23/24)
  - Section 3.2.5
  - Section 6.4.3.1
- NPRR1111, Related to SCR819, Improving IRR Control to Manage GTC Stability Limits (unboxed 5/31/24)
  - Section 6.5.7.4
  - Section 6.6.5.6
- NPRR1112, Elimination of Unsecured Credit Limits (unboxed 10/1/23)
  - Section 16.11.4.1

- NPRR1131, Controllable Load Resource Participation in Non-Spin (unboxed 8/23/24)
  - Section 6.5.7.6.2.3
  - Section 8.1.1.4.3
- NPRR1166, Protected Information Status of DC Tie Schedule Information (incorporated 8/1/23)
  - Section 1.1.3.1
- NPRR1169, Expansion of Generation Resources Qualified to Provide Firm Fuel Supply Service in Phase 2 of the Service (incorporated 7/1/23)
  - Section 1.1.3.1
- NPRR1175, Revisions to Market Entry Financial Qualifications and Continued Participation Requirements (incorporated 11/1/23)
  - Section 1.1.3.1
- NPRR1178, Expectations for Resources Providing ERCOT Contingency Reserve Service (incorporated 7/1/23)
  - Section 3.9.1
- NPRR1181, Submission of Seasonal Coal and Lignite Inventory Declaration (incorporated 3/1/24)
  - Section 1.1.3.1
- NPRR1186, Improvements Prior to the RTC+B Project for Better ESR State of Charge Awareness, Accounting, and Monitoring (unboxed 6/27/24)
  - Section 3.9.1
- NPRR1192, Move OBD to Section 22 – Requirements for Aggregate Load Resource Participation in the ERCOT Markets (incorporated 3/1/24)
  - Section 6.5.7.6.2.3
- NPRR1197, Optional Exclusion of Load from Netting at ERCOT-Polled Settlement (EPS) Metering Facilities which Include Resources (incorporated 7/1/24)
  - Section 10.3.2.3
  - Section 11.1.6
- NPRR1201, Limitations on Resettlement Timeline and Default Uplift Exposure Adjustments (incorporated 3/1/24)
  - Section 9.19.1
- NPRR1204, Considerations of State of Charge with Real-Time Co-Optimization Implementation (incorporated 3/1/24)
  - Section 3.2.5
  - Section 3.9.1
  - Section 6.5.7.3
  - Section 6.5.7.5
- NPRR1211, Move OBD to Section 22 – Methodology for Setting Maximum Shadow Prices for Network and Power Balance Constraints (incorporated 5/1/24)

  - Section 4.5.1
- NPRR1218, REC Program Changes Per P.U.C. SUBST. R. 25.173, Renewable Energy Credit Program (incorporated 8/1/24)
  - Section 1.3.1.1
- NPRR1225, Exclusion of Lubbock Load from Securitization Charges (incorporated 10/1/24)
  - Section 26.2

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

- NPRR1214, Reliability Deployment Price Adder Fix to Provide Locational Price Signals, Reduce Uplift and Risk
  - Section 6.5.7.3.1
- NPRR1215, Clarifications to the Day-Ahead Market (DAM) Energy-Only Offer Calculation
  - Section 4.4.10
- NPRR1235, Dispatchable Reliability Reserve Service as a Stand-Alone Ancillary Service
  - Section 3.9.1
  - Section 4.4.7.2
  - Section 4.5.1
  - Section 6.5.7.3.1
  - Section 6.5.7.5
  - Section 9.14.10
- NPRR1238, Voluntary Registration of Loads with Curtailable Load Capabilities
  - Section 6.5.7.3.1
- NPRR1239, Access to Market Information
  - Section 4.5.3
- NPRR1240, Access to Transmission Planning Information
  - Section 6.3.1
- NPRR1244, Related to NOGRR263, Clarification of Controllable Load Resource Primary Frequency Response Responsibilities
  - Section 3.6.1
  - Section 6.5.7.5
- NPRR1245, Additional Clarifying Revisions to Real-Time Co-Optimization
  - Section 4.4.7.2
  - Section 6.5.7.3.1
  - Section 6.6.5.6
  - Section 7.9.3.1
  - Section 9.14.10
- NPRR1246, Energy Storage Resource Terminology Alignment for the Single-Model Era

- Section 1.3.1.1
- Section 3.6.1
- Section 6.5.7.4
- Section 6.5.7.6.2.3
- Section 8.1.1.1
- Section 9.19.1
- Section 10.2.2
- Section 10.3.2.3
- Section 26.2

- NPRR1250, RPS Mandatory Program Termination
  - Section 1.3.1.1

Proposed Protocol Language Revision

1.3.1.1 Items Considered Protected Information

Commented [CP1]: Please note NPRRs 1246 and 1250 also propose revisions to this section.

(1) Subject to the exclusions set out in Section 1.3.1.2, Items Not Considered Protected Information, and in Section 3.2.5, Publication of Resource and Load Information, "Protected Information" is information containing or revealing any of the following:

(a) Base Points, as calculated by ERCOT. The Protected Information status of this information shall expire 60 days after the applicable Operating Day;

(b) Bids, offers, or pricing information identifiable to a specific Qualified Scheduling Entity (QSE) or Resource. The Protected Information status of part of this information shall expire 60 days after the applicable Operating Day, as follows:

(i) Ancillary Service Offers by Operating Hour for each Resource for all Ancillary Services submitted for the Day-Ahead Market (DAM) or any Supplemental Ancillary Services Market (SASM);

(ii) The quantity of Ancillary Service offered by Operating Hour for each Resource for all Ancillary Service submitted for the DAM or any SASM; and

(iii) The prices and quantities presented in a Resource's Energy Offer Curve ~~prices and quantities~~or Energy Bid Curve for each Settlement Interval by Resource. The Protected Information status of this information shall expire within seven days after the applicable Operating Day if required to be posted as part of paragraph (5) of Section 3.2.5 and within two days after the applicable Operating Day if required to be posted as part of paragraph (7) of Section 3.2.5;

[NPRR1013: Replace paragraph (b) above with the following upon system implementation of the Real-Time Co-Optimization (RTC) project:]

(b) Bids, offers, or pricing information identifiable to a specific Qualified Scheduling Entity (QSE) or Resource. The Protected Information status of part of this information shall expire 60 days after the applicable Operating Day, as follows:

(i) Ancillary Service Offers by Operating Hour or Security-Constrained Economic Dispatch (SCED) interval for each Resource for all Ancillary Services submitted for the Day-Ahead Market (DAM) or Real-Time Market (RTM);

(ii) The quantity of Ancillary Service offered by Operating Hour or SCED interval for each Resource for all Ancillary Service submitted for the DAM or RTM; and

(iii) The prices and quantities presented in ~~A~~a Resource's Energy Offer Curve ~~prices and quantities~~or Energy Bid Curve by Operating Hour or SCED interval. The Protected Information status of this information shall expire within seven days after the applicable Operating Day if required to be posted as part of paragraph (5) of Section 3.2.5 and within two days after the applicable Operating Day if required to be posted as part of paragraph (7) of Section 3.2.5;

(c) Status of Resources, including Outages, limitations, or scheduled or metered Resource data. The Protected Information status of this information shall expire as follows:

(i) For each Forced Outage, Maintenance Outage, or Forced Derate of a Generation Resource or Energy Storage Resource (ESR) that occurs during or extends into an Operating Day, the Protected Information status of the following information shall expire three days after the applicable Operating Day:

(A) The name and unit code of the Resource affected;

(B) The Resource's fuel type;

(C) The type of Outage or derate;

(D) The start date/time and the planned and actual end date/time;

(E) The Resource's applicable Seasonal net maximum sustainable rating;

(F) The available and outaged MW during the Outage or derate; and

(G) The entry in the "nature of work" field in the Outage Scheduler and any other information concerning the cause of the Outage or derate;

(ii) For each Resource Outage or Forced Derate that occurs during, or that extends into, any time period in which ERCOT has declared an Energy Emergency Alert (EEA), ERCOT may immediately disclose the information identified in paragraph (i) above to a state Governmental Authority, the office of the Governor of Texas, the office of the Lieutenant Governor of Texas, or any member of the Texas Legislature, if requested; and

(iii) For all other information, the Protected Information status shall expire 60 days after the applicable Operating Day;

(d) Current Operating Plans (COPs). The Protected Information status of this information shall expire 60 days after the applicable Operating Day;

(e) Ancillary Service Trades, Energy Trades, and Capacity Trades identifiable to a specific QSE or Resource. The Protected Information status of this information shall expire 180 days after the applicable Operating Day;

(f) Ancillary Service Schedules identifiable to a specific QSE or Resource. The Protected Information status of this information shall expire 60 days after the applicable Operating Day;

[NPRR1013: Replace paragraph (f) above with the following upon system implementation of the Real-Time Co-Optimization (RTC) project:]

(f) Ancillary Service awards identifiable to a specific QSE or Resource. The Protected Information status of this information shall expire 60 days after the applicable Operating Day;

(g) Dispatch Instructions identifiable to a specific QSE or Resource, except for Reliability Unit Commitment (RUC) commitments and decommitments as provided in Section 5.5.3, Communication of RUC Commitments and Decommitments. The Protected Information status of this information shall expire 180 days after the applicable Operating Day;

(h) Raw and Adjusted Metered Load (AML) data (demand and energy) identifiable to:

(i) A specific QSE or Load Serving Entity (LSE). The Protected Information status of this information shall expire 180 days after the applicable Operating Day; or

(ii) A specific Customer or Electric Service Identifier (ESI ID);

(i) Wholesale Storage Load (WSL) data identifiable to a specific QSE. The Protected Information status of this information shall expire 60 days after the applicable Operating Day;

(j) Settlement Statements and Invoices identifiable to a specific QSE. The Protected Information status of this information shall expire 180 days after the applicable Operating Day;

(k) Number of ESI IDs identifiable to a specific LSE. The Protected Information status of this information shall expire 365 days after the applicable Operating Day;

(l) Information related to generation interconnection requests, to the extent such information is not otherwise publicly available. The Protected Information status of certain generation interconnection request information expires as provided in Section 1.3.1.4, Expiration of Protected Information Status;

(m) Resource-specific costs, design and engineering data, including such data submitted in connection with a verifiable cost appeal;

(n) Congestion Revenue Right (CRR) credit limits, the identity of bidders in a CRR Auction, or other bidding information identifiable to a specific CRR Account Holder. The Protected Information status of this information shall expire as follows:

  (i) The Protected Information status of the identities of CRR bidders that become CRR Owners and the number and type of CRRs that they each own shall expire at the end of the CRR Auction in which the CRRs were first sold; and

  (ii) The Protected Information status of all other CRR information identified above in item (n) shall expire six months after the end of the year in which the CRR was effective.

(o) Renewable Energy Credit (REC) account balances. The Protected Information status of this information shall expire three years after the REC Settlement period ends;

(p) Credit limits identifiable to a specific QSE;

(q) Any information that is designated as Protected Information in writing by Disclosing Party at the time the information is provided to Receiving Party except for information that is expressly designated not to be Protected Information by Section 1.3.1.2 or that, pursuant to Section 1.3.1.4, is no longer confidential;

(r) Any information compiled by a Market Participant on a Customer that in the normal course of a Market Participant's business that makes possible the identification of any individual Customer by matching such information with the

Customer's name, address, account number, type of classification service, historical electricity usage, expected patterns of use, types of facilities used in providing service, individual contract terms and conditions, price, current charges, billing record, or any other information that a Customer has expressly requested not be disclosed ("Proprietary Customer Information") unless the Customer has authorized the release for public disclosure of that information in a manner approved by the Public Utility Commission of Texas (PUCT). Information that is redacted or organized in such a way as to make it impossible to identify the Customer to whom the information relates does not constitute Proprietary Customer Information;

(s) Any software, products of software, or other vendor information that ERCOT is required to keep confidential under its agreements;

(t) QSE, Transmission Service Provider (TSP), and Distribution Service Provider (DSP) backup plans collected by ERCOT under the Protocols or Other Binding Documents;

[NPRR857: Replace item (t) above with the following upon system implementation and satisfying the following conditions: (1) Southern Cross provides ERCOT with funds to cover the entire estimated cost of the project; and (2) Southern Cross has signed an interconnection agreement with a TSP and the TSP gives ERCOT written notice that Southern Cross has provided it with: (a) Notice to proceed with the construction of the interconnection; and (b) The financial security required to fund the interconnection facilities:]

(t) QSE, Transmission Service Provider (TSP), Direct Current Tie Operator (DCTO), and Distribution Service Provider (DSP) backup plans collected by ERCOT under the Protocols or Other Binding Documents;

(u) Direct Current Tie (DC Tie) Schedule information. The Protected Information status of this information shall expire on the date on which ERCOT files the report with the PUCT that is required by P.U.C. SUBST. R. 25.192, Transmission Rates for Export from ERCOT, relating to energy imported and exported over DC Ties interconnected to the ERCOT System;

(v) Any Texas Standard Electronic Transaction (TX SET) transaction submitted by an LSE to ERCOT or received by an LSE from ERCOT. This paragraph does not apply to ERCOT's compliance with:

(i) PUCT Substantive Rules on performance measure reporting;

(ii) These Protocols or Other Binding Documents; or

(iii) Any Technical Advisory Committee (TAC)-approved reporting requirements;

(w) Information concerning a Mothballed Generation Resource's probability of return to service and expected lead time for returning to service submitted pursuant to Section 3.14.1.9, Generation Resource Status Updates;

(x) Information provided by Entities under Section 10.3.2.4, Reporting of Net Generation Capacity;

(y) Alternative fuel reserve capability and firm gas availability information submitted pursuant to Section 6.5.9.3.1, Operating Condition Notice, Section 6.5.9.3.2, Advisory, and Section 6.5.9.3.3, Watch, and as defined by the Operating Guides;

(z) Non-public financial information provided by a Counter-Party to ERCOT pursuant to meeting its credit qualification requirements as well as the QSE's form of credit support;

(aa) ESI ID, identity of Retail Electric Provider (REP), and MWh consumption associated with transmission-level Customers that wish to have their Load excluded from the Renewable Portfolio Standard (RPS) calculation consistent with Section 14.5.3, End-Use Customers, and subsection (j) of P.U.C. SUBST. R. 25.173, Goal for Renewable Energy;

[NPRR1218: Replace paragraph (aa) above with the following upon system implementation:]

(aa) ESI ID, identity of Retail Electric Provider (REP), and MWh consumption associated with transmission-level Customers that submitted notice to have their Load excluded from the Solar Renewable Portfolio Standard (SRPS) calculation consistent with Section 14.5.3, End-Use Customers, and subsection (f) of P.U.C. SUBST. R. 25.173, Renewable Energy Credit Program, or the Renewable Portfolio Standard (RPS) calculation consistent with subsection (j) of P.U.C. SUBST. R. 25.173 as it was effective until December 31, 2023;

(bb) Emergency operations plans submitted pursuant to P.U.C. SUBST. R. 25.53, Electric Service Emergency Operations Plans;

(cc) Information provided by a Counter-Party under Section 16.16.3, Verification of Risk Management Framework;

(dd) Any data related to Load response capabilities that are self-arranged by the LSE or pursuant to a bilateral agreement between a specific LSE and its Customers, other than data either related to any service procured by ERCOT or non-LSE-specific aggregated data. Such data includes pricing, dispatch instructions, and other proprietary information of the Load response product;

(ee) Status of Settlement Only Generators (SOGs), including Outages, limitations, or scheduled or metered output data, except that ERCOT may disclose output data

from an SOG as part of an extract or forwarded TX SET transaction provided to the LSE associated with the ESI ID of the Premise where the SOG is located. The Protected Information status of this information shall expire 60 days after the applicable Operating Day;

[NPRR829 and NPRR995: Replace applicable portions of paragraph (ee) above with the following upon system implementation:]

(ee) Status of Settlement Only Generators (SOGs) and Settlement Only Energy Storage System (SOESS), including Outages, limitations, schedules, metered output and withdrawal data, or data telemetered for use in the calculation of Real-Time Liability (RTL) as described in Section 16.11.4.3.2, Real-Time Liability Estimate, except that ERCOT may disclose metered output and withdrawal data from an SOG or SOESS as part of an extract or forwarded TX SET transaction provided to the LSE associated with the ESI ID of the Premise where the SOG is located. The Protected Information status of this information shall expire 60 days after the applicable Operating Day;

(ff) Any documents or data submitted to ERCOT in connection with an Alternative Dispute Resolution (ADR) proceeding. The Protected Information status of this information shall expire upon ERCOT's issuance of a Market Notice indicating the disposition of the ADR proceeding pursuant to paragraph (1) of Section 20.9, Resolution of Alternative Dispute Resolution Proceedings and Notification to Market Participants, except to the extent the information continues to qualify as Protected Information pursuant to another paragraph of this Section 1.3.1.1;

(gg) Reasons for and future expectations of overrides to a specific Resource's High Dispatch Limit (HDL) or Low Dispatch Limit (LDL). The Protected Information status of this information shall expire 60 days after the applicable Operating Day;

(hh) Information provided to ERCOT under Section 16.18, Cybersecurity Incident Notification, except that ERCOT may disclose general information concerning a Cybersecurity Incident in a Market Notice in accordance with paragraph (5) of Section 16.18 to assist Market Participants in mitigating risk associated with a Cybersecurity Incident;

(ii) Information disclosed in response to paragraphs (1)-(4) of the Natural Gas Pipeline Coordination section of Section 22, Attachment K, Declaration of Natural Gas Pipeline Coordination, submitted to ERCOT in accordance with Section 3.21, Submission of Declarations of Natural Gas Pipeline Coordination. The Protected Information status of Resource Outage information shall expire as provided in paragraph (1)(c) of Section 1.3.1.1;

(jj) Information concerning weatherization activities submitted to, obtained by, or generated by ERCOT in connection with P.U.C. SUBST. R. 25.55, Weather

Emergency Preparedness, if such information allows the identification of any Resource or Resource Entity;

(kk) Information provided to ERCOT:

(i) By a QSE under paragraph (3) of Section 3.14.5, Firm Fuel Supply Service, as part of an offer to provide Firm Fuel Supply Service (FFSS), except that within ten Business Days of issuing FFSS awards, ERCOT may disclose the identity of all Generation Resources that were offered as primary Generation Resources or alternate Generation Resources to provide FFSS for the most recent procurement period, including prices and quantities offered;

(ii) By a Resource Entity under paragraph (2) of Section 8.1.1.2.1.6, Firm Fuel Supply Service Resource Qualification, Testing, and Decertification, as part of the voluntary process for ERCOT certification of a FFSS Qualified Contract; or

(iii) By a Resource Entity in a Force Majeure Event report required under paragraph (14) of Section 8.1.1.2.6;

(ll) Information provided to ERCOT pursuant to Section 16.2.1.1, QSE Background Check Process, or Section 16.8.1.1, CRR Account Holder Background Check Process; and

(mm) Information concerning coal or lignite inventory provided by a QSE under Section 3.24, Notification of Low Coal and Lignite Inventory Levels.

2.1 DEFINITIONS

Energy Bid Curve

A proposal from a Controllable Load Resource (CLR) to buy energy at a Settlement Point at a monotonically non-increasing price with increasing quantity.

~~**Real-Time Market (RTM) Energy Bid**~~

~~A proposal to buy energy in the RTM at a monotonically non-increasing price with increasing quantity.~~

Resource

The term is used to refer to an Energy Storage Resource (ESR), a Generation Resource, or a Load Resource. The term "Resource" used by itself in these Protocols does not include a Settlement Only Generator (SOG) or an Emergency Response Service (ERS) Resource.

[NPRR995: Replace the above definition "Resource" with the following upon system implementation:]

Resource

The term is used to refer to an Energy Storage Resource (ESR), a Generation Resource, or a Load Resource. The term "Resource" used by itself in these Protocols does not include a Settlement Only Generator (SOG), Settlement Only Energy Storage System (SOESS), or an Emergency Response Service (ERS) Resource.

Energy Storage Resource (ESR)

An Energy Storage System (ESS) registered with ERCOT for the purpose of providing energy and/or Ancillary Service to the ERCOT System.

[NPRR1029: Insert the following definition "DC-Coupled Resource upon system implementation:]

DC-Coupled Resource

A type of Energy Storage Resource (ESR) in which an Energy Storage System (ESS) is combined with wind and/or solar generation in the same modeled generation station and interconnected at the same Point of Interconnection (POI), and where these technologies are interconnected within the site using direct current (DC) equipment. The combined technologies are then connected to the ERCOT System using the same direct current-to-alternating current (DC-to-AC) inverter(s). To be classified as a DC-Coupled Resource, the generator(s) and ESS(s) at a site must meet the following conditions:

(1) The ESS component of the Resource must have a nameplate rating of at least ten MW and ten MWh, or the MW rating must equal or exceed 50% of the nameplate MW rating of the inverter; and

(2) All intermittent renewable generators must meet the conditions for aggregation stated in paragraph (13) of Section 3.10.7.2, Modeling of Resources and Transmission Loads, except to the extent any such condition requires the generator to be a Resource.

Distribution Energy Storage Resource (DESR)

An Energy Storage Resource (ESR) connected to the Distribution System that is either:

(1) Greater than ten MW and not registered with the Public Utility Commission of Texas (PUCT) as a self-generator; or

(2) Greater than one MW that chooses to register as a Resource with ERCOT to participate in the ERCOT markets.

Generation Resource

A generator capable of providing energy or Ancillary Service to the ERCOT System and is registered with ERCOT as a Generation Resource.

Distribution Generation Resource (DGR)

A Generation Resource connected to the Distribution System that is either:

(1) Greater than ten MW and not registered with the Public Utility Commission of Texas (PUCT) as a self-generator; or

(2) Greater than one MW that chooses to register as a Generation Resource to participate in the ERCOT markets.

Transmission Generation Resource (TGR)

A Generation Resource connected to the ERCOT transmission system that is either:

(1) Greater than ten MW and not registered with the Public Utility Commission of Texas (PUCT) as a self-generator; or

(2) Greater than one MW that chooses to register as a Generation Resource to participate in the ERCOT markets.

Load Resource

A Load capable of providing Ancillary Service to the ERCOT System and/or energy in the form of Demand response and registered with ERCOT as a Load Resource.

~~***Aggregate Load Resource (ALR)***~~

~~A Load Resource that is an aggregation of individual metered sites, each of which has less than ten MW of Demand response capability and all of which are located within a single Load Zone.~~

Controllable Load Resource (CLR)

A Load Resource capable of controllably reducing or increasing consumption under Dispatch control by ERCOT.

Aggregate Load Resource (ALR)

A Controllable Load Resource (CLR) that is an aggregation of individual metered sites, each of which has less than ten MW of Demand response capability and all of which are located within a single Load Zone.

Settlement Only Generator (SOG)

A generator that is settled for exported energy only, but may not participate in the Ancillary Services market, Reliability Unit Commitment (RUC), Security-Constrained Economic Dispatch (SCED), or make energy offers. These units are comprised of:

[NPRR995: Delete the above definition "Settlement Only Generator (SOG)" upon system implementation.]

Settlement Only Distribution Generator (SODG)

A generator that is connected to the Distribution System with a rating of:

(1) One MW or less that chooses to register as an SODG; or

(2) Greater than one and up to ten MW that is capable of providing a net export to the ERCOT System and does not register as a Distribution Generation Resource (DGR).

SODGs must be registered with ERCOT in accordance with Planning Guide Section 6.8.2, Resource Registration Process, and will be modeled in ERCOT systems for reliability in accordance with Section 3.10.7.2, Modeling of Resources and Transmission Loads.

[NPRR995: Delete the above definition "Settlement Only Distribution Generator (SODG)" upon system implementation.]

Settlement Only Transmission Generator (SOTG)

A generator that is connected to the ERCOT transmission system with a rating of ten MW or less and is registered with the Public Utility Commission of Texas (PUCT) as a power generation company. SOTGs must be registered with ERCOT in accordance with Planning Guide Section 6.8.2, Resource Registration Process, and may be modeled in ERCOT systems for reliability in accordance with Section 3.10.7.2, Modeling of Resources and Transmission Loads.

[NPRR995: Delete the above definition "Settlement Only Transmission Generator (SOTG)" upon system implementation.]

Settlement Only Transmission Self-Generator (SOTSG)

A generator that is connected to the ERCOT transmission system with a rating of one MW or more and is registered with the Public Utility Commission of Texas (PUCT) as a self-generator. SOTSGs must be registered with ERCOT in accordance with Planning Guide Section 6.8.2, Resource Registration Process, and will be modeled in ERCOT systems for reliability in accordance with Section 3.10.7.3, Modeling of Private Use Networks.

[NPRR995: Delete the above definition "Settlement Only Transmission Self-Generator (SOTSG)" upon system implementation.]

Resource Node

Either a logical construct that creates a virtual pricing point required to model a Combined-Cycle Configuration or an Electrical Bus defined in the Network Operations Model, at which a Settlement Point Price for a Generation Resource, Controllable Load Resource (CLR) that is not an Aggregate Load Resource (ALR), or Energy Storage Resource (ESR) is calculated and used in Settlement. All Resource Nodes shall be identified in accordance with the Other Binding Document titled "Procedure for Identifying Resource Nodes."

Security-Constrained Economic Dispatch (SCED)

The determination of desirable Generation Resource output levels using Energy Offer Curves and desirable Controllable Load Resource (CLR) consumption levels using Energy Bid Curves while considering State Estimator output for Load at transmission-level Electrical Buses, ~~Generation~~ Resource limits, and transmission limits to maximize bid-based revenue less offer-based costs~~provide the least offer-based cost dispatch of the ERCOT System~~.

[NPRR1013 and NPRR1014: Replace the definition "Security-Constrained Economic Dispatch (SCED)" above with the following upon system implementation of the Real-Time Co-Optimization (RTC) project; or upon system implementation of NPRR1014, respectively:]

Security-Constrained Economic Dispatch (SCED)

A process for determining Ancillary Service awards and Base Point instructions for Resources using Energy Offer Curves, Energy Bid/Offer Curves, ~~RTM~~ Energy Bid Curves, Ancillary Service Offers and Ancillary Service Demand Curves. A SCED execution results in Ancillary

Service awards and Base Point instructions that maximize bid-based revenues less offer-based costs while considering State Estimator output for Load at transmission-level Electrical Buses, Resource limits, and transmission limits to maximize bid-based revenues less offer-based costs.

Updated Desired Base Point

A calculated MW value representing the expected MW output of a Generation Resource or Controllable Load Resource (CLR) ramping to a Base Point.

2.2 ACRONYMS AND ABBREVIATIONS

CLR Controllable Load Resource

3.2.5 Publication of Resource and Load Information

(1) Two days after the applicable Operating Day, ERCOT shall post on the ERCOT website for the ERCOT System and, if applicable, for each Disclosure Area, the information derived from the first complete execution of Security-Constrained Economic Dispatch (SCED) in each 15-minute Settlement Interval. The Disclosure Area is the 2003 ERCOT CMZs. Posting requirements will be applicable to Generation Resources and Controllable Load Resources physically located in the defined Disclosure Area. This information shall not be posted if the posting of the information would reveal any individual Market Participant's Protected Information. The information posted by ERCOT shall include:

[NPRR1007 and NPRR1014: Replace applicable portions of paragraph (1) above with the following upon system implementation of the Real-Time Co-Optimization (RTC) project for NPRR1007; or upon system implementation for NPRR1014:]

(1) Two days after the applicable Operating Day, ERCOT shall post on the ERCOT website for the ERCOT System and, if applicable, for each Disclosure Area, the information derived from each execution of SCED. The Disclosure Area is the 2003 ERCOT CMZs. Posting requirements will be applicable to Generation Resources, ESRs, and Controllable Load Resources physically located in the defined Disclosure Area. This information shall not be posted if the posting of the information would reveal any individual Market Participant's Protected Information. The information posted by ERCOT shall include:

(a) An aggregate energy supply curve based on non-IRR Generation Resources with Energy Offer Curves that are available to SCED. The energy supply curves will be calculated beginning at the sum of the Low Sustained Limits (LSLs) and ending at the sum of the HSLs for non-IRR Generation Resources with Energy

Offer Curves, with the dispatch for each Generation Resource constrained between the Generation Resource's LSL and HSL. The result will represent the ERCOT System energy supply curve economic dispatch of the non-IRR Generation Resources with Energy Offer Curves at various pricing points, not taking into consideration any physical limitations of the ERCOT System;

(b) An aggregate energy supply curve based on Wind-powered Generation Resources (WGRs) with Energy Offer Curves that are available to SCED. The energy supply curves will be calculated beginning at the sum of the LSLs and ending at the sum of the HSLs for WGRs with Energy Offer Curves, with the dispatch for each WGR constrained between the WGR's LSL and HSL. The result will represent the ERCOT System energy supply curve economic dispatch of the WGRs with Energy Offer Curves at various pricing points, not taking into consideration any physical limitations of the ERCOT System;

(c) An aggregate energy supply curve based on PhotoVoltaic Generation Resources (PVGRs) with Energy Offer Curves that are available to SCED. The energy supply curves will be calculated beginning at the sum of the LSLs and ending at the sum of the HSLs for PVGRs with Energy Offer Curves, with the dispatch for each PVGR constrained between the PVGR's LSL and HSL. The result will represent the ERCOT System energy supply curve economic dispatch of the PVGRs with Energy Offer Curves at various pricing points, not taking into consideration any physical limitations of the ERCOT System;

[NPRR1014: Insert paragraph (d) below upon system implementation and renumber accordingly:]

(d) An aggregated energy supply and demand curve based on Energy Bid/Offer Curves that are available to SCED. The curves will be calculated beginning at the sum of the LSLs and ending at the sum of the HSLs for the Energy Bid/Offer Curves, with the dispatch for each Resource constrained between the Resource's LSL and HSL. The result will represent the ERCOT System energy supply and demand curve economic dispatch of the ESRs with Energy Bid/Offer Curves at various pricing points, not taking into consideration any physical limitations of the ERCOT System;

(d) The sum of LSLs, sum of Output Schedules, and sum of HSLs for Generation Resources without Energy Offer Curves;

[NPRR1014: Replace paragraph (d) above with the following upon system implementation:]

(e) The sum of LSLs, sum of Output Schedules, and sum of HSLs for Generation Resources without Energy Offer Curves and ESRs without Energy Bid/Offer Curves;

(e) The sum of the Base Points, High Ancillary Service Limit (HASL) and Low Ancillary Service Limit (LASL) of non-IRR Generation Resources with Energy Offer Curves, sum of the Base Points, HASL and LASL of WGRs with Energy Offer Curves, sum of the Base Points, HASL and LASL of PVGRs with Energy Offer Curves, and the sum of the Base Points, HASL and LASL of all remaining Generation Resources dispatched in SCED;

[NPRR1007 and NPRR1014: Replace applicable portions of paragraph (e) above with the following upon system implementation of the Real-Time Co-Optimization (RTC) project for NPRR1007; or upon system implementation for NPRR1014:]

(f) The sum of the Base Points of non-IRR Generation Resources with Energy Offer Curves, sum of the Base Points of WGRs with Energy Offer Curves, sum of the Base Points of PVGRs with Energy Offer Curves, sum of the Base Points of ESRs with Energy Bid/Offer Curves, and the sum of the Base Points of all remaining Resources dispatched in SCED;

(f) The sum of the telemetered Generation Resource net output used in SCED; and

(g) An aggregate energy Demand curve based on the ~~Real-Time Market (RTM)~~ Energy Bid ~~e~~Curves available to SCED. The energy Demand curve will be calculated beginning at the sum of the Low Power Consumptions (LPCs) and ending at the sum of the Maximum Power Consumptions (MPCs) for Controllable Load Resources with ~~RTM~~ Energy Bid Curves, with the dispatch for each Controllable Load Resource constrained between the Controllable Load Resource's LPC and MPC. The result will represent the ERCOT System Demand response capability available to SCED of the Controllable Load Resources with ~~RTM~~ Energy Bid Curves at various pricing points, not taking into consideration any physical limitations of the ERCOT System.

[NPRR1014: Replace paragraph (g) above with the following upon system implementation:]

(h) An aggregate energy Demand curve based on the ~~Real-Time Market (RTM)~~ Energy Bid ~~e~~Curves available to SCED. The energy Demand curve will be calculated beginning at the sum of the Low Power Consumptions (LPCs) and ending at the sum of the Maximum Power Consumptions (MPCs), with the dispatch for each Controllable Load Resource constrained between the Controllable Load Resource's LPC and MPC. The result will represent the ERCOT System Demand response capability available to SCED of the Controllable Load Resources with ~~RTM~~ Energy Bid Curves at various pricing points, not taking into consideration any physical limitations of the ERCOT System;

[NPRR1007 and NPRR1014: Insert applicable portions of paragraphs (i)-(k) below upon system implementation of the Real-Time Co-Optimization (RTC) project for NPRR1007; or upon system implementation for NPRR1014:]

(i) The aggregate Ancillary Service Offers (prices and quantities) in the RTM, for each type of Ancillary Service. For Responsive Reserve (RRS) and ERCOT Contingency Reserve Service (ECRS), ERCOT shall separately post aggregated offers from Generation Resources, Energy Storage Resources (ESRs), Controllable Load Resources, and Load Resources other than Controllable Load Resources. Linked Ancillary Service Offers will be included as non-linked Ancillary Service Offers;

(j) The sum of the Base Points of ESRs in discharge mode; and

(k) The sum of the Base Points of ESRs in charge mode.

(2) Two days after the applicable Operating Day, ERCOT shall post on the ERCOT website for the ERCOT System the following information derived from the first complete execution of SCED in each 15-minute Settlement Interval:

[NPRR1007 and NPRR1014: Replace applicable portions of paragraph (2) above with the following upon system implementation of the Real-Time Co-Optimization (RTC) project for NPRR1007; or upon system implementation for NPRR1014:]

(2) Two days after the applicable Operating Day, ERCOT shall post on the ERCOT website for the ERCOT System the following information derived from each execution of SCED:

(a) Each telemetered Dynamically Scheduled Resource (DSR) Load, and the telemetered DSR net output(s) associated with each DSR Load; and

[NPRR1000: Delete paragraph (a) above upon system implementation and renumber accordingly.]

(b) The actual ERCOT Load as determined by subtracting the DC Tie Resource actual telemetry from the sum of the telemetered Generation Resource net output as used in SCED.

(3) Two days after the applicable Operating Day, ERCOT shall post on the ERCOT website the following information for the ERCOT System and, if applicable, for each Disclosure Area from the Day-Ahead Market (DAM) for each hourly Settlement Interval:

(a) An aggregate energy supply curve based on all energy offers that are available to the DAM, not taking into consideration Resource Startup Offer or Minimum-

Energy Offer or any physical limitations of the ERCOT System. The result will represent the energy supply curve at various pricing points for energy offers available in the DAM;

(b) Aggregate minimum energy supply curves based on all Minimum-Energy Offers that are available to the DAM;

(c) An aggregate energy Demand curve based on the DAM Energy Bids and Energy Bid ~~c~~Curves from Controllable Load Resources (CLRs) available to the DAM, not taking into consideration any physical limitations of the ERCOT System;

(d) The aggregate amount of cleared energy bids and offers including cleared Minimum-Energy Offer quantities;

(e) The aggregate Ancillary Service Offers (prices and quantities) in the DAM, for each type of Ancillary Service regardless of a Resource's On-Line or Off-Line status. For Responsive Reserve (RRS), ERCOT shall separately post aggregated offers from Resources providing Primary Frequency Response, Fast Frequency Response (FFR), and Load Resources controlled by high-set under-frequency relays. For ERCOT Contingency Reserve Service (ECRS), ERCOT shall separately post aggregated offers from Resources that are SCED-dispatchable and those that are manually dispatched. Linked Ancillary Service Offers will be included as non-linked Ancillary Service Offers;

(f) The aggregate Self-Arranged Ancillary Service Quantity, for each type of service, by hour. For RRS, ERCOT shall separately post aggregated Self-Arranged Ancillary Service Quantities from Resources providing Primary Frequency Response, FFR, and Load Resources controlled by high-set under-frequency relays. For ECRS, ERCOT shall separately post aggregated Self-Arranged Ancillary Service Quantities from Resources that are SCED-dispatchable and those that are manually dispatched;

(g) The aggregate amount of cleared Ancillary Service Offers. For RRS, ERCOT shall separately post aggregated Ancillary Service Offers from Resources providing Primary Frequency Response, FFR, and Load Resources controlled by high-set under-frequency relays. For ECRS, ERCOT shall separately post aggregated Ancillary Service Offers from Resources that are SCED-dispatchable and those that are manually dispatched; and

(h) The aggregate Point-to-Point (PTP) Obligation bids (not-to-exceed price and quantities) for the ERCOT System and the aggregate PTP Obligation bids that sink in the Disclosure Area for each Disclosure Area.

[NPRR1007 and NPRR1014: Replace applicable portions of paragraph (3) above with the following upon system implementation for NPRR1014; or upon system implementation of the Real-Time Co-Optimization (RTC) project for NPRR1007:]

(3) Two days after the applicable Operating Day, ERCOT shall post on the ERCOT website the following information for the ERCOT System and, if applicable, for each Disclosure Area from the DAM for each hourly Settlement Interval:

(a) An aggregate energy supply curve based on all energy offers that are available to the DAM, including the offer portion of Energy Bid/Offer Curves submitted for ESRs, not taking into consideration Resource Startup Offer or Minimum-Energy Offer or any physical limitations of the ERCOT System. The result will represent the energy supply curve at various pricing points for energy offers available in the DAM;

(b) Aggregate minimum energy supply curves based on all Minimum-Energy Offers that are available to the DAM;

(c) An aggregate energy Demand curve based on the DAM Energy Bids and Energy Bid ~~e~~Curves from Controllable Load Resources (CLRs) and including the bid portion of Energy Bid/Offer Curves available to the DAM, not taking into consideration any physical limitations of the ERCOT System;

(d) The aggregate amount of cleared energy bids and offers including cleared Minimum-Energy Offer quantities;

(e) The aggregate Ancillary Service Offers (prices and quantities) in the DAM, for each type of Ancillary Service regardless of a Resource's On-Line or Off-Line status and including Ancillary Service Only Offers. For RRS, ERCOT shall separately post aggregated offers from Resources providing Primary Frequency Response (including Ancillary Service Only Offers), Fast Frequency Response (FFR), and Load Resources controlled by high-set under-frequency relays. For ERCOT Contingency Reserve Service (ECRS), ERCOT shall separately post aggregated offers from Resources that are SCED-dispatchable (including Ancillary Service Only Offers) and those that are manually dispatched. Linked Ancillary Service Offers will be included as non-linked Ancillary Service Offers;

(f) The aggregate Self-Arranged Ancillary Service Quantity, for each type of service, by hour. For RRS, ERCOT shall separately post aggregated Self-Arranged Ancillary Service Quantities from Resources providing Primary Frequency Response, FFR, and Load Resources controlled by high-set under-frequency relays. For ECRS, ERCOT shall separately post aggregated Self-Arranged Ancillary Service Quantities from Resources that are SCED-dispatchable and those that are manually dispatched;

(g) The aggregate amount of cleared Resource-specific Ancillary Service Offers and Ancillary Service Only Offers. For RRS, ERCOT shall separately post aggregated Ancillary Service Offers from Resources providing Primary Frequency Response (including Ancillary Service Only Offers), FFR, and Load Resources controlled by high-set under-frequency relays. For ECRS, ERCOT

shall separately post aggregated Ancillary Service Offers from Resources that are SCED-dispatchable (including Ancillary Service Only Offers) and those that are manually dispatched; and

(h) The aggregate Point-to-Point (PTP) Obligation bids (not-to-exceed price and quantities) for the ERCOT System and the aggregate PTP Obligation bids that sink in the Disclosure Area for each Disclosure Area.

(4) ERCOT shall post on the ERCOT website the following information for each Resource for each 15-minute Settlement Interval 60 days prior to the current Operating Day:

[NPRR1007 and NPRR1014: Replace applicable portions of paragraph (4) above with the following upon system implementation of the Real-Time Co-Optimization (RTC) project for NPRR1007; or upon system implementation for NPRR1014:]

(4) ERCOT shall post on the ERCOT website the following information for each Resource for each execution of SCED 60 days prior to the current Operating Day:

(a) The Generation Resource name and the Generation Resource's Energy Offer Curve (prices and quantities):

(i) As submitted;

(ii) As submitted and extended (or truncated) with proxy Energy Offer Curve logic by ERCOT to fit to the operational HSL and LSL values that are available for dispatch by SCED; and

(iii) As mitigated and extended for use in SCED, including the Incremental and Decremental Energy Offer Curves for DSRs;

[NPRR1000: Replace paragraph (iii) above with the following upon system implementation:]

(iii) As mitigated and extended for use in SCED;

[NPRR1007 and NPRR1014: Insert applicable portions of paragraph (b) below upon system implementation of the Real-Time Co-Optimization (RTC) project for NPRR1007; or upon system implementation for NPRR1014; and renumber accordingly:]

(b) The Resource name and the Resource's Ancillary Service Offer Curve (prices and quantities) for each type of Ancillary Service:

(i) As submitted; and

(ii) As submitted and extended with proxy Ancillary Service Offer Curve logic by ERCOT.

(b) The Load Resource name and the Load Resource's ~~bid to buy~~Energy Bid Curve (prices and quantities);

(c) The Generation Resource name and the Generation Resource's Output Schedule;

(d) For a DSR, the DSR Load and associated DSR name and DSR net output;

[NPRR1000: Delete paragraph (d) above upon system implementation and renumber accordingly.]

(e) The Generation Resource name and actual metered Generation Resource net output;

(f) The self-arranged Ancillary Service by service for each QSE;

(g) The following Generation Resource data using a single snapshot during the first SCED execution in each Settlement Interval:

(i) The Generation Resource name;

(ii) The Generation Resource status;

(iii) The Generation Resource HSL, LSL, HASL, LASL, High Dispatch Limit (HDL), and Low Dispatch Limit (LDL);

(iv) The Generation Resource Base Point from SCED;

(v) The telemetered Generation Resource net output used in SCED;

(vi) The Ancillary Service Resource Responsibility for each Ancillary Service;

(vii) The Generation Resource Startup Cost and minimum energy cost used in the Reliability Unit Commitment (RUC); and

[NPRR1007 and NPRR1014: Replace applicable portions of paragraph (g) above with the following upon system implementation of the Real-Time Co-Optimization (RTC) project for NPRR1007; or upon system implementation for NPRR1014:]

(h) The following Generation Resource data using a snapshot from each execution of SCED:

(i) The Generation Resource name;

(ii) The Generation Resource status;

(iii) The Generation Resource HSL, LSL, High Dispatch Limit (HDL), and Low Dispatch Limit (LDL);

(iv) The Generation Resource Base Point from SCED;

(v) The telemetered Generation Resource net output used in SCED;

(vi) The Ancillary Service Resource awards for each Ancillary Service;

(vii) The Generation Resource Startup Cost and minimum energy cost used in the Reliability Unit Commitment (RUC);

(viii) The telemetered Normal Ramp Rates;

(ix) The telemetered Ancillary Service capabilities; and

(h) The following Load Resource data using a single snapshot during the first SCED execution in each Settlement Interval:

(i) The Load Resource name;

(ii) The Load Resource status;

(iii) The MPC for a Load Resource;

(iv) The LPC for a Load Resource;

(v) The Load Resource HASL, LASL, HDL, and LDL, for a Controllable Load Resource that has a Resource Status of ONRGL or ONCLR for the interval snapshot;

(vi) The Load Resource Base Point from SCED, for a Controllable Load Resource that has a Resource Status of ONRGL or ONCLR for the interval snapshot;

(vii) The telemetered real power consumption; and

(viii) The Ancillary Service Resource Responsibility for each Ancillary Service.

[NPRR1007, NPRR1014, and NPRR1204: Replace applicable portions of paragraph (h) above with the following upon system implementation of the Real-Time Co-Optimization (RTC) project for NPRR1007 and NPRR1204; or upon system implementation for NPRR1014:]

(i) The following Load Resource data using a snapshot from each execution of SCED:

(i) The Load Resource name;

(ii) The Load Resource status;

(iii) The MPC for a Load Resource;

(iv) The LPC for a Load Resource;

(v) The Load Resource HDL and LDL, for a Controllable Load Resource that has a Resource Status of ONL;

(vi) The Load Resource Base Point from SCED, for a Controllable Load Resource that has a Resource Status of ONL;

(vii) The telemetered real power consumption;

(viii) The Ancillary Service Resource awards for each Ancillary Service;

(ix) The telemetered self-provided Ancillary Service amount for each Ancillary Service;

(x) The telemetered Normal Ramp Rates;

(xi) The telemetered Ancillary Service capabilities; and

(j) The ESR name and the ESR's Energy Bid/Offer Curve (prices and quantities):

(i) As submitted; and

(ii) As submitted and extended with proxy Energy Offer Curve logic by ERCOT to fit to the operational HSL and LSL values that are available for dispatch by SCED;

(k) The following ESR data using a snapshot from each execution of SCED:

(i) The ESR name;

(ii) The ESR status;

(iii) The ESR HSL, LSL, High Dispatch Limit (HDL), and Low Dispatch Limit (LDL);

(iv) The ESR Base Point from SCED;

(v) The telemetered ESR net output used in SCED;

(vi) The Ancillary Service Resource awards for each Ancillary Service;

(vii) The telemetered Normal Ramp Rates;

(viii) The telemetered Ancillary Service capabilities;

(ix) The telemetered State of Charge in MWh;

(x) The telemetered Minimum State of Charge (MinSOC) in MWh; and

(xi) The telemetered Maximum State of Charge (MaxSOC) in MWh.

[NPRR1007: Insert paragraph (5) below upon system implementation of the Real-Time Co-Optimization (RTC) project and renumber accordingly:]

(5) ERCOT shall post on the ERCOT website for each Resource for each Operating Hour 60 days prior to the current Operating Day a count of the number of times for each Ancillary Service that the Resource's Ancillary Service Offer quantity or price was updated within the Operating Period. ERCOT shall post on the ERCOT website for each Resource for each Operating Hour 60 days prior to the current Operating Day, a count of the number of times a Resource's Energy Offer quantity or price was updated within the Operating Hour, including any reason accompanying the update.

(5) If any Real-Time Locational Marginal Price (LMP) exceeds 50 times the Fuel Index Price (FIP) during any 15-minute Settlement Interval for the applicable Operating Day, ERCOT shall post on the ERCOT website the portion of any Generation Resource's as-submitted and as-mitigated and extended Energy Offer Curve that is at or above 50 times the FIP for each 15-minute Settlement Interval seven days after the applicable Operating Day.

[NPRR1007 and NPRR1014: Replace applicable portions of paragraph (5) above with the following upon system implementation of the Real-Time Co-Optimization (RTC) project for NPRR1007; or upon system implementation for NPRR1014:]

(6) If any Real-Time Locational Marginal Price (LMP) exceeds 50 times the Fuel Index Price (FIP) during any SCED interval for the applicable Operating Day, ERCOT shall post on the ERCOT website the portion of any Generation Resource's as-submitted and as-mitigated and extended Energy Offer Curve or any ESR's as-submitted and as-mitigated and extended Energy Bid/Offer Curve that is at or above 50 times the FIP for that SCED interval seven days after the applicable Operating Day.

(6) If any Market Clearing Price for Capacity (MCPC) for an Ancillary Service exceeds 50 times the FIP for any Operating Hour in a DAM or Supplemental Ancillary Services Market (SASM) for the applicable Operating Day, ERCOT shall post on the ERCOT

website the portion on any Resource's Ancillary Service Offer that is at or above 50 times the FIP for that Ancillary Service for each Operating Hour seven days after the applicable Operating Day.

[NPRR1007 and NPRR1014: Replace applicable portions of paragraph (6) above with the following upon system implementation of the Real-Time Co-Optimization (RTC) project for NPRR1007; or upon system implementation for NPRR1014:]

(7) If any Market Clearing Price for Capacity (MCPC) for an Ancillary Service exceeds 50 times the FIP for any Operating Hour in a DAM or any SCED interval in the RTM for the applicable Operating Day, ERCOT shall post on the ERCOT website the portion on any Resource's Ancillary Service Offer that is at or above 50 times the FIP for that Ancillary Service for that Operating Hour for the DAM or SCED interval for the RTM seven days after the applicable Operating Day.

(7) ERCOT shall post on the ERCOT website the offer price and the name of the Entity submitting the offer for the highest-priced offer selected or Dispatched by SCED three days after the end of the applicable Operating Day. If multiple Entities submitted the highest-priced offers selected, all Entities shall be identified on the ERCOT website.

(8) ERCOT shall post on the ERCOT website the bid price and the name of the Entity submitting the bid for the highest-priced bid selected or Dispatched by SCED three days after the end of the applicable Operating Day. If multiple Entities submitted the highest-priced bids selected, all Entities shall be identified on the ERCOT website.

(9) ERCOT shall post on the ERCOT website the offer price and the name of the Entity submitting the offer for the highest-priced Ancillary Service Offer selected in the DAM for each Ancillary Service three days after the end of the applicable Operating Day. This same report shall also include the highest-priced Ancillary Service Offer selected for any SASMs cleared for that same Operating Day. If multiple Entities submitted the highest-priced offers selected, all Entities shall be identified on the ERCOT website. The report shall specify whether the Ancillary Service Offer was selected in a DAM or a SASM.

[NPRR1007 and NPRR1014: Replace applicable portions of paragraph (9) above with the following upon system implementation of the Real-Time Co-Optimization (RTC) project for NPRR1007; or upon system implementation for NPRR1014:]

(10) ERCOT shall post on the ERCOT website the offer price and the name of the Entity submitting the offer for the highest-priced Ancillary Service Offer selected in the DAM or RTM for each Ancillary Service three days after the end of the applicable Operating Day. If multiple Entities submitted the highest-priced offers selected, all Entities shall be identified on the ERCOT website. The report shall specify whether the Ancillary Service Offer was selected in a DAM or RTM.

(10) ERCOT shall post on the ERCOT website for each Operating Day the following information for each Resource:

(a) The Resource name;

(b) The name of the Resource Entity;

(c) Except for Load Resources that are not SCED qualified, the name of the Decision Making Entity (DME) controlling the Resource, as reflected in the Managed Capacity Declaration submitted by the Resource Entity in accordance with Section 3.6.2, Decision Making Entity for a Resource; and

(d) Flag for Reliability Must-Run (RMR) Resources.

(11) ERCOT shall post on the ERCOT website the following information from the DAM for each hourly Settlement Interval for the applicable Operating Day 60 days prior to the current Operating Day:

(a) The Generation Resource name and the Generation Resource's Three-Part Supply Offer (prices and quantities), including Startup Offer and Minimum-Energy Offer, available for the DAM;

(b) For each Settlement Point, individual DAM Energy-Only Offer Curves available for the DAM and the name of the QSE submitting the offer;

(c) The Resource name and the Resource's Ancillary Service Offers available for the DAM;

[NPRR1007 and NPRR1014: Insert applicable portions of paragraph (d) below upon system implementation of the Real-Time Co-Optimization (RTC) project for NPRR1007; or upon system implementation for NPRR1014; and renumber accordingly:]

(d) The Ancillary Service Only Offer for each Ancillary Service and the name of the QSE submitting the offer;

(d) For each Settlement Point, individual DAM Energy Bids available for the DAM and the name of the QSE submitting the bid;

(e) For each Settlement Point, individual PTP Obligation bids available to the DAM that sink at the Settlement Point and the QSE submitting the bid;

(f) The awards for each Ancillary Service from the DAM for each Generation Resource;

(g) The awards for each Ancillary Service from the DAM for each Load Resource;

(h) The award for~~of~~ each Three-Part Supply Offer from the DAM and the name of the QSE receiving the award;

(i) For each Settlement Point, the award of each DAM Energy-Only Offer from the DAM and the name of the QSE receiving the award;

(j) For each Settlement Point, the award of each DAM Energy Bid from the DAM and the name of the QSE receiving the award;~~ and~~

(k) For each Settlement Point, the award of each PTP Obligation bid from the DAM that sinks at the Settlement Point, including whether or not the PTP Obligation bid was linked to an Option, and the QSE submitting the bid~~.~~;

(l) The Controllable Load Resource (CLR) name and the CLR's Energy Bid Curve (prices and quantities) available for the DAM; and

(m) The award for each CLR's Energy Bid Curve from the DAM and the name of the QSE receiving the award.

[NPRR1014: Insert items (nm)-(po) below upon system implementation:]

(nm) The ESR name and the ESR's Energy Bid/Offer Curve (prices and quantities), available for the DAM;

(on) The awards for each Ancillary Service from the DAM for each ESR; and

(po) The award ~~of~~for each Energy Bid/Offer Curve from the DAM and the name of the QSE receiving the award.

(12) ERCOT shall post on the ERCOT website the following information from any applicable SASMs for each hourly Settlement Interval for the applicable Operating Day 60 days prior to the current Operating Day:

(a) The Resource name and the Resource's Ancillary Service Offers available for any applicable SASMs;

(b) The awards for each Ancillary Service from any applicable SASMs for each Generation Resource; and

(c) The awards for each Ancillary Service from any applicable SASMs for each Load Resource.

[NPRR1007: Delete paragraph (12) above upon system implementation of the Real-Time Co-Optimization (RTC) project.]

3.6.1 Load Resource Participation

Commented [CP2]: Please note NPRRs 1244 and 1246 also propose revisions to this section.

(1) A Load Resource may participate by providing:

(a) Ancillary Service:

(i) Regulation Up (Reg-Up) Service as a Controllable Load Resource (CLR) capable of providing Primary Frequency Response;

(ii) Regulation Down (Reg-Down) Service as a ~~Controllable Load Resource~~CLR capable of providing Primary Frequency Response;

(iii) Responsive Reserve (RRS) as a ~~Controllable Load Resource~~CLR qualified for Security-Constrained Economic Dispatch (SCED) Dispatch and capable of providing Primary Frequency Response, or as a Load Resource controlled by high-set under-frequency relay;

(iv) ERCOT Contingency Reserve Service (ECRS) as a ~~Controllable Load Resource~~CLR qualified for SCED Dispatch and capable of providing Primary Frequency Response, or as a Load Resource that may or may not be controlled by high-set under-frequency relay;

(v) Non-Spinning Reserve (Non-Spin) as a ~~Controllable Load Resource~~CLR qualified for SCED Dispatch or as a Load Resource that is not a ~~Controllable Load Resource~~CLR and that is not controlled by under-frequency relay; and

(vi) A Load Resource that is not a ~~Controllable Load Resource~~CLR cannot simultaneously provide Non-Spin and RRS in Real-Time;

(b) Energy in the form of Demand response from a ~~Controllable Load Resource~~CLR in Real-Time via SCED;

(c) Emergency Response Service (ERS) for hours in which the Load Resource does not have an Ancillary Service Resource Responsibility; and

[NPRR1007: Replace paragraph (c) above with the following upon system implementation of the Real-Time Co-Optimization (RTC) project:]

(c) Emergency Response Service (ERS) for hours in which the Load Resource has a Resource Status of OUTL; and

(d) Voluntary Load response in Real-Time.

(2) Except for voluntary Load response and ERS, loads participating in any ERCOT market must be registered as a Load Resource and are subject to qualification testing administered by ERCOT.

(3) All ERCOT Settlements resulting from Load Resource participation are made only with the Qualified Scheduling Entity (QSE) representing the Load Resource.

(4) A QSE representing a Load Resource and submitting a bid to buy for participation in SCED, as described in Section 6.4.3.1, ~~RTM~~ Energy Bid Curves, must represent the Load Serving Entity (LSE) serving the Load of the Load Resource. If the Load Resource is an Aggregate Load Resource (ALR), the QSE must represent the LSE serving the Load of all sites within the ALR.

(5) The Settlement Point for a C~~ontrollable~~ L~~oad~~ R~~esource~~ that is not an ALR, is its ~~Load Zone~~Resource Node Settlement Point. The Settlement Point for an ALR is its Load Zone Settlement Point. For an Energy Storage Resource (ESR), the Settlement Point for the charging Load withdrawn by the modeled ~~Controllable Load Resource~~CLR associated with the ESR is the Resource Node of the modeled Generation Resource associated with the ESR.

(6) QSEs shall not submit offers for Load Resources containing sites associated with a Dynamically Scheduled Resource (DSR).

[NPRR1000: Delete paragraph (6) above upon system implementation and renumber accordingly.]

(7) Each Resource Entity that represents one or more Load Resources shall ensure that each Load Resource it represents meets at least one of the following conditions:

(a) The Load Resource is not located behind an Electric Service Identifier (ESI ID) that corresponds to a Critical Load;

(b) The Load Resource is located behind an ESI ID that corresponds to a Critical Load, but the Load Resource is not a Critical Load and does not include a Critical Load; or

(c) The Load Resource is located behind an ESI ID that corresponds to a Critical Load, but electric service from the ERCOT System is not required for the provision of the critical service due to the availability of back-up generation or other technologies at the site.

(8) As a condition of obtaining and maintaining registration as a Load Resource, the Resource Entity for the Load Resource must have submitted an attestation, in a form deemed acceptable by ERCOT, stating that one of the conditions set forth in paragraph (7) above is true, and that if either of the conditions in paragraph (7)(b) or (7)(c) is true, then all of the Load Resource's offered Demand response capacity will be available if deployed by ERCOT during an emergency.

(9) Each QSE that represents one or more ERS Resources shall ensure that each ERS Resource identified in any ERS Submission Form submitted by the QSE meets at least one of the following conditions:

(a) The ERS Resource and each site within the ERS Resource are not located behind an ESI ID or unique meter identifier that corresponds to a Critical Load and are not used to support a Critical Load; or

(b) The ERS Resource or one or more sites within the ERS Resource are behind an ESI ID or unique meter identifier that corresponds to a Critical Load, but the ERS Resource and each site within the ERS Resource are not a Critical Load, do not include a Critical Load, and are not used to support a Critical Load; or

(c) The ERS Resource or one or more sites within the ERS Resource are behind an ESI ID or unique meter identifier that corresponds to a Critical Load, but electric service from the ERCOT System is not required for the provision of the critical service due to the availability of back-up generation or other technologies at the site, and neither the ERS Resource nor any site within the ERS Resource is used to support a Critical Load.

3.9.1 Current Operating Plan (COP) Criteria

Commented [CP3]: Please note NPRR1235 also proposes revisions to this section.

(1) Each QSE that represents a Resource must submit a COP to ERCOT that reflects expected operating conditions for each Resource for each hour in the next seven Operating Days.

(2) Each QSE that represents a Resource shall update its COP reflecting changes in availability of any Resource as soon as reasonably practicable, but in no event later than 60 minutes after the event that caused the change. Each QSE shall timely update its COP unless in the reasonable judgment of the QSE, such compliance would create an undue threat to safety, undue risk of bodily harm, or undue damage to equipment. The QSE is excused from updating the COP only for so long as the undue threat to safety, undue risk of bodily harm, or undue damage to equipment exists. The time for updating the COP begins once the undue threat to safety, undue risk of bodily harm, or undue damage to equipment no longer exists.

(3) The Resource capacity in a QSE's COP must be sufficient to supply the Ancillary Service Supply Responsibility of that QSE. Additionally, for a COP provided for an ESR, the QSE shall ensure that the Hour Beginning Planned State of Charge (SOC) for any two consecutive hours shall be feasible based on the ESR's maximum rate of charge or discharge.

[NPRR1007, NPRR1014, NPRR1029, and NPRR1204: Replace applicable portions of paragraph (3) above with the following upon system implementation of the Real-Time Co-Optimization (RTC) project for NPRR1007 and NPRR1204; or upon system implementation for NPRR1014 or NPRR1029:]

(3) Each QSE that represents a Resource shall update its COP to reflect the ability of the Resource to provide each Ancillary Service by product and sub-type. Additionally, for a COP provided for an ESR, the QSE shall ensure that the Hour Beginning Planned State of Charge (SOC) for any two consecutive hours shall be feasible based on the ESR's maximum rate of charge or discharge.

(4) Load Resource COP values may be adjusted to reflect Distribution Losses in accordance with Section 8.1.1.2, General Capacity Testing Requirements.

(5) A COP must include the following for each Resource represented by the QSE:

(a) The name of the Resource;

(b) The expected Resource Status:

(i) Select one of the following for Generation Resources synchronized to the ERCOT System that best describes the Resource's status. Unless otherwise provided below, these Resource Statuses are to be used for COP and/or Real-Time telemetry purposes, as appropriate.

(A) ONRUC – On-Line and the hour is a RUC-Committed Hour;

(B) ONREG – On-Line Resource with Energy Offer Curve providing Regulation Service;

[NPRR1007, NPRR1014, and NPRR1029: Delete item (B) above upon system implementation of the Real-Time Co-Optimization (RTC) project for NPRR1007; or upon system implementation for NPRR1014 or NPRR1029; and renumber accordingly.]

(C) ON – On-Line Resource with Energy Offer Curve;

(D) ONDSR – On-Line Dynamically Scheduled Resource (DSR);

[NPRR1000: Delete item (D) above upon system implementation and renumber accordingly.]

(E) ONOS – On-Line Resource with Output Schedule;

(F) ONOSREG – On-Line Resource with Output Schedule providing Regulation Service;

[NPRR1007, NPRR1014, and NPRR1029: Delete item (F) above upon system implementation of the Real-Time Co-Optimization (RTC) project for NPRR1007; or upon system implementation for NPRR1014 or NPRR1029; and renumber accordingly.]

(G) ONDSRREG – On-Line DSR providing Regulation Service;

[NPRR1000, NPRR1007, NPRR1014, and NPRR1029: Delete item (G) above upon system implementation for NPRR1000, NPRR1014, or NPRR1029; or upon system implementation of the Real-Time Co-Optimization (RTC) project for NPRR1007; and renumber accordingly.]

(H) FRRSUP – Available for Dispatch of Fast Responding Regulation Service (FRRS). This Resource Status is only to be used for Real-Time telemetry purposes;

[NPRR1007, NPRR1014, and NPRR1029: Delete item (H) above upon system implementation of the Real-Time Co-Optimization (RTC) project for NPRR1007; or upon system implementation for NPRR1014 and NPRR1029; and renumber accordingly.]

(I) ONTEST – On-Line blocked from Security-Constrained Economic Dispatch (SCED) for operations testing (while ONTEST, a Generation Resource may be shown on Outage in the Outage Scheduler);

(J) ONEMR – On-Line EMR (available for commitment or dispatch only for ERCOT-declared Emergency Conditions; the QSE may appropriately set LSL and High Sustained Limit (HSL) to reflect operating limits);

(K) ONRR – On-Line as a synchronous condenser providing Responsive Reserve (RRS) but unavailable for Dispatch by SCED and available for commitment by RUC;

[NPRR1007, NPRR1014, and NPRR1029: Delete item (K) above upon system implementation of the Real-Time Co-Optimization (RTC) project for NPRR1007; or upon system implementation for NPRR1014 or NPRR1029; and renumber accordingly.]

(L) ONECRS – On-Line as a synchronous condenser providing ERCOT Contingency Response Service (ECRS) but unavailable for Dispatch by SCED and available for commitment by RUC;

[NPRR1007, NPRR1014, and NPRR1029: Delete item (L) above upon system implementation of the Real-Time Co-Optimization (RTC) project for NPRR1007; or upon system implementation for NPRR1014 or NPRR1029; and renumber accordingly.]

(M) ONOPTOUT – On-Line and the hour is a RUC Buy-Back Hour;

(N) SHUTDOWN – The Resource is On-Line and in a shutdown sequence, and has no Ancillary Service Obligations other than Off-Line Non-Spinning Reserve (Non-Spin) which the Resource will provide following the shutdown. This Resource Status is only to be used for Real-Time telemetry purposes;

[NPRR1007, NPRR1014, and NPRR1029: Replace paragraph (N) above with the following upon system implementation of the Real-Time Co-Optimization (RTC) project for NPRR1007; or upon system implementation for NPRR1014 or NPRR1029:]

(N) SHUTDOWN – The Resource is On-Line and in a shutdown sequence, and is not eligible for an Ancillary Service award. This Resource Status is only to be used for Real-Time telemetry purposes;

(O) STARTUP – The Resource is On-Line and in a start-up sequence and has no Ancillary Service Obligations. This Resource Status is only to be used for Real-Time telemetry purposes;

[NPRR1007, NPRR1014, and NPRR1029: Replace paragraph (O) above with the following upon system implementation of the Real-Time Co-Optimization (RTC) project for NPRR1007; or upon system implementation for NPRR1014 or NPRR1029:]

(O) STARTUP – The Resource is On-Line and in a start-up sequence and is not eligible for an Ancillary Service award, unless coming On-Line in response to a manual deployment of ERCOT Contingency Reserve Service (ECRS) or Non-Spinning Reserve (Non-Spin). This Resource Status is only to be used for Real-Time telemetry purposes;

(P) OFFQS – Off-Line but available for SCED deployment. Only qualified Quick Start Generation Resources (QSGRs) may utilize this status;

[NPRR1007, NPRR1014, and NPRR1029: Replace paragraph (P) above with the following upon system implementation of the Real-Time Co-Optimization (RTC) project for NPRR1007; or upon system implementation for NPRR1014 or NPRR1029:]

(P) OFFQS – Off-Line but available for SCED deployment and to provide ECRS and Non-Spin, if qualified and capable. Only qualified Quick Start Generation Resources (QSGRs) may utilize this status;

(Q) ONFFRRRS – Available for Dispatch of RRS when providing Fast Frequency Response (FFR) from Generation Resources. This Resource Status is only to be used for Real-Time telemetry purposes. A Resource with this Resource Status may also be providing Ancillary Services other than FFR; and

[NPRR1007, NPRR1014, and NPRR1029: Delete item (Q) above upon system implementation of the Real-Time Co-Optimization (RTC) project for NPRR1007; or upon system implementation for NPRR1014 or NPRR1029; and renumber accordingly.]

[NPRR1007, NPRR1014, and NPRR1029: Insert item (K) below upon system implementation of the Real-Time Co-Optimization (RTC) project for NPRR1007; or upon system implementation for NPRR1014 or NPRR1029:]

(K) ONSC – Resource is On-Line operating as a synchronous condenser and available to provide Responsive Reserve (RRS) and ECRS, if qualified and capable, and for commitment by RUC, but is unavailable for Dispatch by SCED. For SCED, Resource Base Points will be set equal to the telemetered net real power of the Resource available at the time of the SCED execution; and

(R) ONHOLD – Resource is On-Line but temporarily unavailable for Dispatch by SCED or for participating in Ancillary Services due to a valid and verifiable operational reason. This Resource Status is only to be used for Real-Time telemetry purposes. For SCED, Resource Base Points will be set equal to the telemetered net real power of the Resource available at the time of the SCED execution.

[NPRR1007, NPRR1014, and NPRR1029: Replace item (R) above with the following upon system implementation of the Real-Time Co-Optimization (RTC) project for NPRR1007; or upon system implementation for NPRR1014 or NPRR1029:]

(R) ONHOLD – Resource is On-Line but temporarily unavailable for Dispatch by SCED or Ancillary Service awards due to a valid and verifiable operational reason. This Resource Status is only to be used for Real-Time telemetry purposes. For SCED, Resource Base Points will be set equal to the telemetered net real power of the Resource available at the time of the SCED execution.

(ii) Select one of the following for Off-Line Generation Resources not synchronized to the ERCOT System that best describes the Resource's status. These Resource Statuses are to be used for COP and/or Real-Time telemetry purposes, as appropriate.

(A) OUT – Off-Line and unavailable, or not connected to the ERCOT System and operating in a Private Microgrid Island (PMI);

(B) OFFNS – Off-Line but reserved for Non-Spin;

[NPRR1007, NPRR1014, and NPRR1029: Delete item (B) above upon system implementation of the Real-Time Co-Optimization (RTC) project for NPRR1007; or upon system implementation for NPRR1014 or NPRR1029; and renumber accordingly.]

(C) OFF – Off-Line but available for commitment in the Day-Ahead Market (DAM) and RUC;

[NPRR1007, NPRR1014, and NPRR1029: Replace item (C) above with the following upon system implementation of the Real-Time Co-Optimization (RTC) project for NPRR1007; or upon system implementation for NPRR1014 or NPRR1029:]

(B) OFF – Off-Line but available for commitment in the Day-Ahead Market (DAM), RUC, and providing Non-Spin, if qualified and capable;

(D) EMR – Available for commitment as a Resource contracted by ERCOT under Section 3.14.1, Reliability Must Run, or under paragraph (4) of Section 6.5.1.1, ERCOT Control Area Authority, or available for commitment only for ERCOT-declared Emergency Condition events; the QSE may appropriately set LSL and HSL to reflect operating limits;

(E) EMRSWGR – Switchable Generation Resource (SWGR) operating in a non-ERCOT Control Area, or in the case of a Combined Cycle Train with one or more SWGRs, a configuration in which one or

more of the physical units in that configuration are operating in a non-ERCOT Control Area.

(iii) Select one of the following for Load Resources. Unless otherwise provided below, these Resource Statuses are to be used for COP and/or Real-Time telemetry purposes.

(A) ONRGL – Available for Dispatch of Regulation Service by Load Frequency Control (LFC) and, for any remaining Dispatchable capacity, by SCED with an ~~Real-Time Market (RTM)~~ Energy Bid Curve;

(B) FRRSUP – Available for Dispatch of FRRS by LFC and not Dispatchable by SCED. This Resource Status is only to be used for Real-Time telemetry purposes;

(C) FRRSDN - Available for Dispatch of FRRS by LFC and not Dispatchable by SCED. This Resource Status is only to be used for Real-Time telemetry purposes;

(D) ONCLR – Available for Dispatch as a Controllable Load Resource (CLR) by SCED with an ~~RTM~~ Energy Bid Curve;

(E) ONRL – Available for Dispatch of RRS or Non-Spin, excluding ~~Controllable Load Resources~~. A Load Resource, excluding ~~Controllable Load Resources~~, may not provide ECRS with this Resource Status;

[NPRR1007, NPRR1014, and NPRR1029: Delete items (A)-(E) above upon system implementation of the Real-Time Co-Optimization (RTC) project for NPRR1007; or upon system implementation for NPRR1014 or NPRR1029; and renumber accordingly.]

(F) ONTEST – On-Line blocked from Security-Constrained Economic Dispatch (SCED) for operations testing;

(G) ONHOLD – CLR is On-Line but temporarily unavailable for Dispatch by SCED or providing Ancillary Service due to a valid and verifiable operational reason. This Resource Status is only to be used for Real-Time telemetry purposes. For SCED, Resource Base Points will be set equal to the telemetered net real power of the Resource available at the time of the SCED execution.

(H~~F~~) ONECL – Available for Dispatch of ECRS or available for Dispatch of ECRS and RRS simultaneously, excluding Controllable Load Resources;

[NPRR1007, NPRR1014, and NPRR1029: Delete item (~~I~~H) above upon system implementation of the Real-Time Co-Optimization (RTC) project for NPRR1007; or upon system implementation for NPRR1014 or NPRR1029; and renumber accordingly.]

(~~G~~I) OUTL – Not available. For a CLR that is not an Aggregate Load Resource (ALR), this status can only be used when the Resource is Off-Line and unavailable with its energy consumption at zero;

(~~H~~J) ONFFRRRSL – Available for Dispatch of RRS when providing FFR, excluding Controllable Load Resources. This Resource Status is only to be used for Real-Time telemetry purposes;

[NPRR1007, NPRR1014, and NPRR1029: Delete item (~~J~~H) above upon system implementation of the Real-Time Co-Optimization (RTC) project for NPRR1007; or upon system implementation for NPRR1014 or NPRR1029.]

[NPRR1007, NPRR1014, NPRR1029: Insert item (B) below upon system implementation of the Real-Time Co-Optimization (RTC) project for NPRR1007; or upon system implementation for NPRR1014 or NPRR1029:]

(B) ONL – On-Line and available for Dispatch by SCED or providing Ancillary Services.

[NPRR1014 or NPRR1029: Insert applicable portions of paragraph (iv) below upon system implementation:]

(iv) Select one of the following for Energy Storage Resources (ESRs). Unless otherwise provided below, these Resource Statuses are to be used for COP and Real-Time telemetry purposes:

(A) ON – On-Line Resource with Energy Bid/Offer Curve;

(B) ONOS – On-Line Resource with Output Schedule;

(C) ONTEST – On-Line blocked from SCED for operations testing (while ONTEST, an Energy Storage Resource (ESR) may be shown on Outage in the Outage Scheduler);

(D) ONEMR – On-Line EMR (available for commitment or dispatch only for ERCOT-declared Emergency Conditions; the QSE may

appropriately set LSL and High Sustained Limit (HSL) to reflect operating limits);

(E) ONHOLD – Resource is On-Line but temporarily unavailable for Dispatch by SCED or Ancillary Service awards. ESRs shall not be discharging into or charging from the grid. This Resource Status is only to be used for Real-Time telemetry purposes; and

(F) OUT – Off-Line and unavailable, or not connected to the ERCOT System and operating in a Private Microgrid Island (PMI);

(c) The HSL;

(i) For Load Resources other than Controllable Load Resources, the HSL should equal the expected power consumption;

[NPRR1014 and NPRR1029: Insert applicable portions of paragraph (ii) below upon system implementation:]

(ii) For ESRs, the HSL may be negative;

(d) The LSL;

(i) For Load Resources other than Controllable Load Resources, the LSL should equal the expected Low Power Consumption (LPC);

[NPRR1014 and NPRR1029: Insert applicable portions of paragraph (ii) below upon system implementation:]

(ii) For ESRs, the LSL may be positive;

(e) The High Emergency Limit (HEL);

(f) The Low Emergency Limit (LEL); and

(g) Ancillary Service Resource Responsibility capacity in MW for:

[NPRR1007, NPRR1014, and NPRR1029: Replace applicable portions of item (g) above with the following upon system implementation of the Real-Time Co-Optimization (RTC) project for NPRR1007; or upon system implementation for NPRR1014 or NPRR1029:]

(g) Ancillary Service capability in MW for each product and sub-type.

(i) Regulation Up (Reg-Up);

(ii) Regulation Down (Reg-Down);

(iii) RRS;

(iv) ECRS; and

(v) Non-Spin.

[NPRR1007, NPRR1014, and NPRR1029: Delete items (i)-(v) above upon system implementation of the Real-Time Co-Optimization (RTC) project for NPRR1007; or upon system implementation for NPRR1014 or NPRR1029.]

(h) For ESRs:

(i) Minimum State of Charge (MinSOC);

(ii) Maximum State of Charge (MaxSOC); and

(iii) Hour Beginning Planned SOC.

(6) For Combined Cycle Generation Resources, the above items are required for each operating configuration. In each hour only one Combined Cycle Generation Resource in a Combined Cycle Train may be assigned one of the On-Line Resource Status codes described above.

(a) During a RUC study period, if a QSE's COP reports multiple Combined Cycle Generation Resources in a Combined Cycle Train to be On-Line for any hour, then until the QSE corrects its COP, the On-Line Combined Cycle Generation Resource with the largest HSL is considered to be On-Line and all other Combined Cycle Generation Resources in the Combined Cycle Train are considered to be Off-Line. Furthermore, until the QSE corrects its COP, the Off-Line Combined Cycle Generation Resources as designated through the application of this process are ineligible for RUC commitment or de-commitment Dispatch Instructions.

(b) For any hour in which QSE-submitted COP entries are used to determine the initial state of a Combined Cycle Generation Resource for a DAM or Day-Ahead Reliability Unit Commitment (DRUC) study and the COP shows multiple Combined Cycle Generation Resources in a Combined Cycle Train to be in an On-line Resource Status, then until the QSE corrects its COP, the On-Line Combined Cycle Generation Resource that has been On-Line for the longest time from the last recorded start by ERCOT systems, regardless of the reason for the start, combined with the COP Resource Status for the remaining hours of the current Operating Day, is considered to be On-Line at the start of the DRUC

study period and all other COP-designated Combined Cycle Generation Resources in the Combined Cycle Train are considered to be Off-Line.

(c) ERCOT systems shall allow only one Combined Cycle Generation Resource in a Combined Cycle Train to offer Off-Line Non-Spin in the DAM or Supplemental Ancillary Services Market (SASM).

[NPRR1007, NPRR1014, and NPRR1029: Replace paragraph (c) above with the following upon system implementation of the Real-Time Co-Optimization (RTC) project for NPRR1007; or upon system implementation for NPRR1014 or NPRR1029:]

(c) ERCOT systems shall allow only one Combined Cycle Generation Resource in a Combined Cycle Train to offer Off-Line Non-Spin in the DAM or SCED.

(i) If there are multiple Non-Spin offers from different Combined Cycle Generation Resources in a Combined Cycle Train, then prior to execution of the DAM, ERCOT shall select the Non-Spin offer from the Combined Cycle Generation Resource with the highest HSL for consideration in the DAM and ignore the other offers.

(ii) Combined Cycle Generation Resources offering Off-Line Non-Spin must be able to transition from the shutdown state to the offered Combined Cycle Generation Resource On-Line state and be capable of ramping to the full amount of the Non-Spin offered.

(d) The DAM and RUC shall honor the registered hot, intermediate or cold Startup Costs for each Combined Cycle Generation Resource registered in a Combined Cycle Train when determining the transition costs for a Combined Cycle Generation Resource. In the DAM and RUC, the Startup Cost for a Combined Cycle Generation Resource shall be determined by the positive transition cost from the On-Line Combined Cycle Generation Resource within the Combine Cycle Train or from a shutdown condition, whichever ERCOT determines to be appropriate.

(7) ERCOT may accept COPs only from QSEs.

(8) For the first 168 hours of the COP, ERCOT will update the HSL values for Wind-powered Generation Resources (WGRs) with the most recently updated Short-Term Wind Power Forecast (STWPF), and the HSL values for PhotoVoltaic Generation Resources (PVGRs) with the most recently updated Short-Term PhotoVoltaic Power Forecast (STPPF). ERCOT will notify the QSE via an Extensible Markup Language (XML) message each time COP HSL values are updated with the forecast values. A QSE representing a WGR may override the STWPF HSL value but must submit an HSL value that is less than or equal to the amount for that Resource from the most recent STWPF provided by ERCOT; a QSE representing a PVGR may override the STPPF HSL value

but must submit an HSL value that is less than or equal to the amount for that Resource from the most recent STPPF provided by ERCOT.

[NPRR1029: Replace paragraph (8) above with the following upon system implementation:]

(8) For the first 168 hours of the COP, ERCOT will update the HSL values for Wind-powered Generation Resources (WGRs) with the most recently updated Short-Term Wind Power Forecast (STWPF), and the HSL values for PhotoVoltaic Generation Resources (PVGRs) with the most recently updated Short-Term PhotoVoltaic Power Forecast (STPPF). A QSE representing a DC-Coupled Resource shall provide the capacity value of the Energy Storage System (ESS) that is included in the HSL of the DC-Coupled Resource, and ERCOT will update the DC-Coupled Resource's HSL with the sum of the forecasts of the intermittent renewable generation component and the QSE-submitted value for the ESS component. ERCOT will notify the QSE via an Extensible Markup Language (XML) message each time COP HSL values are updated with the forecast values. A QSE representing a WGR may override the STWPF HSL value but must submit an HSL value that is less than or equal to the amount for that Resource from the most recent STWPF provided by ERCOT; a QSE representing a PVGR may override the STPPF HSL value but must submit an HSL value that is less than or equal to the amount for that Resource from the most recent STPPF provided by ERCOT. A QSE representing a DC-Coupled Resource may override the COP HSL value with a value that is lower than the ERCOT-populated value, and may override with a value that is higher than the ERCOT-populated value if the ESS component of the DC-Coupled Resource can support the higher value.

(9) A QSE representing a Generation Resource that is not actively providing Ancillary Services or is providing Off-Line Non-Spin that the Resource will provide following the shutdown, may only use a Resource Status of SHUTDOWN to indicate to ERCOT through telemetry that the Resource is operating in a shutdown sequence or a Resource Status of ONTEST to indicate in the COP and through telemetry that the Generation Resource is performing a test of its operations either manually dispatched by the QSE or by ERCOT as part of the test. A QSE representing a Generation Resource that is not actively providing Ancillary Services may only use a Resource Status of STARTUP to indicate to ERCOT through telemetry that the Resource is operating in a start-up sequence requiring manual control and is not available for Dispatch.

(10) If a QSE has not submitted a valid COP for any Generation Resource for any hour in the DAM or RUC Study Period, then the Generation Resource is considered to have a Resource Status as OUT thus not available for DAM awards or RUC commitments for those hours.

(11) If a COP is not available for any Resource for any hour from the current hour to the start of the DAM period or RUC study, then the Resource Status for those hours are considered equal to the last known Resource Status from a previous hour's COP or from telemetry as appropriate for that Resource.

(12) A QSE representing a Resource may only use the Resource Status code of EMR for a Resource whose operation would have impacts that cannot be monetized and reflected through the Resource's Energy Offer Curve or recovered through the RUC make-whole process or if the Resource has been contracted by ERCOT under Section 3.14.1 or under paragraph (4) of Section 6.5.1.1. If ERCOT chooses to commit an Off-Line unit with EMR Resource Status that has been contracted by ERCOT under Section 3.14.1 or under paragraph (4) of Section 6.5.1.1, the QSE shall change its Resource Status to ONRUC. Otherwise, the QSE shall change its Resource Status to ONEMR.

(13) A QSE representing a Resource may use the Resource Status code of ONEMR for a Resource that is:

(a) On-Line, but for equipment problems it must be held at its current output level until repair and/or replacement of equipment can be accomplished; or

(b) A hydro unit.

(14) A QSE operating a Resource with a Resource Status code of ONEMR may set the HSL and LSL of the unit to be equal to ensure that SCED does not send Base Points that would move the unit.

(15) A QSE representing a Resource may use the Resource Status code of EMRSWGR only for an SWGR.

(16) A QSE representing a Self-Limiting Facility must ensure that the sum of the COP HSL/LSL and the sum of the telemetered HSL/LSL submitted for each Resource within the Self-Limiting Facility do not exceed either the limit on MW Injection or the limit on the MW Withdrawal established for the Self-Limiting Facility.

[NPRR1029: Insert paragraph (17) below upon system implementation and renumber accordingly:]

(17) A QSE representing a DC-Coupled Resource shall not submit an HSL that exceeds the inverter rating or the sum of the nameplate ratings of the generation component(s) of the Resource.

(17) A QSE representing an ESR shall ensure that COP values for a given hour follow the following rules:

(a) MinSOC is greater than or equal to the nameplate minimum MWh operating SOC limit;

(b) MaxSOC is less than or equal to the nameplate maximum MWh operating SOC limit; and

(c) Hour Beginning Planned SOC is a value between the corresponding COP values of MinSOC and MaxSOC.

4.2.4 Posting Secure Forecasted ERCOT System Conditions

(1) No later than 0600 in the Day-Ahead, ERCOT shall post on the MIS Secure Area, and make available for download, the following information for the Operating Day:

(a) For each update of the Network Operations Model, the Redacted Network Operations Model in the Common Information Model (CIM) format and the companion version of Network Operations Model (unredacted) will be posted to the MIS Certified Area for Transmission Service Providers (TSPs) as described in paragraph (9) of Section 3.10.4, ERCOT Responsibilities;

(b) For each update of the Network Operations Model, differences between the posted Redacted Network Operations Model and the previous Redacted Network Operations Model as described in paragraph (4) of Section 3.10.4;

(c) Load Profiles for non-Interval Data Recorder (IDR) metered Customers;

(d) Distribution Loss Factors (DLFs) and forecasted ERCOT-wide Transmission Loss Factors (TLFs), as described in Section 13.3, Distribution Losses, and Section 13.2, Transmission Losses, for each Settlement Interval of the Operating Day;

(e) A current list of Electrically Similar Settlement Points produced from the 0600 Day-Ahead Market (DAM) study that support that creation of Power System Simulator for Engineering (PSS/E) files;

(f) A daily version of the Network Operations Model in a PSS/E format that has been exported from the Market Management System prior to 0600 representing the next Operating Day in hourly files, inclusive of:

(i) Outages from the Outage Scheduler implemented in the hourly PSS/E files;

(ii) All bus shunt MW and MVAr set to zero;

(iii) All Load MW and MVAr set to zero;

(iv) All generation MW and MVAr set to zero; and

(v) Slack bus used in the DAM shall be represented at the same bus in each case; and

(g) A daily version of supporting files for the PSS/E files supporting the Network Operations Model that has been exported from the Market Management System prior to 0600, inclusive of:

(i) Contingency definition corresponding to each hourly PSS/E file;

(ii) Generator mapping data corresponding to each hourly PSS/E file;

(iii) Mapping of all Resource Nodes and DC Tie Load Zone to the hourly PSS/E file including Private Use Network Settlement Points. This file of hourly data will also include the base case energization status of Resource Node and DC Tie Load Zone reflecting Settlement Points available for DAM clearing process;

(iv) Load mapping data corresponding to each hourly PSS/E case necessary to model all Load Zone energy transactions in the DAM;

(v) Transmission line mapping data corresponding to each hourly PSS/E files;

(vi) Transformer mapping data corresponding to each hourly PSS/E files; ~~and~~

(vii) Hub mapping data corresponding to each hourly PSS/E case necessary to model all Hub energy transactions in the DAM; and

(viii) Controllable Load Resource (CLR) mapping data corresponding to each hourly PSS/E file.

4.4.7.2 Ancillary Service Offers

Commented [CP4]: Please note NPRRs 1235 and 1245 also propose revisions to this section.

(1) By 1000 in the Day-Ahead, a QSE may submit ~~Generation~~ Resource-specific Ancillary Service Offers from Generation Resources and Controllable Load Resources (CLRs) to ERCOT for the DAM and may offer the same Generation Resource or CLR capacity for any or all of the Ancillary Service products simultaneously with any Energy Offer Curves from that Generation Resource or Energy Bid Curves from that CLR in the DAM. A QSE may also submit Ancillary Service Offers in a SASM. Offers of more than one Ancillary Service product from one Generation Resource may be inclusive or exclusive of each other and of any Energy Offer Curves, as specified according to a procedure developed by ERCOT. Offers of more than one Ancillary Service product from one CLR may be inclusive or exclusive of each other but considered inclusive of any Energy Bid Curve, as specified according to a procedure developed by ERCOT.

[NPRR1008 and NPRR1014: Replace applicable portions of paragraph (1) above with the following upon system implementation of the Real-Time Co-Optimization (RTC) project for NPRR1008; or upon system implementation for NPRR1014:]

(1) By 1000 in the Day-Ahead, a QSE may submit Resource-Specific Ancillary Service Offers from Generation Resources, Controllable Load Resources (CLRs), and ESRs to ERCOT for the DAM and may offer the same Generation Resource, CLR, or ESR capacity for any or all of the Ancillary Service products simultaneously with any Energy Offer Curves from that Generation Resource, Energy Bid Curves from that CLR, or Energy Bid/Offer Curves from that ESR in the DAM. Offers of more than one Ancillary Service product from one Generation Resource may be inclusive or exclusive of each other and of any Energy Offer Curves, as specified according to a procedure developed by ERCOT. Offers of more than one Ancillary Service product

from one CLR may be inclusive or exclusive of each other but considered inclusive of any Energy Bid Curve, as specified according to a procedure developed by ERCOT. Offers of more than one Ancillary Service product from one ESR may be inclusive or exclusive of each other, as specified according to a procedure developed by ERCOT.

(2) By 1000 in the Day-Ahead, a QSE may submit Load Resource-specific Ancillary Service Offers for Regulation Service, Non-Spin, RRS, and ECRS to ERCOT and may offer the same Load Resource capacity for any or all of those Ancillary Service products simultaneously. Offers of more than one Ancillary Service product from one Load Resource may be inclusive or exclusive of each other, as specified according to a procedure developed by ERCOT.

[NPRR1008 and NPRR1014: Replace applicable portions of paragraph (2) above with the following upon system implementation for NPRR1014; or upon system implementation of the Real-Time Co-Optimization (RTC) project for NPRR1008:]

(2) By 1000 in the Day-Ahead, a QSE may submit Load Resource-Specific Ancillary Service Offers for Regulation Service, Non-Spin, RRS, and ECRS to ERCOT and may offer the same Load Resource capacity for any or all of those Ancillary Service products simultaneously. Offers of more than one Ancillary Service product from one Load Resource may be inclusive or exclusive of each other, as specified according to a procedure developed by ERCOT.

(3) By 1000 in the Day-Ahead, a QSE may submit Resource-specific Ancillary Service Offers to ERCOT for FFR Resources, and may offer the same capacity for any or all of the Ancillary Service products simultaneously with any Energy Offer Curves from that Resource in the DAM. A QSE may also submit Ancillary Service Offers in a SASM. Offers of more than one Ancillary Service product may be inclusive or exclusive of each other and of any Energy Offer Curves, as specified according to a procedure developed by ERCOT.

[NPRR1008 and NPRR1014: Replace applicable portions of paragraph (3) above with the following upon system implementation of the Real-Time Co-Optimization (RTC) project for NPRR1008; or upon system implementation for NPRR1014:]

(3) By 1000 in the Day-Ahead, a QSE may submit Resource-Specific Ancillary Service Offers to ERCOT for FFR Resources, and may offer the same capacity for any or all of the Ancillary Service products simultaneously with any Energy Offer Curves from that Resource in the DAM. Offers of more than one Ancillary Service product may be inclusive or exclusive of each other and of any Energy Offer Curves, as specified according to a procedure developed by ERCOT.

[NPRR1008 and NPRR1014: Insert applicable portions of paragraph (4) below upon system implementation of the Real-Time Co-Optimization (RTC) project for NPRR1008; or upon system implementation for NPRR1014; and renumber accordingly:]

(4) By 1000 in the Day-Ahead, a QSE may submit an Ancillary Service Only Offer to ERCOT for the DAM. An individual Ancillary Service Only Offer must be exclusive to a single Ancillary Service product. For purposes of Ancillary Service sub-category limitations and validations, an Ancillary Service Only Offer for RRS will be treated as if it was an offer for RRS from an On-Line Generation Resource. Likewise, an Ancillary Service Only Offer for ECRS will be treated as if it was an offer for ECRS from an On-Line Generation Resource.

(4) Ancillary Service Offers remain active for the offered period until:

(a) Selected by ERCOT;

(b) Automatically inactivated by the software at the offer expiration time specified by the QSE when the offer is submitted; or

(c) Withdrawn by the QSE, but a withdrawal is not effective if the deadline for submitting offers has already passed.

[NPRR1008 and NPRR1014: Replace applicable portions of paragraph (4) above with the following upon system implementation of the Real-Time Co-Optimization (RTC) project for NPRR1008; or upon system implementation for NPRR1014:]

(4) Ancillary Service Offers remain active for the offered period unless the offer is:

(a) Effective after DAM and is higher than the Real-Time System-Wide Offer Cap (RTSWCAP);

(b) Automatically inactivated by the software at the offer expiration time specified by the QSE when the offer is submitted; or

(c) Withdrawn by the QSE, but a withdrawal is not effective if the deadline for submitting offers has already passed.

(5) A Load Resource that is not a Controllable Load Resource may specify whether its Ancillary Service Offer for RRS or Non-Spin may only be procured by ERCOT as a block.

[NPRR1008 and NPRR1014: Replace applicable portions of paragraph (5) above with the following upon system implementation of the Real-Time Co-Optimization (RTC) project for NPRR1008; or upon system implementation for NPRR1014:]

(5) A Load Resource that is not a Controllable Load Resource may specify whether its Resource-Specific Ancillary Service Offer for RRS or Non-Spin may only be procured by ERCOT as a block.

(6) A Load Resource that is not a Controllable Load Resource may specify whether its Ancillary Service Offer for ECRS may only be procured by ERCOT as a block.

[NPRR1014: Replace paragraph (6) above with the following upon system implementation:]

(6) A Load Resource that is not a Controllable Load Resource may specify whether its Resource-Specific Ancillary Service Offer for ECRS may only be procured by ERCOT as a block.

(7) A QSE that submits an On-Line Ancillary Service Offer without also submitting a Three-Part Supply Offer for the DAM for any given hour will be considered by the DAM to be self-committed for that hour, as long as an Ancillary Service Offer for Off-Line Non-Spin was not also submitted for that hour. When the DAM considers a self-committed offer for clearing, the Resource constraints identified in paragraph (4)(c)(ii) of Section 4.5.1, DAM Clearing Process, other than HSL, are ignored. A Combined Cycle Generation Resource will be considered by the DAM to be self-committed based on an On-Line Ancillary Service Offer submittal if:

(a) Its QSE submits an On-Line Ancillary Service Offer without also submitting a Three-Part Supply Offer for the DAM for any Combined Cycle Generation Resource within the Combined Cycle Train for that hour;

(b) No Ancillary Service Offer for Off-Line Non-Spin for any Combined Cycle Generation Resource within the Combined Cycle Train is submitted for that hour; and

(c) No On-Line Ancillary Service Offer for any other Combined Cycle Generation Resource within the Combined Cycled Train is submitted for that hour.

[NPRR1008 and NPRR1014: Replace applicable portions of paragraph (7) above with the following upon system implementation of the Real-Time Co-Optimization (RTC) project for NPRR1008; or upon system implementation for NPRR1014:]

(7) A QSE that submits an On-Line Resource-Specific Ancillary Service Offer without also submitting a Three-Part Supply Offer for the DAM for any given hour will be considered by the DAM to be self-committed for that hour, as long as a Resource-Specific Ancillary Service Offer for Off-Line Non-Spin was not also submitted for that hour. A QSE that submits an On-Line ESR-specific Ancillary Service Offer or Energy Bid/Offer Curve for the DAM will be considered to be On-Line. A QSE may not submit an Off-Line Ancillary Service Offer for an ESR. When the DAM considers a self-committed offer for clearing, the Resource constraints identified in paragraph (4)(c)(ii) of Section 4.5.1, DAM Clearing Process, other than HSL, are ignored; however, for an ESR, the DAM will consider LSL and HSL. A Combined Cycle Generation Resource will be considered by the DAM to be self-committed based on an On-Line Resource-Specific Ancillary Service Offer submittal if:

(a) Its QSE submits an On-Line Resource-Specific Ancillary Service Offer without also submitting a Three-Part Supply Offer for the DAM for any Combined Cycle Generation Resource within the Combined Cycle Train for that hour;

(b) No Resource-Specific Ancillary Service Offer for Off-Line Non-Spin for any Combined Cycle Generation Resource within the Combined Cycle Train is submitted for that hour; and

(c) No On-Line Resource-Specific Ancillary Service Offer for any other Combined Cycle Generation Resource within the Combined Cycled Train is submitted for that hour.

(8) ERCOT will attempt to procure the quantity from its Ancillary Service Plan from Resource-Specific Ancillary Service Offers as well as Ancillary Service Only Offers against respective ASDCs.

4.4.9.8 Energy Bid Curves

~~(1) A QSE may submit Controllable Load Resource (CLR) specific Energy Bid Curves by the end of the Adjustment Period on behalf of a Load Serving Entity (LSE) representing a CLR.~~

(1~~2~~) An Energy Bid Curve represents the willingness to buy energy at or below a certain price, not to exceed the System-Wide Offer Cap (SWCAP), for the Demand response capability of a CLR in the Day-Ahead Market (DAM) or the Real-Time Market (RTM).

(2~~3~~) An Energy Bid Curve remains active for the offered period until automatically inactivated at the offer expiration time specified in the Energy Bid Curve.

(3~~4~~) For any Operating Hour, the QSE may submit or change an Energy Bid Curve at any time prior to SCED execution, and SCED will use the latest updated Energy Bid Curve available in the system. If a new Energy Bid Curve is not deemed to be valid, then the

most recent valid Energy Bid Curve available in the system at the time of SCED execution will be used and ERCOT will notify the QSE that the invalid Energy Bid Curve was rejected ~~during the Adjustment Period~~.

~~(5) Notwithstanding any other provisions in this subsection, a QSE representing an Energy Storage Resource (ESR) may submit or update its Energy Bid Curve for that ESR at any time prior to SCED execution, and SCED will use the latest updated Energy Bid Curve for the ESR available in the system. If a new Energy Bid Curve for an ESR is not deemed to be valid, then the most recent valid Energy Bid Curve for that ESR available in the system at the time of SCED execution will be used and ERCOT will notify the QSE that the invalid Energy Bid Curve was rejected.~~

(~~4~~6) Once an Operating Hour ends, an Energy Bid Curve for that hour cannot be submitted, updated, or canceled.

4.4.9.8.1 Energy Bid Curve Criteria

(1) Each Energy Bid Curve submitted by a QSE must include the following information:

(a) The submitting QSE's name;

(b) The Load Resource's name;

(c) A bid curve with no more than ten price/quantity pairs with monotonically non-increasing not-to-exceed prices (in $/MWh) and with increasing quantities ranging from zero to the Load Resource's maximum demand response capability (in MW) represented by the difference between the Load Resource's telemetered Maximum Power Consumption (MPC) and Low Power Consumption (LPC);

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

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

(2) The software systems must be able to provide ERCOT with the ability to enter Resource-specific Energy Bid Curve floors and caps.

(3) The minimum amount that may be submitted per Load Resource for each Energy Bid Curve is one-tenth (0.1) MW.

(4) Prices included in the submitted Energy Bid Curve may not exceed the SWCAP.

4.4.9.8.2 Energy Bid Curve Validation

(1) A valid Energy Bid Curve is a bid that ERCOT has determined meets the criteria listed in Section 4.4.9.8.1, Energy Bid Curve Criteria.

(2) ERCOT shall notify the QSE submitting an Energy Bid Curve via the Messaging System if the bid was rejected and the reason that it was considered invalid. The QSE may then resubmit the bid within the appropriate market timeline.

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

4.4.10 Credit Requirement for DAM Bids and Offers

Commented [CP5]: Please note NPRR1215 also proposes revisions to this section.

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

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

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

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

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

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

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

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

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

(A) The lesser of:

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

(2) The bid price.

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

(1) The value *e1* is computed as the $ep1^{th}$ percentile of Ratio1 for the 30 days prior to the Operating Day, where Ratio1 is calculated daily as follows:

$$Ratio1 = Min[1, Max[0, (\sum_{h=1,24} (Q_{cleared\ Bids} * P_{DAM} - Q_{cleared\ Offers} * P_{DAM}))/ (\sum_{h=1,24} Q_{cleared\ Bids} * P_{DAM})]]$$

except $Ratio1 = 1$ when $\sum_{h=1,24} Q_{cleared\ Bids} * P_{DAM} = 0$

(2) ERCOT may adjust *e1* by changing the quantity of bids or offers to the values reported by the Counter-Party in paragraph (8) below or based on information available to ERCOT.

(iii) For DAM Energy Bids or Energy Bid Curves of curve quantity type, the credit exposure shall be the credit exposure, as calculated above, at the price and MW quantity of the bid curve that produces the maximum credit exposure for the DAM Energy Bid or the Energy Bid Curve.

[NPRR1014: Replace paragraph (a) above with the following upon system implementation:]

(a) For a DAM Energy Bid, Energy Bid Curve, or for each MW portion of the bid portion of an Energy Bid/Offer Curve, the credit exposure shall be calculated as the quantity of the bid multiplied by a bid exposure price that is calculated as follows:

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

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

(A) The lesser of:

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

(2) The bid price.

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

(1) The value *e1* is computed as the $ep1^{th}$ percentile of Ratio1 for the 30 days prior to the Operating Day, where Ratio1 is calculated daily as follows:

$$Ratio1 = Min[1, Max[0, (\sum_{h=1,24} (Q_{cleared\ Bids} * P_{DAM} - Q_{cleared\ Offers} * P_{DAM}))/ (\sum_{h=1,24} Q_{cleared\ Bids} * P_{DAM})]]$$

except $Ratio1 = 1$ when $\sum_{h=1,24} Q_{cleared\ Bids} * P_{DAM} = 0$

(2) ERCOT may adjust *e1* by changing the quantity of bids or offers to the values reported by the Counter-Party in paragraph (8) below or based on information available to ERCOT.

(iii) For DAM Energy Bids, Energy Bid Curves, or bid portions of Energy Bid/Offer Curves of curve quantity type, the credit exposure shall be the credit exposure, as calculated above, at the price and MW quantity of the bid curve that produces the maximum credit exposure for the DAM Energy Bid, Energy Bid Curve, or bid portions of Energy Bid/Offer Curves.

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

(i) That has an offer price that is less than or equal to the a^{th} percentile of the DASPP for the hour over the previous 30 days, the sum of (A) and (B) shall apply.

(A) Credit exposure will be:

(1) Reduced (when the b^{th} percentile Settlement Point Price for the hour is positive). The reduction shall be the quantity of the offer multiplied by the b^{th} percentile of the DASPP for the hour over the previous 30 days multiplied by the value *e2*.

(a) The value *e2* is computed as the $ep2^{th}$ percentile of Ratio2 for the 30 days prior to the Operating Day, where Ratio2 is calculated daily as follows:

$$Ratio2 = 1 - Max[0, (\sum_{h=1,24} (Q_{cleared\ Offers} - Q_{cleared\ Bids}))/(\sum_{h=1,24} (Q_{cleared\ Offers}))]$$

except $Ratio2 = 0$ when $\sum_{h=1,24} Q_{cleared\ Offers} = 0$

(b) ERCOT may adjust the value of *e2* by changing the quantity of bids or offers to the values reported by the Counter-Party in paragraph (7) below or based on information available to ERCOT; or

(2) Increased (when the b^{th} percentile Settlement Point Price for the hour is negative). The increase shall be the quantity of the offer multiplied by the b^{th} percentile of the DASPP for the hour over the previous 30 days.

(B) Credit exposure will be increased by the product of the quantity of the offer multiplied by the dp^{th} percentile of any positive hourly difference of Real-Time Settlement Point Price and DASPP over the previous 30 days for the hour multiplied by *e3*.

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

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

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

[NPRR1014: Replace paragraph (c) above with the following upon system implementation:]

(c) For each MW portion of the Energy Offer Curve of a Three-Part Supply Offer or for each MW portion of the offer portion of an Energy Bid/Offer Curve:

(i) That has an offer price that is less than or equal to the y^{th} percentile of the DASPP for the hour over the previous 30 days, credit exposure will be

reduced (when the z^{th} percentile Settlement Point Price is positive) or increased (when the z^{th} percentile Settlement Point Price is negative) by the quantity of the offer multiplied by the z^{th} percentile of the DASPP for the hour over the previous 30 days.

(ii) That has an offer price that is greater than the y^{th} percentile of the DASPP for the hour over the previous 30 days, the credit exposure will be zero.

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

(d) For PTP Obligation Bids:

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

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

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

(A) The QSE must submit the PTP Obligation bid at the same source and sink pair for the same hour, for the same operating date where the QSE submitting the PTP Obligation bid is represented by the same Counter-Party as the CRR Account Holder that is the owner of record for an expiring CRR, or group of CRRs.

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

(iv) For qualified PTP Obligation bids with a bid price greater than zero, ERCOT shall reduce the credit exposure in paragraph (6)(d)(i) above as follows:

Credit Reduction = Reduction Factor * min[PTP bid quantity, remaining expiring CRR MWs] * bid price.

The Reduction Factor is *bd*%. The factor can be adjusted up or down at ERCOT's sole discretion with at least two Bank Business Days' notice. ERCOT may adjust this factor up with less notice, if needed. The expiring CRR may be PTP Options and/or PTP Obligations. If a QSE later cancels the PTP Obligation bid then the amount of exposure credited back to the Counter-Party will be treated as though this PTP Obligation bid was previously offset by expiring CRRs if a matching CRR source and sink pair exists up to the maximum expiring CRR quantity. If a QSE updates the PTP Obligation bid then it will be treated as a cancel followed by a new submission for purposes of credit exposure calculation. Outcome of this calculation is dependent of the sequence of submittals for updates and cancels.

(e) For PTP Obligation bids with Links to an Option with a bid price greater than zero:

Credit Reduction = (1- Reduction Factor *bd*) * (bid quantity * bid price)

(f) For Ancillary Service Obligations not self-arranged, the product of the quantity of Ancillary Service Obligation not self-arranged multiplied by the t^{th} percentile of the hourly MCPC for that Ancillary Service over the previous 30 days for that hour. For negative Self-Arranged Ancillary Service Quantities, the absolute value of the product of the quantity of the negative Self-Arranged Ancillary Service Quantity times the t^{th} percentile of the hourly MCPC for that Ancillary Service over the previous 30 days for that hour.

[NPRR1008 and NPRR1014: Insert applicable portions of paragraph (g) below upon system implementation of the Real-Time Co-Optimization (RTC) project for NPRR1008; or upon system implementation for NPRR1014; and renumber accordingly:]

(g) For Ancillary Service Only Offers, credit exposure will be increased by the sum of the quantity of the Ancillary Service Only Offer multiplied by the dp^{th} percentile of the positive hourly difference for that Ancillary Service between RTMCPC and DAMCPC for that Ancillary Service over the previous 30 days for the Operating Hour of the Ancillary Service Only Offer.

(g) Values *e1*, *e2*, or *e3*, which are applicable to items (a) and (b) above, under conditions described below, will be determined and applied at ERCOT's sole discretion. Within the application parameters identified below, ERCOT shall

establish values for *e1*, *e2*, and *e3* and provide notice to an affected Counter-Party of any changes to *e1*, *e2*, or *e3* before 0900 generally two Bank Business Days prior to the normally scheduled DAM 1000 by a minimum of two of these methods: written, electronic, posting to the MIS Certified Area or telephonic. However, ERCOT may adjust any DAM credit parameter immediately if, in its sole discretion, ERCOT determines that the parameter(s) set for a Counter-Party do not adequately match the financial risk created by that Counter-Party's activities in the market. ERCOT shall review the values for *e1*, *e2*, or *e3* for each Counter-Party no less than once every two weeks. ERCOT shall provide written or electronic notice to the Counter-Party of the basis for ERCOT's assessment, or change of assessment, of the exposure adjustment variable established for the Counter-Party and the impact of the adjustment.

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

(h) ERCOT must re-examine DAM credit parameters immediately if Counter-Party exceeds 90% of its Available Credit Limit (ACL) available to DAM.

(7) A Counter-Party may request more favorable parameters from ERCOT by agreeing to all of the conditions below:

(a) The Counter-Party shall notify ERCOT of any expected changes to Ratio1 or Ratio2, due to change in activity, as described below, and the likely duration of such change as soon as practicable, but no later than two Business Days in advance of the change:

(i) If Ratio1 as defined in paragraph (6)(a)(ii)(B) above is likely to be greater than the Counter-Party's currently assigned value of *e1* for particular day(s), then the estimated daily values of Ratio1 specifying the day(s) along with the daily DAM Energy Bid, Energy-Only Offer, and Three-Part Supply Offer quantity assumptions used to arrive at those values; and

(ii) If Ratio2 as defined in paragraph (6)(b)(i)(A)(1) above is likely to be lower than the Counter-Party's currently assigned value of *e2* for particular day(s), then the estimated daily values of Ratio2 specifying the day(s) along with the daily DAM Energy Bid, Energy-Only Offer, and Three-Part Supply Offer quantity assumption used to arrive at those values.

[NPRR1014: Replace paragraph (a) above with the following upon system implementation:]

(a) The Counter-Party shall notify ERCOT of any expected changes to Ratio1 or Ratio2, due to change in activity, as described below, and the likely duration of such change as soon as practicable, but no later than two Business Days in advance of the change:

(i) If Ratio1 as defined in paragraph (6)(a)(ii)(B) above is likely to be greater than the Counter-Party's currently assigned value of *e1* for particular day(s), then the estimated daily values of Ratio1 specifying the day(s) along with the daily DAM Energy Bid, Energy-Only Offer, Energy Bid/Offer Curves, and Three-Part Supply Offer quantity assumptions used to arrive at those values; and

(ii) If Ratio2 as defined in paragraph (6)(b)(i)(A)(1) above is likely to be lower than the Counter-Party's currently assigned value of *e2* for particular day(s), then the estimated daily values of Ratio2 specifying the day(s) along with the daily DAM Energy Bid, Energy-Only Offer, Energy Bid/Offer Curves, and Three-Part Supply Offer quantity assumption used to arrive at those values.

(b) ERCOT, in its sole discretion, will determine the adequacy of the disclosures made in item (a) above and may require additional information as needed to evaluate whether a Counter- Party is eligible for favorable treatment.

(c) ERCOT may change the requirements for providing information, as described in item (a) above, to ensure that reasonable information is obtained from Counter-Parties.

(d) ERCOT may, but is not required, to use information provided by a Counter-Party to re-evaluate DAM credit parameters and may take other information into consideration as needed.

(e) If ERCOT determines that information provided to ERCOT is erroneous or that ERCOT has not been notified of required changes, ERCOT may set all parameters for the Counter-Party to the default values with a possible adder on the e1 variable, at ERCOT's sole discretion, for a period of not less than seven days and until ERCOT is satisfied that the Counter-Party has and will comply with the conditions set forth in this Section. In no case shall the adder result in an e1 value greater than one.

(8) Beginning no later than 0800 and ending at 0945 each Business Day, ERCOT shall post to the MIS Certified Area, approximately every 15 minutes, each active Counter-Party's remaining Available Credit Limit (ACL) for that day's DAM and the time at which the report was run.

(9) After the DAM results are posted, ERCOT shall post once each Business Day on the MIS Certified Area each active Counter-Party's calculated aggregate DAM credit exposure

and its aggregate DAM credit exposure per transaction type, to the extent available, as it pertains to the most recent DAM Operating Day. The transaction types are:

(a) DAM Energy Bids and Energy Bid Curves;

(b) DAM Energy Only Offers;

(c) PTP Obligation Bids;

(d) Three-Part Supply Offers; and

(e) Ancillary Services.

[NPRR1008 and NPRR1014: Replace applicable portions of item (e) above with the following upon system implementation of the Real-Time Co-Optimization (RTC) project for NPRR1008; or upon system implementation for NPRR1014; and renumber accordingly:]

(e) Ancillary Services related to Self-Arranged Ancillary Service Quantities;

(f) Ancillary Service Only Offers;

(g) Energy Bid/Offer Curves.

(10) The parameters in this Section are defined as follows:

(a) The default values of the parameters are:

Parameter	Unit	Current Value*
d	percentile	85
ep1	percentile	95
a	percentile	50
b	percentile	45
dp	percentile	90
ep2	percentile	0
e3	value	1
y	percentile	45

Parameter	Unit	Current Value*
z	percentile	50
u	percentile	90
bd	%	90
t	percentile	50
* The current value for the parameters referenced in this table above will be recommended by TAC and approved by the ERCOT Board. ERCOT shall update parameter values on the first day of the month following ERCOT Board approval unless otherwise directed by the ERCOT Board. ERCOT shall provide a Market Notice prior to implementation of a revised parameter value.		

(b) The values of the parameters for Entities that meet the requirements in paragraph (7) above for more favorable treatment are:

Parameter	Unit	Current Value
d	percentile	85
ep1	percentile	75
a	percentile	50
b	percentile	45
dp	percentile	90
ep2	percentile	25
e3	value	1
y	percentile	45
z	percentile	50
u	percentile	90
t	percentile	50
* The current value for the parameters referenced in this table above will be recommended by TAC and approved by the ERCOT Board. ERCOT shall update parameter values on the first day of the month following ERCOT Board approval unless otherwise directed by the ERCOT Board. ERCOT shall provide a Market Notice prior to implementation of a revised parameter value.		

4.5.1 DAM Clearing Process

Commented [CP6]: Please note NPRR1235 also proposes revisions to this section.

(1) At 1000 in the Day-Ahead, ERCOT shall start the Day-Ahead Market (DAM) clearing process. If the processing of DAM bids and offers after 0900 is significantly delayed or impacted by a failure of ERCOT software or systems that directly impacts the DAM, ERCOT shall post a Notice as soon as practicable on the ERCOT website, in accordance with paragraph (1) of Section 4.1.2, Day-Ahead Process and Timing Deviations, extending the start time of the execution of the DAM clearing process by an amount of time at least as long as the duration of the processing delay plus ten minutes. In no event shall the extension exceed more than one hour from when the processing delay is resolved.

(2) ERCOT shall complete a Day-Ahead Simultaneous Feasibility Test (SFT). This test uses the Day-Ahead Updated Network Model topology and evaluates all Congestion Revenue Rights (CRRs) for feasibility to determine hourly oversold quantities.

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

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

(a) The bid-based revenues include revenues from DAM Energy Bids, Energy Bid Curves, and Point-to-Point (PTP) Obligation bids.

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

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

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

(A) Thermal constraints – protect Transmission Facilities against thermal overload.

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

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

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

(A) Resource output constraints – the Low Sustained Limit (LSL) and High Sustained Limit (HSL) of each Resource; and

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

(iii) Other constraints –

(A) Linked offers – the DAM may not select any one part of that Resource capacity to provide more than one Ancillary Service or to provide both energy and an Ancillary Service in the same Operating Hour. The DAM may, however, select part of that Resource capacity to provide one Ancillary Service and another part of that capacity to provide a different Ancillary Service or energy in the same Operating Hour, provided that linked Energy and Off-Line Non-Spinning Reserve (Non-Spin) Ancillary Service Offers are not awarded in the same Operating Hour.

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

(C) Block Ancillary Service Offers for a Load Resource that is not a Controllable Load Resource (CLR) – blocks will not be cleared unless the entire quantity block can be awarded. Because block Ancillary Service Offers cannot set the Market Clearing Price for Capacity (MCPC), a block Ancillary Service Offer may clear below the Ancillary Service Offer price for that block.

(D) Block DAM Energy Bids, DAM Energy-Only Offers, and PTP Obligation bids – blocks will not be cleared unless the entire time and/or quantity block can be awarded. Because quantity block bids and offers cannot set the Settlement Point Price, a quantity block bid or offer may clear in a manner inconsistent with the bid or offer price for that block.

(E) Combined Cycle Generation Resources – The DAM may commit a Combined Cycle Generation Resource in a time period that includes the last hour of the Operating Day only if that Combined Cycle Generation Resource can transition to a shutdown condition in the DAM Operating Day.

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

[NPRR1008 and NPRR1014: Replace applicable portions of paragraph (4) above with the following upon system implementation of the Real-Time Co-Optimization (RTC) project for NPRR1008; or upon system implementation for NPRR1014:]

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

(a) The bid-based revenues include revenues from ASDCs, DAM Energy Bids, Energy Bid Curves, bid portions of Energy Bid/Offer Curves, and Point-to-Point (PTP) Obligation bids.

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

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

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

(A) Thermal constraints – protect Transmission Facilities against thermal overload.

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

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

(ii) Resource constraints – the physical and security limits on Resources that submit Three-Part Supply Offers or Energy Bid/Offer Curves:

(A) Resource output constraints – the Low Sustained Limit (LSL) and High Sustained Limit (HSL) of each Resource; and

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

(iii) Other constraints –

(A) Linked offers – the DAM may not select any one part of that Resource capacity to provide more than one Ancillary Service or to provide both energy and an Ancillary Service in the same Operating Hour. The DAM may, however, select part of that Resource capacity to provide one Ancillary Service and another part of that capacity to provide a different Ancillary Service or energy in the same Operating Hour, provided that linked Energy and Off-Line Non-Spinning Reserve (Non-Spin) Resource-Specific Ancillary Service Offers are not awarded in the same Operating Hour.

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

(C) Block Resource-Specific Ancillary Service Offers for a Load Resource that is not a Controllable Load Resource (CLR) – blocks will not be cleared unless the entire quantity block can be awarded. Because block Resource-Specific Ancillary Service Offers cannot set the Market Clearing Price for Capacity (MCPC), a block Ancillary Service Offer may clear below the Ancillary Service Offer price for that block.

(D) Block DAM Energy Bids, DAM Energy-Only Offers, and PTP Obligation bids – blocks will not be cleared unless the entire time and/or quantity block can be awarded. Because quantity block bids and offers cannot set the Settlement Point Price, a quantity block bid or offer may clear in a manner inconsistent with the bid or offer price for that block.

(E) Combined Cycle Generation Resources – The DAM may commit a Combined Cycle Generation Resource in a time period that includes the last hour of the Operating Day only if that

Combined Cycle Generation Resource can transition to a shutdown condition in the DAM Operating Day.

(F) Energy Storage Resources (ESRs) – The energy cleared for an ESR may be negative, indicating purchase of energy, or positive, indicating sale of energy.

(d) Ancillary Service needs will be reflected in ASDCs for each Ancillary Service. Self-Arranged Ancillary Service Quantities will first be used to meet the ASDCs, and the remaining Ancillary Service needs are met from Ancillary Service Offers, as long as the costs do not exceed the ASDC value. ERCOT may not buy more of one Ancillary Service in place of the quantity of a different service.

(5) ERCOT shall determine the appropriate Load distribution factors to allocate offers, bids, and source and sink of CRRs at a Load Zone across the energized power flow buses that are modeled with Load in that Load Zone. The non-Private Use Network Load distribution factors are based on historical State Estimator hourly distribution using a proxy day methodology representing anticipated weather conditions. The Private Use Network Load distribution factors are based on an estimated Load value considering historical net consumption at all Private Use Networks. If ERCOT decides, in its sole discretion, to change the Load distribution factors for reasons such as anticipated weather events or holidays, ERCOT shall select a State Estimator hourly distribution from a proxy day reasonably reflecting the anticipated Load in the Operating Day. ERCOT may also modify the Load distribution factors to account for predicted differences in network topology between the proxy day and Operating Day. ERCOT shall develop a methodology, subject to Technical Advisory Committee (TAC) approval, to describe the modification of the proxy day bus-load distribution for this purpose.

[NPRR1004: Replace paragraph (5) above with the following upon system implementation:]

(5) ERCOT shall determine the appropriate Load distribution factors to allocate offers, bids, and source and sink of PTP Obligations at a Load Zone across the energized power flow buses that are modeled with Load in that Load Zone. ERCOT shall derive DAM Load distribution factors with the set of Load distribution factors constructed in accordance with the ERCOT Load distribution factor methodology specified in paragraph (c) of Section 3.12, Load Forecasting. In the event the Load distribution factors are not available, the Load distribution factors for the most recent preceding Operating Day will be used.

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

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

(8) The DAM Settlement is based on hourly MW awards and on Day-Ahead hourly Settlement Point Prices. All PTP Options settled in the DAM are settled based on the Day-Ahead Settlement Point Prices (DASPPs). ERCOT shall assign a Locational Marginal Price (LMP) to de-energized Electrical Buses for use in the calculation of the DASPPs by using heuristic rules applied in the following order:

(a) Use an appropriate LMP predetermined by ERCOT as applicable to a specific Electrical Bus; or if not so specified

(b) Use the following rules in order:

(i) Use average LMP for Electrical Buses within the same station having the same voltage level as the de-energized Electrical Bus, if any exist.

(ii) Use average LMP for all Electrical Buses within the same station, if any exist.

(iii) Use System Lambda.

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

(10) Day-Ahead MCPCs shall not exceed the System-Wide Offer Cap (SWCAP). Ancillary Service Offers higher than corresponding Ancillary Service penalty factors, as defined in Appendix 2, Day-Ahead Market Optimization Control Parameters, of Section 22, Attachment P, Methodology for Setting Maximum Shadow Prices for Network and Power Balance Constraints, will not be awarded.

[NPRR1080: Delete paragraph (10) above upon system implementation of the Real-Time Co-Optimization (RTC) project for NPRR1008; or upon system implementation for NPRR1014; and renumber accordingly.]

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

[NPRR1008 and NPR1014: Delete paragraph (11) above upon system implementation of the Real-Time Co-Optimization (RTC) project for NPRR1008; or upon system implementation for NPRR1014; and renumber accordingly.]

(12) If the DASPPs cannot be calculated by ERCOT, all CRRs shall be settled based on Real-Time prices. Settlements for all CRRs shall be reflected on the Real-Time Settlement Statement.

(13) Constraints can exist between a~~the generator's~~ Resource's Resource Connectivity Node and the Resource Node, in which case the awarded quantity of energy may be inconsistent with the clearing price when the constraint between the Resource Connectivity Node and the Resource Node is binding.

[NPRR1014: Replace paragraph (13) above with the following upon system implementation:]

(13) Constraints can exist between a Resource's Resource Connectivity Node and its Resource Node, in which case the awarded quantity of energy may be inconsistent with the clearing price when the constraint between the Resource Connectivity Node and the Resource Node is binding.

(14) PTP Obligation bids shall not be awarded where the DAM clearing price for the PTP Obligation is greater than the PTP Obligation bid price plus $0.01/MW per hour.

4.5.3 Communicating DAM Results

Commented [CP7]: Please note NPRR1239 also proposes revisions to this section.

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

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

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

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

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

[NPRR1008 and NPRR1014: Replace applicable portions of paragraph (1) above with the following upon system implementation of the Real-Time Co-Optimization (RTC) project for NPRR1008; or upon system implementation for NPRR1014:]

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

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

(b) Awarded Ancillary Service Only Offers, specifying MW, Ancillary Service type, and price, for each hour of the awarded offer;

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

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

(e) Awarded Energy Bid/Offer Curves, specifying Resource, MWh, Settlement Point, and Settlement Point Price, for each hour of the awarded bid/offer; and

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

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

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

(b) DASPPs for each Settlement Point for each hour of the Operating Day;

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

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

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

(f) Energy bought in the DAM consisting of the following:

(i) The total quantity of awarded DAM Energy Bids and Energy Bid Curves (in MWh) bought in the DAM at each Settlement Point for each hour of the Operating Day; and

(ii) The total quantity of awarded PTP Obligation Bids (in MWh) cleared in the DAM that sink at each Settlement Point for each hour of the Operating Day.

(g) Energy sold in the DAM consisting of the following:

(i) The total quantity of awarded DAM Energy Offers (in MWh), from Three-Part Supply Offers and DAM Energy Only Offers, bought in the DAM at each Settlement Point for each hour of the Operating Day; and

(ii) The total quantity of awarded PTP Obligation Bids (in MWh) cleared in the DAM that source at each Settlement Point for each hour of the Operating Day.

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

(i) Electrically Similar Settlement Points used during the DAM clearing process; and

(j) Settlement Points that were de-energized in the base case; and

(k) System Lambda.

[NPRR1008 and NPRR1014: Replace applicable portions of paragraph (2) above with the following upon system implementation of the Real-Time Co-Optimization (RTC) project for NPRR1008; or upon system implementation for NPRR1014:]

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

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

(b) DASPPs for each Settlement Point for each hour of the Operating Day;

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

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

(e) Energy bought in the DAM consisting of the following:

(i) The total quantity of awarded DAM Energy Bids and Energy Bid Curves (in MWh) bought in the DAM at each Settlement Point for each hour of the Operating Day;

(ii) The total quantity of awarded PTP Obligation Bids (in MWh) cleared in the DAM that sink at each Settlement Point for each hour of the Operating Day; and

(iii) The total absolute value quantity of awards to bid portions of Energy Bid/Offer Curves (in MWh) cleared in the DAM at each Settlement Point for each hour of the Operating Day.

(f) Energy sold in the DAM consisting of the following:

(i) The total quantity of awarded DAM Energy Offers (in MWh), from Three-Part Supply Offers and DAM Energy Only Offers, bought in the DAM at each Settlement Point for each hour of the Operating Day;

(ii) The total quantity of awarded PTP Obligation Bids (in MWh) cleared in the DAM that source at each Settlement Point for each hour of the Operating Day; and

(iii) The total quantity of awards to offer portions of Energy Bid/Offer Curves (in MWh) cleared in the DAM at each Settlement Point for each hour of the Operating Day.

(g) Aggregated Ancillary Service Offer Curve of all Ancillary Service Offers (including both Resource-Specific Ancillary Service Offers and Ancillary Service Only Offers) for each type of Ancillary Service for each hour of the Operating Day;

(h) Electrically Similar Settlement Points used during the DAM clearing process;

(i) Settlement Points that were de-energized in the base case;

(j) System Lambda; and

(k) Ancillary Services sold in the DAM consisting of the total quantity of awarded Resource-Specific Ancillary Service Offers and Ancillary Service Only Offers, for each Ancillary Service for each hour of the Operating Day.

(3) ERCOT shall monitor Day-Ahead MCPCs and Day-Ahead hourly LMPs for errors and if there are conditions that cause the price to be questionable, ERCOT shall notify all Market Participants that the DAM prices are under investigation as soon as practicable.

(4) ERCOT shall correct prices for an Operating Day when a market solution is determined to be invalid or invalid prices are identified in an otherwise valid market solution, accurate prices can be determined, and the impact of the price correction is significant. The following are some reasons that may cause an invalid market solution or invalid prices in a valid market solution.

(a) Data Input error: Missing, incomplete, or incorrect versions of one or more data elements input to the DAM application may result in an invalid market solution and/or prices.

(b) Software error: Pricing errors may occur due to software implementation errors in DAM pre-processing, DAM clearing process, and/or DAM post processing.

(c) Inconsistency with these Protocols or the Public Utility Commission of Texas (PUCT) Substantive Rules: Pricing errors may occur when specific circumstances result in prices that are in conflict with such Protocol language or the PUCT Substantive Rules.

(5) For purposes of a price correction performed prior to 1000 on the second Business Day after the Operating Day, the impact of a price correction is considered significant, as that term is used in paragraph (4) above, for the Operating Day when:

(a) The absolute value change to any single DAM Settlement Point Price at a Resource Node or Day-Ahead MCPC is greater than $0.05/MWh;

(b) The price correction would require ERCOT to change more than ten DAM Settlement Point Prices and Day-Ahead MCPCs; or

(c) The absolute value change to any DAM Settlement Point Price at a Load Zone or Hub is greater than $0.02/MWh.

(6) All DAM LMPs, MCPCs, and Settlement Point Prices are final at 1000 of the second Business Day after the Operating Day.

(a) However, after DAM LMPs, MCPCs, and Settlement Point Prices are final, if ERCOT determines that prices qualify for a correction pursuant to paragraph (4) above and that ERCOT will seek ERCOT Board review of such prices, it shall notify Market Participants and describe the need for such correction as soon as practicable but no later than 30 days after the Operating Day. Failure to notify Market Participants within this timeline precludes the ERCOT Board from reviewing such prices. However, nothing in this section shall be understood to limit or otherwise inhibit any of the following:

(i) ERCOT's duty to inform the PUCT of potential or actual violations of the ERCOT Protocols or PUCT Rules and its right to request that the PUCT authorize correction of any prices that may have been affected by such potential or actual violations;

(ii) The PUCT's authority to order price corrections when permitted to do so under other law; or

(iii) ERCOT's authority to grant relief to a Market Participant pursuant to the timelines specified in Section 20, Alternative Dispute Resolution Procedure.

(b) Before seeking ERCOT Board review of prices, ERCOT will determine if the impact of the price correction is significant, as that term is used in paragraph (4) above, by calculating the potential changes to the DAM Settlement Statement(s) of any Counter-Party on the given Operating Day. ERCOT shall seek ERCOT Board review of prices if the change in DAM Settlement Statement(s) would result in the absolute value impact to any single Counter-Party, based on the sum of all original DAM Settlement Statement amounts of Market Participants assigned to the Counter-Party, to be greater than:

(i) 2% and also greater than $20,000; or

(ii) 20% and also greater than $2,000.

(c) The ERCOT Board may review and change DAM LMPs, MCPCs, or Settlement Point Prices if ERCOT gave timely notice to Market Participants and the ERCOT Board finds that such prices should be corrected for an Operating Day.

(d) In review of DAM LMPs, MCPCs, or Settlement Point Prices, the ERCOT Board may rely on the same reasons identified in paragraph (4) above to find that the prices should be corrected for an Operating Day.

(7) As soon as practicable, but no later than 1330, ERCOT shall make available the Day-Ahead Shift Factors for binding constraints in the DAM and post to the Market Information System (MIS) Secure Area.

4.6.2.2 Day-Ahead Energy Charge

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

$$DAEPAMT_{q,p} = DASPP_{p} * DAEP_{q,p}$$

The above variables are defined as follows:

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

[NPRR1014: Replace paragraph (1) above with the following upon system implementation:]

(1) The Day-Ahead Energy Charge is made for all ~~cleared~~ DAM Energy Bids, Energy Bid Curves, and~~or cleared purchases from the~~ bid portion of Energy Bid/Offer Curves, cleared in the DAM. This charge to each QSE for each Settlement Point for a given hour of the Operating Day is calculated as follows:

$$DAEPAMT_{q,p} = DASPP_{p} * DAEP_{q,p}$$

The above variables are defined as follows:

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

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

$$DAEPAMTQSETOT_{q} = \sum_{p} DAEPAMT_{q,p}$$

The above variables are defined as follows:

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

[NPRR1014: Replace paragraph (2) above with the following upon system implementation:]

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

$$DAEPAMTQSETOT_q = \sum_p DAEPAMT_{q,p}$$

The above variables are defined as follows:

Variable	Unit	Definition
$DAEPAMTQSETOT_q$	$	*Day-Ahead Energy Purchase Amount QSE Total per QSE*—The total of the charges to QSE *q* for its cleared energy bids at all Settlement Points for the hour.
$DAEPAMT_{q,p}$	$	*Day-Ahead Energy Purchase Amount per QSE per Settlement Point*—The charge to QSE *q* for its ~~cleared~~ DAM Energy Bids, Energy Bid Curves, and ~~cleared purchases from the~~ bid portion of Energy Bid/Offer Curves, cleared in the DAM, at Settlement Point *p* for the hour.
q	none	A QSE.
p	none	A Settlement Point.

4.6.2.3.2 Day-Ahead Make-Whole Charge

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

$$LADAMWAMT_q = (-1) * DAMWAMTTOT * DAERS_q$$

Where:

Day-Ahead Make-Whole Payment Total

$$DAMWAMTTOT = \sum_q DAMWAMTQSETOT_q$$

Day-Ahead Energy Purchase Ratio Share per QSE

$$DAERS_q = DAE_q / DAETOT$$

$$DAETOT = \sum_q DAE_q$$

$$DAE_q = \sum_p DAEP_{q,p} + \sum_j \sum_k RTOBL_{q,(j,k)}$$

The above variables are defined as follows:

Variable	Unit	Definition
LADAMWAMT $_q$	$	*Day-Ahead Make-Whole Charge*—The allocated charge to QSE *q* to make whole all the eligible DAM-committed Resources for the hour.
DAMWAMTTOT	$	*Day-Ahead Make-Whole Payment Total*—The total of the Day-Ahead Make-Whole Payments to all QSEs for all DAM-committed Resources for the hour.
DAMWAMTQSETOT $_q$	$	*Day-Ahead Make-Whole Payment QSE Total per QSE*—The total of the Day-Ahead Make-Whole Payments to QSE *q* for the DAM-committed Generation Resources represented by this QSE for the hour.
DAERS $_q$	none	*Day-Ahead Energy Purchase Ratio Share per QSE*— The ratio of QSE *q*'s total amount of energy represented by its ~~cleared~~ DAM Energy Bids, Energy Bid Curves, and PTP Obligation Bids, cleared in the DAM, to the total amount of energy represented by all QSEs' ~~cleared~~ DAM Energy Bids, Energy Bid Curves, and PTP Obligation Bids, cleared in the DAM, for the hour.
DAETOT	MW	*Day-Ahead Energy Total*—The total amount of energy represented by all ~~cleared~~ DAM Energy Bids, Energy Bid Curves, and all ~~cleared~~ PTP Obligation Bids, cleared in the DAM, for the hour.
DAE $_q$	MW	*Day-Ahead Energy per QSE*—QSE *q*'s total amount of energy, represented by its ~~cleared~~ DAM Energy Bids, Energy Bid Curves, and PTP Obligation Bids, cleared in the DAM, for the hour.
DAEP $_{q, p}$	MW	*Day-Ahead Energy Purchase per QSE per Settlement Point*—The total amount of energy represented by QSE *q*'s ~~cleared~~ DAM Energy Bids and Energy Bid Curves, cleared in the DAM, at the Settlement Point *p* for the hour.
RTOBL $_{q, (j, k)}$	MW	*Real-Time Obligation per QSE per pair of source and sink*—The total amount of energy represented by QSE *q*'s cleared PTP Obligation Bids with the source *j* and the sink *k*, for the hour.
q	none	A QSE.
p	none	A Settlement Point.
j	none	A source Settlement Point.
k	none	A sink Settlement Point.

[NPRR1014: Replace paragraph (1) above with the following upon system implementation:]

(1) ERCOT shall charge a Day-Ahead Make-Whole Charge to each QSE that has one or more ~~cleared~~ DAM Energy Bids, Energy Bid Curves, ~~cleared purchases from the~~ bid portion of Energy Bid/Offer Curves, and/or Point-to-Point (PTP) Obligation Bids, cleared in the DAM. The Day-Ahead Make-Whole Charge for an hour is that QSE's prorata share of the total amount of Day-Ahead Make-Whole Payments for that hour. The proration must be based on the ratio of the energy amount of the QSE's ~~cleared~~ DAM Energy Bids, Energy Bid Curves, ~~cleared purchases from the~~ bid portion of Energy Bid/Offer Curves, and PTP Obligation Bids, cleared in the DAM, to the total energy amount of all QSEs' ~~cleared~~ DAM Energy Bids, Energy Bid Curves, ~~cleared purchases from the~~ bid portion of Energy Bid/Offer Curves, and PTP Obligation Bids,

cleared in the DAM. The Day-Ahead Make-Whole Charge to each QSE for a given hour is calculated as follows:

$$LADAMWAMT_q = (-1) * DAMWAMTTOT * DAERS_q$$

Where:

Day-Ahead Make-Whole Payment Total

$$DAMWAMTTOT = \sum_q DAMWAMTQSETOT_q$$

Day-Ahead Energy Purchase Ratio Share per QSE

$$DAERS_q = DAE_q / DAETOT$$

$$DAETOT = \sum_q DAE_q$$

$$DAE_q = \sum_p DAEP_{q,p} + \sum_j \sum_k RTOBL_{q,(j,k)}$$

The above variables are defined as follows:

Variable	Unit	Definition
$LADAMWAMT_q$	$	*Day-Ahead Make-Whole Charge*—The allocated charge to QSE *q* to make whole all the eligible DAM-committed Resources for the hour.
DAMWAMTTOT	$	*Day-Ahead Make-Whole Payment Total*—The total of the Day-Ahead Make-Whole Payments to all QSEs for all DAM-committed Resources for the hour.
$DAMWAMTQSETOT_q$	$	*Day-Ahead Make-Whole Payment QSE Total per QSE*—The total of the Day-Ahead Make-Whole Payments to QSE *q* for the DAM-committed Generation Resources represented by this QSE for the hour.
$DAERS_q$	none	*Day-Ahead Energy Purchase Ratio Share per QSE*— The ratio of QSE *q*'s total amount of energy represented by its ~~cleared~~ DAM Energy Bids, Energy Bid Curves, ~~cleared purchases from the~~ bid portion of Energy Bid/Offer Curves, and PTP Obligation Bids, cleared in the DAM, to the total amount of energy represented by all QSEs' ~~cleared~~ DAM Energy Bids, Energy Bid Curves, ~~cleared purchases from the~~ bid portion of Energy Bid/Offer Curves, and PTP Obligation Bids, cleared in the DAM, for the hour.
DAETOT	MW	*Day-Ahead Energy Total*—The total amount of energy represented by all ~~cleared~~ DAM Energy Bids, Energy Bid Curves, ~~all cleared purchases from the~~ bid portion of Energy Bid/Offer Curves, and all cleared PTP Obligation Bids, cleared in the DAM, for the hour.
DAE_q	MW	*Day-Ahead Energy per QSE*—QSE *q*'s total amount of energy, represented by its ~~cleared~~ DAM Energy Bids, Energy Bid Curves, ~~cleared purchases from the~~ bid portion of Energy Bid/Offer Curves, and PTP Obligation Bids, cleared in the DAM, for the hour.

DAEP $_{q, p}$	MW	*Day-Ahead Energy Purchase per QSE per Settlement Point*—The total amount of energy represented by QSE *q*'s ~~cleared~~ DAM Energy Bids, Energy Bid Curves, and ~~cleared purchases from the~~ bid portion of Energy Bid/Offer Curves, cleared in the DAM, at the Settlement Point *p* for the hour.
RTOBL $_{q, (j, k)}$	MW	*Real-Time Obligation per QSE per pair of source and sink*—The total amount of energy represented by QSE *q*'s cleared PTP Obligation Bids with the source *j* and the sink *k*, for the hour.
q	none	A QSE.
p	none	A Settlement Point.
j	none	A source Settlement Point.
k	none	A sink Settlement Point.

6.3.1 Activities for the Adjustment Period

Commented [CP8]: Please note NPRR1240 also proposes revisions to this section.

(1) The following table summarizes the timeline for the Adjustment Period and the activities of QSEs and ERCOT. 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:

Adjustment Period	QSE Activities	ERCOT Activities
Time = From 1800 in the Day-Ahead up to one hour before the start of the Operating Hour	Submit and update Energy Trades, Capacity Trades, Self-Schedules, and Ancillary Service Trades Submit and update Output Schedules Submit and update Incremental and Decremental Energy Offer Curves for Dynamically Scheduled Resources (DSRs) ***[NPRR1000: Delete the item above upon system implementation.]*** Submit and update Energy Offer Curves and/or ~~RTM~~ Energy Bid Curves ***[NPRR1014: Insert the item below upon system implementation:]***	Post shift schedules on the Market Information System (MIS) Secure Area Validate Energy Trades, Capacity Trades, Self-Schedules, and Ancillary Service Trades and identify invalid or mismatched trades Validate Output Schedules Validate Incremental and Decremental Energy Offer Curves Validate Energy Offer Curves and/or ~~RTM~~ Energy Bid Curves ***[NPRR1014: Insert the item below upon system implementation:]*** Validate Energy Bid/Offer Curves Validate COP including validation of the deliverability of Ancillary Services from Resources for the next Operating Period

Adjustment Period	QSE Activities	ERCOT Activities
	Submit Energy Bid/Offer Curves for Energy Storage Resources (ESRs) Update Current Operating Plan (COP) Request Resource decommitments Submit Three-Part Supply Offers for Off-Line Generation Resources Submit offers for any Supplemental Ancillary Service Markets ***[NPRR1010 and NPRR1014: Replace applicable portions of the item above with the following upon system implementation of the Real-Time Co-Optimization (RTC) project for NPRR1010; or upon system implementation for NPRR1014:]*** Submit and update Ancillary Service Offers Communicate Resource Forced Outages	Review and approve or reject Resource decommitments Validate Three-Part Supply Offers Publish Notice of Need to Procure Additional Ancillary Service capacity if required ***[NPRR1010 and NPRR1014: Replace applicable portions of the item above with the following upon system implementation of the Real-Time Co-Optimization (RTC) project for NPRR1010; or upon system implementation for NPRR1014:]*** Publish Notice of need to update the Ancillary Service Plan if required and update the Ancillary Service Demand Curves (ASDCs) for the affected hours and Ancillary Services Validate Ancillary Service Offers At the end of the Adjustment Period snap-shot the net capacity credits for Hourly Reliability Unit Commitment (HRUC) Settlement Update Short-Term Wind Power Forecast (STWPF) Update Short-Term PhotoVoltaic Power Forecast (STPPF) Execute the Hour-Ahead Sequence Notify the QSE via the MIS Certified Area that an Energy Offer Curve, ~~RTM~~ Energy Bid Curve or Output Schedule has not yet been submitted for a Resource as a reminder that one of the three must be submitted by the end of the Adjustment Period ***[NPRR1010 and NPRR1014: Insert applicable portions of the***

Adjustment Period	QSE Activities	ERCOT Activities
		items below upon system implementation of the Real-Time Co-Optimization (RTC) project for NPRR1010; or upon system implementation for NPRR1014:] Notify the QSE via the MIS Certified Area that an Ancillary Service Offer has not yet been submitted for a Resource by the end of the Adjustment Period Notify the QSE via the MIS Certified Area that an Energy Bid/Offer Curve has not yet been submitted for an ESR by the end of the Adjustment Period

6.4.3 [RESERVED]~~Real-Time Market (RTM) Energy Bids and Offers~~

~~**6.4.3.1 RTM Energy Bids**~~

~~(1) An RTM Energy Bid represents the willingness to buy energy at or below a certain price, not to exceed the System-Wide Offer Cap (SWCAP), for the Demand response capability of a Controllable Load Resource in the RTM.~~

~~***[NPRR1010: Replace paragraph (1) above with the following upon system implementation of the Real-Time Co-Optimization (RTC) project:]***~~

~~(1) An RTM Energy Bid represents the willingness to buy energy at or below a certain price, not to exceed the effective Value of Lost Load (VOLL), for the Demand response capability of a Controllable Load Resource in the RTM.~~

~~(2) RTM Energy Bids remain active for the offered period until automatically inactivated at the offer expiration time specified in the RTM Energy Bid.~~

~~(3) For any Operating Hour, the QSE may submit or change an RTM Energy Bid at any time prior to SCED execution, and SCED will use the latest updated RTM Energy Bid available in the system. If a new RTM Energy Bid is not deemed to be valid, then the most recent valid RTM Energy Bid available in the system at the time of SCED execution will be used and ERCOT will notify the QSE that the invalid RTM Energy Bid was rejected. Once an Operating Hour ends, an RTM Energy Bid for that hour cannot be submitted, updated, or canceled.~~

~~*[NPRR1010: Replace paragraph (3) above with the following upon system implementation of the Real-Time Co-Optimization (RTC) project:]*~~

~~(3) For any Operating Hour, the QSE may submit or change an RTM Energy Bid in the Adjustment Period. If, by the end of the Adjustment Period, the QSE has not submitted a valid RTM Energy Bid, ERCOT shall create a proxy RTM Energy Bid for the entire Demand response capability of that Load Resource with a not-to-exceed price at the effective VOLL.~~

~~(4) If the QSE has not submitted a valid RTM Energy Bid for an Operating Hour, ERCOT shall create a proxy RTM Energy Bid for the entire Demand response capability of that Load Resource with a not-to-exceed price at the SWCAP.~~

~~*[NPRR1010: Delete paragraph (4) above upon system implementation of the Real-Time Co-Optimization (RTC) project and renumber accordingly.]*~~

~~(5) The QSE may remove the Controllable Load Resource from SCED Dispatch by changing the Load Resource's telemetered Resource Status or ramp rates appropriately. The QSE will update the COP Resource Status accordingly as soon as practicable.~~

~~***6.4.3.1.1 RTM Energy Bid Criteria***~~

~~(1) Each RTM Energy Bid submitted by a QSE must include the following information:~~

~~(a) The QSE;~~

~~(b) The relevant Load Resource;~~

~~(c) A bid curve with no more than ten price/quantity pairs with monotonically non-increasing not-to-exceed prices (in $/MWh) and with increasing quantities ranging from zero to the Load Resource's maximum demand response capability (in MW) represented by the difference between the Load Resource's telemetered Maximum Power Consumption (MPC) and Low Power Consumption (LPC);~~

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

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

~~(2) The software systems must be able to provide ERCOT with the ability to enter Resource-specific RTM Energy Bid floors and caps.~~

~~(3) The minimum amount per Load Resource for each RTM Energy Bid that may be submitted is one-tenth (0.1) MW.~~

~~(4) If a Controllable Load Resource is carrying Ancillary Service Resource Responsibility, its RTM Energy Bid must be priced no higher than the SWCAP.~~

~~***[NPRR1010: Replace paragraph (4) above with the following upon system implementation of the Real-Time Co-Optimization (RTC) project:]***~~

~~(4) If a Controllable Load Resource is offering to provide an Ancillary Service, its RTM Energy Bid must be priced no higher than the effective VOLL.~~

~~***6.4.3.1.2 RTM Energy Bid Validation***~~

~~(1) A valid RTM Energy Bid is a bid that ERCOT has determined meets the criteria listed in Section 6.4.3.1.1, RTM Energy Bid Criteria.~~

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

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

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 Non-Competitive Constraints for the current Operating Hour. The SCED process evaluates Energy Offer Curves, Output Schedules and ~~Real-Time Market (RTM)~~ Energy Bid Curves to determine Resource Dispatch Instructions by maximizing bid-based revenues minus offer-based costs, 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) In the Generation To Be Dispatched (GTBD) determined by LFC, ERCOT shall subtract the sum of the telemetered net real power consumption from all Controllable Load Resources (CLRs) available to SCED.

(4) 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-IRRs and Dynamically Scheduled Resources (DSRs) without Energy Offer Curves

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

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

(B) Each DSR that has not submitted incremental and decremental Energy Offer Curves.

MW	Price (per MWh)
HSL	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

(i) 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-IRRs without full-range Energy Offer Curves

(i) For each non-IRR 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 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 submitted Energy Offer Curve)	Price associated with highest MW in submitted Energy Offer Curve
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) IRRs

(i) For each IRR 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	$1,500
HSL minus 1 MW	-$249.99
LSL	-$250.00

(ii) For each IRR for which its QSE has submitted an Energy Offer Curve that does not cover the full range of the IRR's available capacity, ERCOT shall create a monotonically increasing proxy Energy Offer Curve as described below:

MW	Price (per MWh)
HSL (if more than highest MW in submitted Energy Offer Curve)	Price associated with the highest MW in submitted Energy Offer Curve
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

(e) RUC-committed Resources

(i) For each RUC-committed Resource that has not submitted an Energy Offer Curve, ERCOT shall create a proxy Energy Offer Curve as described below:

MW	Price (per MWh)
HSL	$250
Zero	$250

(ii) For each RUC-committed Resource that 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)	Greater of $250 or price associated with the highest MW in QSE submitted Energy Offer Curve
Energy Offer Curve	Greater of $250 or the QSE submitted Energy Offer Curve
Zero	Greater of $250 or the first price point of the QSE submitted Energy Offer Curve

(iii) For each Combined Cycle Generation Resource that was RUC-committed from one On-Line configuration in order to transition to a different configuration with additional capacity, as instructed by ERCOT, that has not submitted an Energy Offer Curve for the RUC-committed configuration, ERCOT shall create a proxy Energy Offer Curve as described below:

MW	Price (per MWh)
HSL of RUC-committed configuration	$250
Zero	$250

(iv) For each Combined Cycle Generation Resource that was RUC-committed from one On-Line configuration in order to transition to a different configuration with additional capacity, as instructed by ERCOT, that has submitted an Energy Offer Curve for the RUC-committed configuration, ERCOT shall create a monotonically increasing proxy Energy Offer Curve as described below:

MW	Price (per MWh)
HSL of RUC-committed configuration (if more than highest MW in Energy Offer Curve)	Greater of $250 or price associated with the highest MW in QSE submitted Energy Offer Curve
Energy Offer Curve for MW at and above HSL of QSE-committed configuration	Greater of $250 or the QSE submitted Energy Offer Curve
HSL of QSE-committed configuration (if more than highest MW in Energy Offer Curve and price associated with highest MW in Energy Offer Curve is less than $250)	$250

HSL of QSE-committed configuration (if more than highest MW in Energy Offer Curve)	Price associated with the highest MW in QSE submitted Energy Offer Curve
Energy Offer Curve for MW at and below HSL of QSE-committed configuration	The QSE submitted 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

(5) The Entity with decision making authority, as more fully described in Section 3.19.1, Constraint Competitiveness Test Definitions, 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.

(6) For a ~~Controllable Load Resource~~CLR whose QSE has submitted an ~~RTM~~ Energy Bid Curve that does not cover the full range of the Resource's available Demand response capability, consistent with the ~~Controllable Load Resource~~CLR's telemetered quantities, ERCOT shall create a proxy energy bid as described below:

MW	Price (per MWh)
LPC to MPC minus maximum MW of ~~RTM~~ Energy Bid Curve	Price associated with the lowest MW in submitted ~~RTM~~ Energy Bid ~~e~~Curve
MPC minus maximum MW of ~~RTM~~ Energy Bid Curve to MPC	~~RTM~~ Energy Bid ~~e~~Curve
MPC	Right-most point (lowest price) on ~~RTM~~ Energy Bid C~~e~~urve

(7) For a CLR whose QSE has not submitted an Energy Bid Curve, consistent with the CLR's telemetered quantities, ERCOT shall create a proxy Energy Bid Curve as described below:

MW	Price (per MWh)
LPC to MPC	SWCAP

(~~8~~7) ERCOT shall ensure that any ~~RTM~~ Energy Bid Curve is monotonically non-increasing. The QSE representing the ~~Controllable Load Resource~~CLR shall be responsible for all ~~RTM~~ Energy Bid Curves, including ~~bids~~Energy Bid Curves updated by ERCOT as described above.

(~~9~~8) A CLR may consume energy only when dispatched by SCED to do so. A CLR may telemeter a status of OUTL only if the Resource is Off-Line and unavailable with its energy consumption at zero. ~~If a Controllable Load Resource telemeters a status of OUTL, it is not considered as dispatchable capacity by SCED. A QSE may use this function to inform ERCOT of~~ In instances when the C~~ontrollable~~ L~~oad~~ R~~esource~~ is

unable to follow SCED Dispatch Instructions but is still consuming energy, the CLR must submit a Resource status of ONHOLD. Under all telemetered statuses, including OUTL, the remaining telemetry quantities submitted by the QSE shall represent the operating conditions of the ~~Controllable Load Resource~~ that can be verified by ERCOT. A QSE representing a ~~Controllable Load Resource~~ with a telemetered status of OUTL or ONHOLD is still obligated to provide any applicable Ancillary Service Resource Responsibilities previously awarded to that ~~Controllable Load Resource~~. This paragraph does not apply to ESRs.

(10~~9~~) 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.

(11~~0~~) 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 and ~~RTM~~ Energy Bid Curves from available ~~Controllable Load Resources~~CLRs, 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 bounded at the lesser of the Reference LMP (from Step 1) or the appropriate Mitigated Offer Floor. In addition, each Energy Offer Curve subject to mitigation under the criteria described in Section 3.19.4, Security-Constrained Economic Dispatch Constraint Competitiveness Test, must be capped at the greater of the Reference LMP (from Step 1) at the Resource Node plus a variable not to exceed 0.01 multiplied by the value of the Resource's Mitigated Offer Cap (MOC) curve at the LSL or the appropriate MOC;

(ii) Use ~~RTM~~ Energy Bid ~~c~~Curves for all available ~~Controllable Load Resources~~, whether submitted by QSEs or created by ERCOT. There is no mitigation of ~~RTM~~ Energy Bid Curves. An ~~RTM~~ Energy Bid Curve from an Aggregate~~Controllable~~ Load Resource (ALR) represents the bid for energy distributed across all nodes in the Load Zone in which the ~~Controllable Load Resource~~ALR is located. For an ESR or a CLR that is not an ALR, an ~~RTM~~ Energy Bid Curve represents a bid for energy at the applicable~~ESR's~~ Resource Node; and

(iii) 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).

(12~~1~~) 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, Real-Time Reliability Deployment Price Adders, Real-Time On-Line Reserve Price Adders, Real-Time Off-Line Reserve Price Adders, 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. In lieu of the steps described in Section 6.5.7.3.1, Determination of Real-Time On-Line Reliability Deployment Price Adder, the non-binding projection of Real-Time Reliability Deployment Price Adders shall be estimated based on GTBD, reliability deployments MWs, and aggregated offers. The Energy Offer Curve from SCED Step 2, the virtual offers for Load Resources deployed and the power balance penalty curve will be compared against the updated GTBD to get an estimate of the System Lambda from paragraph (2)(m) of Section 6.5.7.3.1. 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, Real-Time Reliability Deployment Price Adders, Real-Time On-Line Reserve Price Adders, Real-Time Off-Line Reserve Price Adders, Hub LMPs and Load Zone LMPs on the ERCOT website pursuant to Section 6.3.2, Activities for Real-Time Operations.

(13~~2~~) For each SCED process, ERCOT shall calculate a Real-Time On-Line Reserve Price Adder and a Real-Time Off-Line Reserve Price Adder based on the On-Line and Off-Line available reserves in the ERCOT System and the Operating Reserve Demand Curve (ORDC). The Real-Time Off-Line available reserves shall be administratively set to zero when the SCED snapshot of the Physical Responsive Capability (PRC) is equal to or below the PRC MW at which Energy Emergency Alert (EEA) Level 1 is initiated. In addition, for each SCED process, ERCOT shall calculate a Real-Time On-Line Reliability Deployment Price Adder. The sum of the Real-Time Reliability Deployment Price Adder and the Real-Time On-Line Reserve Price Adder shall be averaged over the 15-minute Settlement Interval and added to the Real-Time LMPs to determine the Real-Time Settlement Point Prices. The price after the addition of the sum of the Real-Time On-Line Reliability Deployment Price Adder and the Real-Time On-Line Reserve Price Adder to LMPs approximates the pricing outcome of the impact to energy prices from reliability deployments and the Real-Time energy and Ancillary Service co-optimization since the Real-Time On-Line Reserve Price Adder captures the value of the opportunity cost of reserves based on the defined ORDC. An Ancillary Service imbalance Settlement

shall be performed pursuant to Section 6.7.5, Real-Time Ancillary Service Imbalance Payment or Charge, to make Resources indifferent to the utilization of their capacity for energy or Ancillary Service reserves.

(14~~3~~) ERCOT shall determine the methodology for implementing the ORDC to calculate the Real-Time On-Line Reserve Price Adder and Real-Time Off-Line Reserve Price Adder. Following review by TAC, the ERCOT Board shall review the recommendation and approve a final methodology. Within two Business Days following approval by the ERCOT Board, ERCOT shall post the methodology on the ERCOT website.

(15~~4~~) At the end of each season, ERCOT shall determine the ORDC for the same season in the upcoming year, based on historic data using the ERCOT Board-approved methodology for implementing the ORDC. Annually, ERCOT shall verify that the ORDC is adequately representative of the loss of Load probability for varying levels of reserves. Twenty days after the end of the Season, ERCOT shall post the ORDC for the same season of the upcoming year on the ERCOT website.

(16~~5~~) ERCOT may override one or more of a ~~Controllable Load Resource~~CLR's parameters in SCED if ERCOT determines that the ~~Controllable Load Resource~~CLR's participation is having an adverse impact on the reliability of the ERCOT System.

(17~~6~~) The QSE representing an ESR, in order to charge the ESR, must submit ~~RTM~~ Energy Bid Curves, and the ESR may withdraw energy from the ERCOT System only when dispatched by SCED to do so. An ESR may telemeter a status of OUTL only if the ESR is in Outage status.

[NPRR930, NPRR1000, NPRR1010, NPRR1014, NPRR1019, and NPRR1204: Replace applicable portions of Section 6.5.7.3 above with the following upon system implementation for NPRR930, NPRR1000, NPRR1014, or NPRR1019; or upon system implementation of the Real-Time Co-Optimization (RTC) project for NPRR1010 and NPRR1204:]

6.5.7.3 Security Constrained Economic Dispatch

(1) The SCED process is designed to simultaneously manage energy, Ancillary Services, the system power balance and network congestion through Resource Base Points, Ancillary Service awards, and the calculation of LMPs and Real-Time MCPCs approximately every five minutes, or more frequently if necessary. The SCED process uses a two-step methodology that applies mitigation to offers for energy prospectively to resolve Non-Competitive Constraints for the current Operating Hour. The SCED process evaluates Energy Offer Curves, Energy Bid/Offer Curves, Ancillary Service Offers, Output Schedules and ~~Real-Time Market (RTM)~~ Energy Bid Curves to determine Resource Dispatch Instructions and Ancillary Service awards by maximizing bid-based revenues minus offer-based costs, subject to power balance, Ancillary Service Demand Curves (ASDCs), 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. In addition, the SCED process accounts for each ESR's State of Charge (SOC) and SOC operating limits. This is to ensure that the SCED process will issue ESR Base Points and Ancillary Services that are feasible taking into account SCED duration requirements for energy and Ancillary Services and also that do not violate the ESR's Minimum State of Charge (MinSOC) and Maximum State of Charge (MaxSOC) limits.

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

(3) In the Generation To Be Dispatched (GTBD) determined by LFC, ERCOT shall subtract the sum of the telemetered net real power consumption from all Controllable Load Resources (CLRs) available to SCED.

(4) For use as SCED inputs for determining energy dispatch and Ancillary Service awards, ERCOT shall use the available capacity of all committed Generation Resources by creating proxy Energy Offer Curves for certain Resources as follows:

(a) Non-IRRs without Energy Offer Curves

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

(A) Each non-IRR for which its QSE has submitted an Output Schedule instead of an Energy Offer Curve.

MW	Price (per MWh)
HSL	RTSWCAP
Output Schedule MW plus 1 MW	RTSWCAP minus $0.01
Output Schedule MW	-$249.99
LSL	-$250.00

(b) Non-IRRs without full-range Energy Offer Curves

(i) For each non-IRR 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 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 submitted Energy Offer Curve)	Price associated with highest MW in submitted Energy Offer Curve

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

(c) IRRs

(i) For each IRR 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	$1,500
HSL minus 1 MW	-$249.99
LSL	-$250.00

(ii) For each IRR for which its QSE has submitted an Energy Offer Curve that does not cover the full range of the IRR's available capacity, ERCOT shall create a monotonically increasing proxy Energy Offer Curve as described below:

MW	Price (per MWh)
HSL (if more than highest MW in submitted Energy Offer Curve)	Price associated with the highest MW in submitted Energy Offer Curve
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) RUC-committed Resources

(i) For each RUC-committed Resource that has not submitted an Energy Offer Curve, ERCOT shall create a proxy Energy Offer Curve as described below:

MW	Price (per MWh)
HSL	$250
Zero	$250