

Commercial Operations Market Guide

March 1, 2017

Commercial Operations Market Guide

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Section 1: Purpose

August 1, 2010

1 PURPOSE.....1

1 PURPOSE

- (1) The Commercial Operations Market Guide (COPMG) contains information for Market Participants that describes the processes through which the ERCOT commercial operations market data is translated into financial Settlements. These processes include, but are not limited to, the application of Load Profiles, Data Aggregation, Data Extract Variance (DEV) resolutions, Congestion Revenue Rights (CRRs) Settlements, Qualified Scheduling Entity (QSE) Settlements, invoicing and dispute resolution. Commercial operations market data includes, but is not limited to, Electric Service Identifier (ESI ID) and Resource ID (RID) data, registration information, Load Profiles, aggregated Load and generation values, data extracts and market operations data.
- (2) The COPMG is not a substitute for the ERCOT Protocols or the Public Utility Commission of Texas (PUCT) Substantive Rules. Each Market Participant shall comply with the ERCOT Protocols and the PUCT Substantive Rules. In the event of a conflict between the ERCOT Protocols or PUCT Substantive Rules, the ERCOT Protocols and PUCT Substantive Rules take precedence over the COPMG.
- (3) The most recent version of the COPMG is posted on the ERCOT website.

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Section 2: Definitions and Acronyms

December 1, 2010

- 2 DEFINITIONS AND ACRONYMS.....Error! Bookmark not defined.**
- 2.1 Definitions 1
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2 DEFINITIONS AND ACRONYMS

Relevant terms and definitions used in this document can be found in Protocol Section 2, Definitions and Acronyms. Full text of the document is available on the ERCOT website. Sections 2.1, Definitions, and 2.2, Acronyms and Abbreviations, contain definitions and acronyms for terms not defined in the ERCOT Protocols.

2.1 Definitions

[This section intentionally left blank.]

2.2 Acronyms

[This section intentionally left blank.]

Commercial Operations Market Guide

Section 3: Organizational Structure

June 1, 2016

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3 ORGANIZATIONAL STRUCTURE

3.1 Electric Reliability Council of Texas

- (1) The functions of ERCOT are outlined in Protocol Section 1.2, Functions of ERCOT. In addition, Customer registration information can be found in Protocol Section 15, Customer Registration. As part of the certification process Competitive Retailers (CRs) and Transmission and/or Distribution Service Providers (TDSPs) must complete ERCOT registration requirements as described in Protocol Section 16, Registration and Qualification of Market Participants.

3.1.1 ERCOT Wholesale Client Services

- (1) ERCOT's Wholesale Client Services department is available to assist with Market Participant questions and provide education as needed on wholesale issues. Wholesale Account Managers act as the liaison between ERCOT and Market Participants as the primary contact for all wholesale market operational questions and issues and are responsible for maintaining business relationships with all Market Participants to facilitate any issue resolution. Wholesale Account Managers also address the needs of Market Participants during the registration/qualification process and actively participate in the stakeholder process to communicate and resolve issues, and monitor the rules of the market to assist Market Participants with any questions/issues. Wholesale Account Managers are also responsible for researching and resolving Settlement disputes. Wholesale Client Services is also responsible for generating and distributing market notices, Market Participant registration, and market education/training.
- (2) In addition, the Wholesale Client Services department also assists with the following:
 - (a) ERCOT Protocols;
 - (b) Market Participant registration information;
 - (c) ERCOT tools such as the ERCOT website and the Market Information System (MIS);
 - (d) Scheduling;
 - (e) Reports and extracts;
 - (f) Training needs; and
 - (g) Facilitation and general issue resolution.
- (3) Existing Market Participants should contact their assigned Wholesale Account Manager. Potential new Market Participants may call the general ERCOT Client Services phone

number at (512) 248-3900 or contact ERCOT Client Services via e-mail at ClientServices@ercot.com.

3.1.2 *ERCOT Retail Client Services*

- (1) The functions of ERCOT's Retail Client Services department are outlined in Retail Market Guide Section 5.1, ERCOT Retail Client Services.

3.1.3 *Help Desk*

- (1) The ERCOT Helpdesk is available as a 24x7 technical support resource. Any technical issues with ERCOT systems should be reported to the Help Desk. For technical questions about automated communications, connectivity issues such as North American Energy Standards Board (NAESB) Electronic Delivery Mechanism (EDM) or MIS, information technology support, data, and system administration issues, Market Participants should call or e-mail ERCOT's 24-hour Help Desk at (512) 248-6800 or helpdesk@ercot.com.

3.2 **Commercial Operations Subcommittee (COPS)**

- (1) The Commercial Operations Subcommittee (COPS), reporting to the Technical Advisory Committee (TAC), addresses the processes through which ERCOT market data is translated into Settlements. Commercial operations include the application of Load Profiles, Data Aggregation, Data Extract Variances (DEVs), Congestion Revenue Rights (CRRs) Settlements, Qualified Scheduling Entity (QSE) Settlements, invoicing, and dispute resolution.
- (2) COPS improves commercial operations by integrating the retail variance and wholesale market Settlements processes, including dispute resolution. COPS also addresses the Settlement Calendar, Settlement-related performance metrics and tracking, Market Participant data needs for shadow Settlements, and the market's overall needs for data extracts, delivery and presentation.
- (3) COPS has several working groups that are in place to allow Market Participants the opportunity to participate in developing business rules and practices that govern the commercial operations of the ERCOT electric market. These working groups are described below. Additional information about the working groups is available on the ERCOT website.

3.2.1 *Communications and Settlements Working Group (CSWG)*

- (1) The Communications and Settlements Working Group (CSWG), reporting to COPS, is responsible for the development, review and maintenance of the ERCOT Commercial

Operations Market Guide (COPMG), with its primary focus on Settlements between ERCOT and QSEs.

- (2) CSWG is also responsible for advising ERCOT on the content, format and frequency of communication, which is used by ERCOT to ensure that all Market Participants receive timely and accurate market information regarding commercial operations, market rules and system changes. CSWG also, reporting to COPS, is responsible for ensuring COPS' involvement in extracts, data delivery, data presentation and reports for financial Settlement and Data Aggregation processes.
- (3) CSWG focuses on aiding ERCOT and Market Participants with the following:
 - (a) Reviewing financial Settlement and Data Aggregation System (DAS) design and operations;
 - (b) Providing a forum to discuss issues addressing Settlement; and
 - (c) Reviewing the details and requirements of data extracts and reports.

3.2.2 Profiling Working Group (PWG)

- (1) The Profiling Working Group (PWG), reporting to COPS, acts as a forum in which Market Participants may help facilitate changes to the market rules pertaining to Load Profiling issues as reflected in the Protocols and the Load Profiling Guide (LPG).
- (2) PWG is involved in all policy issues and some operational aspects of Load Profiling. Responsibilities include:
 - (a) Maintaining and upholding Protocol Section 18, Load Profiling;
 - (b) Developing and maintaining the LPG;
 - (c) Reviewing requested changes to Load Profiles, Load Profiling methodologies, and the implementation of the Load Profiling process;
 - (d) Reviewing and making recommendations for changes to the Profile Decision Tree;
 - (e) Helping define Weather Zones and Load Profile Types; and
 - (f) Evaluating the validation and assignment processes for Load Profile IDs.

3.2.3 Market Data Working Group (MDWG)

- (1) The Market Data Working Group (MDWG), reporting to COPS, provides a forum for discussion, input, and comment on the resolution of market data transparency issues

related to Market Information System (MIS), External Web Services, and User Interface/extract/report changes.

- (2) MDWG is involved in and provides consistent direction for market data issues including data output, data access, data accuracy, data classification, and in some cases, format and content of data posted for Market Participants. Responsibilities include:
 - (a) Data output, including but not limited to report formats, Service Level Agreements, documentation and training;
 - (b) Data access, including but not limited to the ERCOT Public website, alerts and notifications, the MIS, and External Web Services;
 - (c) Data accuracy, including but not limited to report corrections and report enhancements; and
 - (d) Data classification, including but not limited to Public, Secure, and Certified classifications, and Digital Certificates.

3.2.4 Task Forces

- (1) COPS may form ad hoc task forces with representation on each task force being appointed or approved by COPS. The members of the task force elect a chair and vice chair, subject to confirmation by COPS, for a one-year term, on a calendar year basis or until the task force is no longer required. COPS will direct these task forces and make assignments as necessary.

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Section 4: Process for Commercial Operations Market Guide Revision

January 1, 2017

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4 PROCESS FOR COMMERCIAL OPERATIONS MARKET GUIDE REVISION

4.1 Introduction

- (1) A request to make additions, edits, deletions, revisions, or clarifications to this Commercial Operations Market Guide (COPMG), including any attachments and exhibits to this COPMG, is called a Commercial Operations Market Guide Revision Request (COPMGRR). Except as specifically provided in other sections of the COPMG, this Section 4, Process for Commercial Operations Market Guide Revision, shall be followed for all COPMGRRs. ERCOT Members, Market Participants, Public Utility Commission of Texas (PUCT) Staff, the Reliability Monitor, the Independent Market Monitor (IMM), the North American Electric Reliability Corporation (NERC) Regional Entity, ERCOT, and any other Entities are required to utilize the process described herein prior to requesting, through the PUCT or other Governmental Authority, that ERCOT make a change to this COPMG, except for good cause shown to the PUCT or other Governmental Authority.
- (2) The “next regularly scheduled meeting” of the Communications and Settlements Working Group (CSWG), the COPS, the Technical Advisory Committee (TAC) or the ERCOT Board shall mean the next regularly scheduled meeting for which required Notice can be timely given regarding the item(s) to be addressed, as specified in the appropriate ERCOT Board or committee procedures.
- (3) Throughout the COPMG, references are made to the ERCOT Protocols. ERCOT Protocols supersede the COPMG and any COPMGRR must be compliant with the ERCOT Protocols. The ERCOT Protocols are subject to the revision process outlined in Protocol Section 21, Revision Request Process.
- (4) ERCOT may make non-substantive corrections at any time during the processing of a particular COMPGRR. Under certain circumstances, however, the COPMG can also be revised by ERCOT rather than using the COPMGRR process outlined in this Section.
 - (a) This type of revision is referred to as an “Administrative COPMGRR” or “Administrative Changes” and shall consist of non-substantive corrections, such as typos (excluding grammatical changes), internal references (including table of contents), improper use of acronyms, references to ERCOT Protocols, PUCT Substantive Rules, the Public Utility Regulatory Act (PURA), NERC regulations, Federal Energy Regulatory Commission (FERC) rules, etc., and revisions for the purpose of maintaining consistency between Section 4, Process for Commercial Operations Market Guide Revision, and Protocol Section 21, Revision Request Process.
 - (b) ERCOT shall post such Administrative COPMGRRs on the ERCOT website and distribute the COPMGRRs to the CSWG at least ten Business Days before implementation. If no Entity submits comments to the Administrative COPMGRR, in accordance with paragraph (1) of Section 4.4.3, Communications and Settlements Working Group Review and Action, ERCOT shall implement it

according to paragraph (4) of Section 4.7, Revision Implementation. If any ERCOT Member, Market Participant, PUCT Staff, the Reliability Monitor, the NERC Regional Entity, the IMM, or ERCOT submits comments to the Administrative COPMGRR, then it shall be processed in accordance with the COPMGRR process outlined in this Section 4.

4.2 Submission of a Commercial Operations Market Guide Revision Request

- (1) The following Entities may submit a Commercial Operations Market Guide Revision Request (COPMGRR):
 - (a) Any Market Participant;
 - (b) Any ERCOT Member;
 - (c) Public Utility Commission of Texas (PUCT) Staff;
 - (d) The Reliability Monitor;
 - (e) The North American Electric Reliability Corporation (NERC) Regional Entity;
 - (f) The Independent Market Monitor (IMM);
 - (g) ERCOT; and
 - (h) Any other Entity that meets the following qualifications:
 - (i) Resides (or represents residents) in Texas or operates in the Texas electricity market; and
 - (ii) Demonstrates that Entity (or those it represents) is affected by the Customer Registration or Renewable Energy Credit (REC) Trading Program sections of the ERCOT Protocols.

4.3 Communications and Settlements Working Group

- (1) The Communications and Settlements Working Group (CSWG) shall review and recommend action on formally submitted Commercial Operations Market Guide Revision Requests (COPMGRRs), provided that:
 - (a) CSWG meetings are open to ERCOT, ERCOT Members, Market Participants, the Reliability Monitor, the North American Electric Reliability Corporation (NERC) Regional Entity, the Independent Market Monitor (IMM), and the Public Utility Commission of Texas (PUCT) Staff; and
 - (b) Each Market Segment is allowed to participate.

- (2) Where additional expertise is needed, the CSWG may request that COPS refer a COPMGRR to existing Technical Advisory Committee (TAC) subcommittees, working groups or task forces for review and comment on the COPMGRR. Suggested modifications—or alternative modifications if a consensus recommendation is not achieved by a non-voting working group or task force to the COPMGRR should be submitted by the chair or the chair’s designee on behalf of the commenting subcommittee, working group or task force as comments on the COPMGRR for consideration by CSWG. However, the CSWG shall retain ultimate responsibility for the processing of all COPMGRRs.
- (3) The CSWG shall ensure that the COPMG is compliant with the ERCOT Protocols. As such, the CSWG will monitor all changes to the ERCOT Protocols and initiate any COPMGRRs necessary to bring the COPMG in conformance with the ERCOT Protocols. The CSWG shall also initiate a Nodal Protocol Revision Request (NPRR) if such a change is necessary to accommodate a proposed COPMGRR prior to proceeding with that COPMGRR.
- (4) ERCOT shall consult with the CSWG chair to coordinate and establish the meeting schedule for the CSWG. The CSWG shall meet at least once per month, unless no COPMGRRs were submitted during the prior 24 days, and shall ensure that reasonable advance notice of each meeting, including the meeting agenda, is posted on the ERCOT website.

4.4 Commercial Operations Market Guide Revision Procedure

4.4.1 Review and Posting of Commercial Operations Market Guide Revision Requests

- (1) Commercial Operations Market Guide Revision Requests (COPMGRRs) shall be submitted electronically to ERCOT by completing the designated form provided on the ERCOT website. Excluding ERCOT-sponsored COPMGRRs, ERCOT shall provide an electronic return receipt response to the submitter upon receipt of the COPMGRR.
- (2) The COPMGRR shall include the following information:
 - (a) Description of requested revision and reason for suggested change;
 - (b) Impacts and benefits of the suggested change on ERCOT market structure, ERCOT operations, and Market Participants, to the extent that the submitter may know this information;
 - (c) List of affected Commercial Operations Market Guide (COPMG) sections and subsections;
 - (d) General administrative information (organization, contact name, etc.); and
 - (e) Suggested language for requested revision.

- (3) ERCOT shall evaluate the COPMGRR for completeness and shall notify the submitter, within five Business Days of receipt, if the COPMGRR is incomplete, including the reasons for such status. ERCOT may provide information to the submitter that will correct the COPMGRR and render it complete. An incomplete COPMGRR shall not receive further consideration until it is completed. In order to pursue the COPMGRR, a submitter must submit a completed version of the COPMGRR.
- (4) If a submitted COPMGRR is complete or upon completion of a COPMGRR, ERCOT shall post the COPMGRR on the ERCOT website and distribute to the Communications and Settlements Working Group (CSWG) within three Business Days.
- (5) For any ERCOT-sponsored COPMGRR, ERCOT shall also post an initial Impact Analysis on the ERCOT website, and distribute it to the CSWG. The initial Impact Analysis will provide CSWG with guidance as to potential ERCOT computer systems, operations, or business functions that could be affected by the submitted COPMGRR.

4.4.2 Withdrawal of a Commercial Operations Market Guide Revision Request

- (1) A submitter may withdraw or request to withdraw a COPMGRR by submitting a completed Request for Withdrawal form provided on the ERCOT website. ERCOT shall post the submitter's Request for Withdrawal on the ERCOT website within three Business Days of submittal.
- (2) The submitter of a COPMGRR may withdraw the COPMGRR at any time before the CSWG recommends approval of the COPMGRR. If the CSWG has recommended approval of the COPMGRR, the Request for Withdrawal must be approved by the COPS if the COPMGRR has not yet been recommended for approval by COPS.
- (3) If COPS has recommended approval of the COPMGRR, the Request for Withdrawal must be approved by the Technical Advisory Committee (TAC) if the COPMGRR has not yet been approved or recommended for approval by TAC.
- (4) If TAC has recommended approval of a COPMGRR that requires an ERCOT project for implementation, the Request for Withdrawal must be approved by the ERCOT Board if the COPMGRR has not yet been approved by the ERCOT Board.
- (5) Once a COPMGRR that requires an ERCOT project for implementation is approved by the ERCOT Board or a COPMGRR that does not require an ERCOT project for implementation is approved by the TAC, such COPMGRR cannot be withdrawn.

4.4.3 Communications and Settlements Working Group Review and Action

- (1) Any ERCOT Member, Market Participant, the PUCT, Reliability Monitor, NERC Regional Entity, the IMM, or ERCOT may comment on the COPMGRR.

- (2) To receive consideration, comments must be delivered electronically to ERCOT in the designated format provided on the ERCOT website within 14 days from the posting date of the COPMGRR. Comments submitted after the 14 day comment period may be considered at the discretion of CSWG after these comments have been posted. Comments submitted in accordance with the instructions on the ERCOT website, regardless of date of submission, shall be posted on the ERCOT website and distributed to the CSWG within three Business Days of submittal.
- (3) The CSWG shall consider the COPMGRR at its next regularly scheduled meeting after the end of the 14 day comment period. At such meeting, the CSWG may take action on the COPMGRR. In considering action on a COPMGRR, the CSWG may:
 - (a) Recommend approval of the COPMGRR as submitted or as modified;
 - (b) Recommend rejection of the COPMGRR;
 - (c) If no consensus can be reached on the COPMGRR, present options for COPS consideration;
 - (d) Defer decision on the COPMGRR; or
 - (e) Recommend that COPS refer the COPMGRR to another subcommittee, working group, or task force, as provided in Section 4.3, Communications and Settlements Working Group.
- (4) Within three Business Days after CSWG takes action, ERCOT shall post a CSWG Report reflecting the CSWG action on the ERCOT website. The CSWG Report shall contain the following items:
 - (a) Identification of submitter of the COPMGRR;
 - (b) COPMG language recommended by the CSWG, if applicable;
 - (c) Identification of authorship of comments;
 - (d) Proposed effective date(s) of the COPMGRR;
 - (e) Recommended priority and rank for any COPMGRRs requiring an ERCOT project for implementation; and
 - (f) CSWG action.

4.4.4 Comments to the Communications and Settlements Working Group Report

- (1) Any ERCOT Member, Market Participant, PUCT Staff, the Reliability Monitor, the NERC Regional Entity, the IMM, or ERCOT may comment on the CSWG Report. Comments submitted in accordance with the instructions on the ERCOT website, regardless of date of submission, shall be posted on the ERCOT website and distributed

to the working group or committee(s) (i.e., CSWG and/or COPS) considering the COPMGRR within three Business Days of submittal.

- (2) The comments on the CSWG Report will be considered at the next regularly scheduled CSWG or COPS meeting where the COPMGRR is being considered.

4.4.5 Commercial Operations Market Guide Revision Request Impact Analysis

- (1) If CSWG recommends approval of a COPMGRR, ERCOT shall prepare an Impact Analysis based on the proposed language in the CSWG Report. If ERCOT has already prepared an Impact Analysis, ERCOT shall update the existing Impact Analysis, if necessary, to accommodate the language recommended for approval in the CSWG Report.
- (2) The Impact Analysis shall assess the impact of the proposed COPMGRR on ERCOT staffing, computer systems, operations, or business functions and shall contain the following information:
 - (a) An estimate of any cost and budgetary impacts to ERCOT for both implementation and ongoing operations;
 - (b) The estimated amount of time required to implement the COPMGRR;
 - (c) The identification of alternatives to the COPMGRR that may result in more efficient implementation; and
 - (d) The identification of any manual workarounds that may be used as an interim solution and estimated costs of the workaround.
- (3) Unless a longer review period is warranted due to the complexity of the proposed CSWG Report, ERCOT shall post an Impact Analysis on the ERCOT website, for a COPMGRR for which CSWG has recommended approval of prior to the next regularly scheduled CSWG meeting, and distribute to CSWG. If a longer review period is required by ERCOT to complete an Impact Analysis, ERCOT shall submit comments with a schedule for completion of the Impact Analysis.

4.4.6 Communications and Settlements Working Group Review of Impact Analysis

- (1) After ERCOT posts the results of the Impact Analysis, CSWG shall review the Impact Analysis at its next regularly scheduled meeting. CSWG may revise its CSWG Report after considering the information included in the Impact Analysis or additional comments received on the CSWG Report.
- (2) Within three Business Days of CSWG consideration of the Impact Analysis and CSWG Report, ERCOT shall post the CSWG Report on the ERCOT website. If CSWG revises the CSWG Report, ERCOT shall update the Impact Analysis, if necessary, post the

updated Impact Analysis on the ERCOT website, and distribute it to the working group or committee (i.e., CSWG and/or COPS) considering the Impact Analysis. If a longer review period is required for ERCOT to update the Impact Analysis, ERCOT shall submit comments with a schedule for completion of the Impact Analysis.

- (3) If the COPMGRR requires an ERCOT project for implementation, at the same meeting, CSWG shall assign a recommended priority and rank for the associated project.

4.4.7 Commercial Operations Subcommittee Vote

- (1) COPS shall consider any COPMGRRs that CSWG has submitted to COPS for consideration for which both a CSWG Report and an Impact Analysis (as updated if modified by CSWG under Section 4.4.6, Communications and Settlements Working Group Review of Impact Analysis) have been posted on the ERCOT website. The following information must be included for each COPMGRR considered by COPS:
 - (a) The CSWG Report and Impact Analysis; and
 - (b) Any comments timely received in response to the CSWG Report.
- (2) The quorum and voting requirements for COPS action are set forth in the Technical Advisory Committee Procedures. In considering action on a CSWG Report, COPS shall:
 - (a) Recommend approval of the COPMGRR as recommended in the CSWG Report or as modified by COPS;
 - (b) Reject the COPMGRR;
 - (c) Defer decision on the COPMGRR;
 - (d) Remand the COPMGRR to the CSWG with instructions; or
 - (e) Refer the COPMGRR to another COPS working group or task force or another TAC subcommittee with instructions.
- (3) If a motion is made to recommend approval of a COPMGRR and that motion fails, the COPMGRR shall be deemed rejected by COPS unless at the same meeting COPS later votes to recommend approval of, defer, remand, or refer the COPMGRR. If a motion to recommend approval of a COPMGRR fails via e-mail vote according to the Technical Advisory Committee Procedures, the COPMGRR shall be deemed rejected by COPS unless at the next regularly scheduled COPS meeting or in a subsequent e-mail vote prior to such meeting, COPS votes to recommend approval of, defer, remand, or refer the COPMGRR. The rejected COPMGRR shall be subject to appeal pursuant to Section 4.5, Appeal of Action.

- (4) Within three Business Days after COPS takes action on the COPMGRR, ERCOT shall post a COPS Report reflecting the COPS action and on the ERCOT website. The COPS Report shall contain the following items:
- (a) Identification of the submitter of the COPMGRR;
 - (b) Modified COPMG language proposed by COPS, if applicable;
 - (c) Identification of the authorship of comments, if applicable;
 - (d) Proposed effective date(s) of the COPMGRR;
 - (e) Recommended priority and rank for any COPMGRR requiring an ERCOT project for implementation;
 - (f) CSWG action; and
 - (g) COPS action.

4.4.8 ERCOT Impact Analysis Based on Commercial Operations Subcommittee Report

- (1) ERCOT shall review the COPS Report and, if necessary, update the Impact Analysis as soon as practicable. ERCOT shall distribute the updated Impact Analysis, if applicable, to the TAC and post it on the ERCOT website. If a longer review period is required for ERCOT to update the Impact Analysis, ERCOT shall submit comments with a schedule for completion of the Impact Analysis.

4.4.9 Protocol Revision Subcommittee Review of Project Prioritization

- (1) At the next regularly scheduled Protocol Revision Subcommittee (PRS) meeting after COPS recommends approval of a COPMGRR that requires an ERCOT project for implementation, the PRS shall assign a recommended priority and rank for the associated project.

4.4.10 Technical Advisory Committee Vote

- (1) TAC shall consider any COPMGRR that COPS has submitted to TAC for consideration for which both a COPS Report and an Impact Analysis (as updated if modified by COPS under Section 4.4.8, ERCOT Impact Analysis Based on Commercial Operations Subcommittee Report) have been posted on the ERCOT website. The following information must be included for each COPMGRR considered by TAC:
- (a) The COPS Report and Impact Analysis;
 - (b) The recommended priority and rank, if an ERCOT project is required; and

- (c) Any comments timely received in response to the COPS Report.
- (2) The quorum and voting requirements for TAC action are set forth in the Technical Advisory Committee Procedures. In considering action on a COPS Report, TAC shall:
- (a) Approve the COPMGRR as recommended in the COPS Report or as modified by TAC, if the COPMGRR does not require an ERCOT project for implementation;
 - (b) Recommend approval of the COPMGRR as recommended in the COPS Report or as modified by TAC, including modification of the recommended priority and rank if the COPMGRR requires an ERCOT project for implementation;
 - (c) Reject the COPMGRR;
 - (d) Defer decision on the COPMGRR;
 - (e) Remand the COPMGRR to COPS with instructions; or
 - (f) Refer the COPMGRR to another TAC subcommittee or a TAC working group or task force with instructions.
- (3) If a motion is made to approve or recommend approval of a COPMGRR and that motion fails, the COPMGRR shall be deemed rejected by TAC unless at the same meeting TAC later votes to approve, recommend approval of, defer, remand or refer the COPMGRR. If a motion to approve or recommend approval of a COPMGRR fails via e-mail vote according to the Technical Advisory Committee Procedures, the COPMGRR shall be deemed rejected by TAC unless at the next regularly scheduled TAC meeting or in a subsequent e-mail vote prior to such meeting, TAC votes to approve, recommend approval of, defer, remand, or refer the COPMGRR. The rejected COPMGRR shall be subject to appeal pursuant to Section 4.5, Appeal of Action.
- (4) Within three Business Days after TAC takes action on a COPMGRR, ERCOT shall post a TAC Report reflecting the TAC action on the ERCOT website. The TAC Report shall contain the following items:
- (a) Identification of the submitter of the COPMGRR;
 - (b) Modified COPMG language proposed by TAC, if applicable;
 - (c) Identification of the authorship of comments, if applicable;
 - (d) Proposed effective date(s) of the COPMGRR;
 - (e) Priority and rank for any COPMGRR requiring an ERCOT project for implementation;
 - (f) COPS action;
 - (g) TAC action; and

- (h) ERCOT's position for any COPMGRR requiring an ERCOT project for implementation.
- (5) If TAC recommends approval of a COPMGRR requiring an ERCOT project for implementation, ERCOT shall forward the TAC Report to the ERCOT Board for consideration pursuant to Section 4.4.11, ERCOT Board Vote.
- (6) The TAC chair shall report the results of all votes by TAC related to COPMGRRs to the ERCOT Board at its next regularly scheduled meeting.

4.4.11 ERCOT Board Vote

- (1) For any COPMGRR requiring an ERCOT project for implementation, upon issuance of a TAC Report and Impact Analysis to the ERCOT Board, the ERCOT Board shall review the TAC Report and the Impact Analysis at the next regularly scheduled meeting. For Urgent COPMGRRs, the ERCOT Board shall review the TAC Report and Impact Analysis at the next regularly scheduled meeting, unless a special meeting is required due to the urgency of the COPMGRR.
- (2) The quorum and voting requirements for ERCOT Board action are set forth in the ERCOT Bylaws. In considering action on a TAC Report, the ERCOT Board shall:
 - (a) Approve the COPMGRR as recommended in the TAC Report or as modified by the ERCOT Board;
 - (b) Reject the COPMGRR;
 - (c) Defer decision on the COPMGRR; or
 - (d) Remand the COPMGRR to TAC with instructions.
- (3) If a motion is made to approve a COPMGRR and that motion fails, the COPMGRR shall be deemed rejected by the ERCOT Board unless at the same meeting the ERCOT Board later votes to approve, defer, or remand the COPMGRR. The rejected COPMGRR shall be subject to appeal pursuant to Section 4.5, Appeal of Action.
- (4) Within three Business Days after the ERCOT Board takes action on a COPMGRR, ERCOT shall post a Board Report reflecting the ERCOT Board action on the ERCOT website.

4.5 Appeal of Action

- (1) Any ERCOT Member, Market Participant, the Public Utility Commission of Texas (PUCT) Staff, the Reliability Monitor, the Independent Market Monitor (IMM), the North American Electric Reliability Corporation (NERC) Regional Entity, or ERCOT may appeal a Communications and Settlements Working Group (CSWG) action to

recommend rejection of, defer, or recommend referral of a Commercial Operations Market Guide Revision Request (COPMGRR) directly to the COPS. Such appeal to the COPS must be submitted electronically to ERCOT by completing the designated form provided on the ERCOT website within seven days after the date of the relevant CSWG appealable event. ERCOT shall reject appeals made after that time. ERCOT shall post appeals on the ERCOT website within three Business Days of receiving the appeal. Appeals shall be heard at the next regularly scheduled COPS meeting that is at least seven days after the date of the requested appeal. An appeal of a COPMGRR to COPS suspends consideration of the COPMGRR until the appeal has been decided by COPS.

- (2) Any ERCOT Member, Market Participant, PUCT Staff, the Reliability Monitor, the IMM, the NERC Regional Entity, or ERCOT may appeal a COPS action to reject, defer, remand or refer a COPMGRR directly to the Technical Advisory Committee (TAC). Such appeal to the TAC must be submitted electronically to ERCOT by completing the designated form provided on the ERCOT website within seven days after the date of the relevant COPS appealable event. ERCOT shall reject appeals made after that time. ERCOT shall post appeals on the ERCOT website within three Business Days of receiving the appeal. Appeals shall be heard at the next regularly scheduled TAC meeting that is at least seven days after the date of the requested appeal. An appeal of a COPMGRR to TAC suspends consideration of the COPMGRR until the appeal has been decided by TAC.
- (3) Any ERCOT Member, Market Participant, PUCT Staff, the Reliability Monitor, the IMM, the NERC Regional Entity, or ERCOT may appeal a TAC action to approve, reject, defer, remand or refer a COPMGRR directly to the ERCOT Board. Appeals to the ERCOT Board shall be processed in accordance with the ERCOT Board Policies and Procedures. An appeal of a COPMGRR to the ERCOT Board suspends consideration of the COPMGRR until the appeal has been decided by the ERCOT Board.
- (4) Any ERCOT Member, Market Participant, PUCT Staff, the Reliability Monitor, the IMM, or the NERC Regional Entity may appeal any decision of the ERCOT Board regarding a COPMGRR to the PUCT or other Governmental Authority. Such appeal to the PUCT or other Governmental Authority must be made within any deadline prescribed by the PUCT or other Governmental Authority, but in any event no later than 35 days of the date of the relevant ERCOT Board appealable event. Notice of any appeal to the PUCT or other Governmental Authority must be provided, at the time of the appeal, to ERCOT's General Counsel. If the PUCT or other Governmental Authority rules on the COPMGRR, ERCOT shall post the ruling on the ERCOT website.

4.6 Urgent Requests

- (1) The party submitting a Commercial Operations Market Guide Revision Request (COPMGRR) may request that the COPMGRR be considered on an urgent timeline ("Urgent") only when the submitter can reasonably show that an existing Commercial Operations Market Guide (COPMG) provision is impairing or could imminently impair ERCOT System reliability or wholesale or retail market operations, or is causing or could

imminently cause a discrepancy between a Settlement formula and a provision of the ERCOT Protocols.

- (2) The Commercial Operations Subcommittee (COPS) may designate the COPMGRR for Urgent consideration if a submitter requests Urgent status or upon valid motion in a regularly scheduled meeting of the COPS. Criteria for designating a COPMGRR as Urgent are that the COPMGRR requires immediate attention due to:
 - (a) Serious concerns about ERCOT System reliability or market operations under the unmodified language; or
 - (b) The crucial nature of Settlement activity conducted pursuant to any Settlement formula.
- (3) ERCOT shall prepare an Impact Analysis for Urgent COPMGRRs as soon as practicable.
- (4) COPS or the Communications and Settlements Working Group (CSWG) shall consider the Urgent COPMGRR and Impact Analysis, if available, at the next regularly scheduled COPS or CSWG meeting, or at a special meeting called by the COPS or CSWG leadership to consider the Urgent COPMGRR.
- (5) If the submitter desires to further expedite processing of the COPMGRR, a request for voting via e-mail may be submitted to the COPS chair. The COPS chair may grant the request for voting via e-mail. Such voting shall be conducted pursuant to the Technical Advisory Committee Procedures.
- (6) If recommended for approval by COPS, ERCOT shall post a COPS Report on the ERCOT website within three Business Days after COPS takes action. The Technical Advisory Committee (TAC) chair may request action from TAC to accelerate or alter the procedures described herein, as needed, to address the urgency of the situation.
- (7) Any Urgent COPMGRRs shall be subject to an Impact Analysis pursuant to Section 4.4.8, ERCOT Impact Analysis Based on Commercial Operations Subcommittee Report, and TAC consideration pursuant to Section 4.4.10, Technical Advisory Committee Vote.

4.7 Revision Implementation

- (1) For Commercial Operations Market Guide Revision Requests (COPMGRRs) that do not require an ERCOT project for implementation, upon Technical Advisory Committee (TAC) approval, ERCOT shall implement the COPMGRRs on the first day of the month following TAC approval, unless otherwise provided in the TAC Report for the approved COPMGRR.
- (2) For COPMGRRs that require an ERCOT project for implementation, upon ERCOT Board approval, ERCOT shall implement COPMGRRs on the first day of the month

following ERCOT Board approval, unless otherwise provided in the Board Report for the approved COPMGRR.

- (3) For COPMGRRs for which an effective date other than the first day of the month following TAC or ERCOT Board approval, as applicable, is provided, the ERCOT Impact Analysis shall provide an estimated amount of time required to implement the COPMGRR and ERCOT shall provide notice as soon as practicable, but no later than ten days prior to actual implementation unless a different notice period is required in the TAC or Board Report, as applicable, for the approved COPMGRR.
- (4) ERCOT shall implement an Administrative COPMGRR on the first day of the month following the end of the ten Business Day posting requirement outlined in Section 4.1, Introduction.

Commercial Operations Market Guide

Section 5: Market Notice Communication Process

June 1, 2016

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5 MARKET NOTICE COMMUNICATION PROCESS

5.1 ERCOT Market Notice Communication Process

- (1) ERCOT communicates information to the market as required in the Protocols and Other Binding Documents for scheduled releases, planned and unplanned service outages, business processing failures and other general information. ERCOT shall communicate information to the market as specified in this section.

5.1.1 Phases of Market Notices

- (1) When a series of Market Notices is required for the same subject, including but not limited to ERCOT system issues and business process failures, ERCOT shall send an initial Market Notice followed by one or more follow-up Market Notices and a final Market Notice.
- (a) Initial Market Notices may contain only minimal content describing the service that is impacted or not available, the issue, and the time the issue was identified.
- (b) One or more follow-up Market Notices may be issued depending on the duration of the event. Follow-up Market Notices contain progress reports and impacts. Follow-up Market Notices may include, in chronological order, the content of previous Market Notices associated with the initial Market Notice.
- (c) Final Market Notices will provide a timeline for the end of the event and/or actions taken to restore service.

5.1.2 Coding of Market Notices

- (1) Market Notices that are not system generated will be given unique tracking codes that identify the part of the ERCOT market impacted (retail, wholesale or market-wide), an identifier for the sequence of Market Notices of the same type (retail, wholesale or market-wide) sent on the same day, the date of the Market Notice, and the number of Market Notices in a series a particular Market Notice represents. This code will appear in the Notice Type section of the Market Notice (See Table 1, Market Notice Tracking Codes).

Table 1: Market Notice Tracking Codes			
	Unique Identifier	Notice Date	Sequence Number
System Generated	N/A	N/A	N/A
W = Wholesale	A = First topic Market Notice of a day	February 27, 2007 = 022707	01 = Initial Notice
R = Retail	B = Second topic Market Notice of a	March 15, 2007 =	02 = Second Notice

	day	031507	(Follow-up)
M = Market-Wide	C = Third topic Market Notice of the day, <i>etc.</i>	April 3, 2007 = 040307	03 = Third Notice (Follow-up)

(a) **Tracking Code Example 1:**

- (i) R-A120115-01 (Retail, First topic Market Notice for December 1, 2015, initial Market Notice)
- (ii) R-A120115-02 (Follow-up Market Notice same day)
- (iii) R-A120115-03 (Follow-up Market Notice next day)

(b) **Tracking Code Example 2:**

- (i) R-B120115-01 (Retail, Second topic Market Notice for December 1, 2015, initial Market Notice)

(c) **Tracking Code Example 3:**

- (i) M-A120115-01 (Market-Wide, First topic Market Notice for December 1, 2015, initial Market Notice)
- (ii) W-A120115-01 (Wholesale, First topic for December 1, 2015, initial Market Notice)

5.1.3 Timing of Market Notices

- (1) Unless the timing is specified in the Protocols or Other Binding Documents, ERCOT shall send Market Notices with the goal of communicating available information as soon as possible with subsequent Market Notices providing more details as the information becomes available.
- (2) ERCOT shall send Market Notices related to planned releases according to the following schedule:
 - (a) An initial Market Notice no later than 30 days prior to the start date of the release;
 - (b) A follow-up Market Notice no later than ten days prior to the start date of the release;
 - (c) A follow-up Market Notice no later than one day prior to the start date of the release; and
 - (d) A final Market Notice may be sent as soon as possible after the end of the release. Unless required by the Technical Advisory Committee (TAC) or any of its subcommittees, the sending of a final Market Notice shall be at ERCOT's discretion.

- (3) ERCOT shall send Market Notices related to planned maintenance outages according to the following schedule:
 - (a) An initial Market Notice no later than three days prior to the start date of the planned maintenance outage;
 - (b) A follow-up Market Notice no later than one day prior to the start date of the planned maintenance outage; and
 - (c) A final Market Notice may be sent as soon as possible after the end of the planned maintenance outage. Unless required by TAC or any of its subcommittees, the sending of a final Market Notice shall be at ERCOT's discretion.

5.1.4 System Generated Market Notices

- (1) ERCOT shall send system generated Market Notices as soon as an outage or degradation of service is detected in one or more of the following:
 - (a) Retail transaction processing;
 - (b) MarkeTrak; or
 - (c) Retail portions of the Market Information System (MIS).
- (2) System generated Market Notices for outages or degradation of service shall be sent to public e-mail distribution lists established for this purpose as described in Table 2, E-mail Notification Subscription Lists.
- (3) A system generated Market Notice shall be followed by a follow-up Market Notice for outages or degradation of service that last more than 30 minutes. The follow-up Market Notice shall be sent as soon as possible after the system generated Market Notice. For system generated Market Notices sent during Business Hours, except for those sent during the last hour of the Business Day, the follow-up Market Notice shall be sent before the end of the same business day in which the system generated Market Notice was sent. For system generated Market Notices sent outside of Business Hours or during the last hour of the Business Day, the follow-up Market Notice shall be sent as soon as possible during the following Business Day.
- (4) ERCOT shall post the system generated Market Notice on its website along with a red flag on its home page with a link to the location of the system generated Market Notice. The red flag shall be removed when the issue that triggered the system generated Market Notice is resolved.

5.1.5 Sample ERCOT Market Notices

- (1) **System Generated Market Notice**

NOTICE DATE: 12/01/15 10:09:48

NOTICE TYPE: Initial Outage Notice – Retail MIS

INTENDED AUDIENCE: Retail Operations Issues Subscribers

DAY AFFECTED: 12/01/15 10:00:00

DESCRIPTION: ERCOT is currently experiencing an issue with retail portions of the Market Information System (MIS).

ERCOT will provide additional information as it becomes available.

If you are receiving e-mail from an ERCOT distribution list that you no longer wish to receive, please follow this link in order to unsubscribe from this list:
<http://lists.ercot.com>.

(2) **Non System Generated Market Notice – Initial**

NOTICE DATE: August 12, 2015

NOTICE TYPE: M-A081215-01 Outage

SHORT DESCRIPTION: ERCOT has scheduled a maintenance outage for certain systems on Sunday, August 23, 2015

INTENDED AUDIENCE: Market Participants

DAY AFFECTED: Sunday, August 23, 2015 from 13:00 to 17:00

LONG DESCRIPTION: ERCOT has a planned maintenance outage scheduled on August 23, 2015 from 13:00 to 17:00 CPT. During the outage the following services may be unavailable:

- Find Transaction
- Market Data Transparency (MDT) Web Services
- Extract Subscriber

CONTACT: If you have any questions, please contact your ERCOT Account Manager. You may also call the general ERCOT Client Services phone number at (512) 248-3900 or contact ERCOT Client Services via e-mail at ClientServices@ercot.com.

(3) **Non System Generated Market Notice – Follow-up**

NOTICE DATE: August 21, 2015

NOTICE TYPE: M-A081215-02 Outage

SHORT DESCRIPTION: Reminder - ERCOT has scheduled a maintenance outage for certain systems on Sunday, August 23, 2015

INTENDED AUDIENCE: Market Participants

DAY AFFECTED: Sunday, August 23, 2015 from 13:00 to 17:00

LONG DESCRIPTION: ERCOT has a planned maintenance outage of certain systems scheduled on Sunday August 23, 2015 from 13:00 to 17:00 CPT. During the outage the following services may be unavailable:

- Find Transaction
- Market Data Transparency (MDT) Web Services
- Extract Subscriber

CONTACT: If you have any questions, please contact your ERCOT Account Manager. You may also call the general ERCOT Client Services phone number at (512) 248-3900 or contact ERCOT Client Services via e-mail at ClientServices@ercot.com.

5.1.6 Market Notice E-mail Distribution Lists

- (1) ERCOT shall send Market Notices to registered Market Participant contacts in its registration system for the Market Participant types impacted by the subject of the Market Notice.
- (2) ERCOT may escalate communication of Market Notices to TAC, its subcommittees, or any working groups or task forces of TAC or its subcommittees as appropriate, based on severity, duration and cross system impact of outages and business process failures. ERCOT may also conduct periodic conference calls with Market Participants and stakeholder groups in conjunction with escalation of Market Notices.
- (3) ERCOT shall maintain publicly subscribed e-mail distribution lists and use the lists to send Market Notices as shown in Table 2, E-mail Notification Subscription Lists, as applicable, based on the subject of each Market Notice.

Table 2: E-mail Notification Subscription Lists		
List Name	List Title	List Description
Contracts/Request for Proposal	Notice_Contracts@lists.ercot.com	Market Notices concerning Requests for Proposals (RFPs) and Requests for Information (RFIs) that are issued by ERCOT and for contracted services such as Reliability Must-Run (RMR) and Black Start.
Notice Credit	Notice_Credit@lists.ercot.com	Market Notices concerning

		management of credit in the ERCOT market.
Notice CRR	Notice_CRR@lists.ercot.com	Market Notices concerning Congestion Revenue Rights (CRRs).
MIS / Extracts - Retail	Notice_Extracts_Retail@lists.ercot.com	Market Notices about the ERCOT MIS, data extracts and reports, Web Services and market data delivery issues related to the ERCOT retail market.
MIS / Extracts Wholesale	Notice_Extracts_Wholesale@lists.ercot.com	Market Notices about the ERCOT MIS, data extracts and reports, Web Services and market data delivery issues related to the ERCOT wholesale market.
Notice_General	Notice_General@lists.ercot.com	Market Notices of a general nature intended for distribution to the ERCOT market, but not applicable to any other specific mailing list.
Legal Notification	Notice_Legal_Notifications@lists.ercot.com	Market Notices concerning the ERCOT market of a legal nature.
Operations	Notice_Operations@lists.ercot.com	Market Notices concerning grid operations and market operations issues at ERCOT.
NPRR/SCR	Notice_PRR_SCR@lists.ercot.com	Market Notices concerning system changes that include the implementation of Nodal Protocol Revision Requests (NPRRs) or System Change Requests (SCRs).
Outages – Retail	Notice_Outages_Retail@lists.ercot.com	Market Notices concerning system outages, business process failures, service degradations and related issues that affect retail market functions.
Outages – Wholesale	Notice_Outages_Wholesale@lists.ercot.com	Market Notices concerning system outages, business process failures, service degradations and related issues that affect wholesale market functions.
Releases – Retail	Notice_Release_Retail@lists.ercot.com	Market Notices concerning retail market changes included in ERCOT releases that affect retail market functions.
Releases –Wholesale	Notice_Release_Wholesale@lists.ercot.com	Market Notices concerning

		wholesale market changes included in ERCOT releases, and testing that affect wholesale market functions.
Retail Operations Issues	Notice_RetailOperationsIssues@lists.ercot.com	Market Notices concerning general retail market operations issues and system generated Market Notices related to unplanned retail system issues (Transaction Processing, MarkeTrak, Retail MIS).
Settlements	Notice_Settlements@lists.ercot.com	Market Notices concerning ERCOT market Settlements.
Testing – Retail	Notice_Testing_Retail@lists.ercot.com	Notices related to Market Participant testing with respect to retail test flights and retail systems testing.
Training	Notice_Training@lists.ercot.com	Distribution list for Market Notices of ERCOT-provided training events.

5.2 Market Participant Market Notice Communication Process

- (1) From time to time, Market Participants may communicate information to the market as required in the Protocols and Other Binding Documents and for planned maintenance, unplanned system outages or business processing failures, and other general information. Market Participants shall communicate information to the market as specified in this section.

5.2.1 Phases of Market Notices

- (1) Market Participants shall send Market Notices to ERCOT and other Market Participants with the goal of communicating available information as soon as possible with subsequent Market Notices providing more details as the information becomes available. When a series of Market Notices are required for the same subject, including but not limited to system issues and business process failures, Market Participants shall send an initial Market Notice followed by one or more follow-up Market Notices and a final Market Notice.
- (a) Initial Market Notices may contain only minimal content describing the service that is impacted or not available, the issue, and the time the issue was identified, if either are known. Any subsequent Market Notice may include previous Market Notices associated with the initial Market Notice in a chronological order.

- (b) Follow-up Market Notices may have multiple updates depending on the duration of the event and will contain progress reports and impacts.
- (c) Final Notices will provide a timeline for the end of the event and actions taken to restore service.

5.2.2 Coding of Market Notices

- (1) Market Notices will be given unique tracking codes that identify the part of the ERCOT market impacted (retail, wholesale or market-wide), an identifier for the sequence of Market Notices of the same type (retail, wholesale or market-wide) sent on the same day, the date of the Market Notice, and the number of Market Notices in a series a particular Market Notice represents. This code will appear in the Notice Type section of the Market Notice (See Table 1, Market Notice Tracking Codes).

Table 1: Market Notice Tracking Codes			
	Unique Identifier	Notice Date	Sequence Number
System Generated	N/A	N/A	N/A
W = Wholesale	A = First topic Market Notice of the day	February 27, 2007 = 022707	01 = Initial Notice
R = Retail	B = Second topic Market Notice of the day	March 15, 2007 = 031507	02 = Second Notice (update)
M = Market-Wide	C = Third topic Market Notice of the day, etc.	April 3, 2007 = 040307	03 = Third Notice (update)

(a) **Tracking Code Example 1:**

- (i) R-A022707-01 (Retail, First topic Market Notice for February 27, 2007, initial Notice)
- (ii) R-A022707-02 (Follow-up same day)
- (iii) R-A022707-03 (Follow-up next day)

(b) **Tracking Code Example 2:**

- (i) R-B022707-01 (Retail, Second topic Market Notice for February 27, 2007, initial Notice)

(c) **Tracking Code Example 3:**

- (i) M-A022707-01 (Market-Wide, First topic Market Notice for February 27, 2007, initial Notice)
- (ii) W-A022707-01 (Wholesale, First topic Market Notice for February 27, 2007, initial Notice)

5.2.3 *Sample Market Participant Market Notices*

Subject: [Market Participant name] [Subject matter [i.e., Planned Outage, Unplanned Outage, Informational]]

NOTICE DATE: [Date notice sent]

NOTICE TYPE: [Tracking Code] [Phase [i.e., Initial, Follow-Up, Final]]

SHORT DESCRIPTION: [Relevant to notice type, including any system or business process affected]

INTENDED AUDIENCE: [i.e., ERCOT and/or Competitive Retailers and/or Transmission and/or Distribution Service Providers (TDSPs)]

DAY AFFECTED: [Date and time of initial incident]

LONG DESCRIPTION: [Short description plus known relevant details plus affected system functionality]

SPECIFIC INSTRUCTIONS: [Optional] [i.e.: “Move In Processing affected, please use Retail Market Guide, Section 9, Appendices A1, Competitive Retailer Safety-Net Request, until further notice.”]

ADDITIONAL INFORMATION/COMMENTS: [Optional]

CONTACT: [i.e.: “If you have any questions, please contact [name and email address and/or phone number]”].

5.2.4 *Market Notice E-mail Distribution Lists*

- (1) Market Participants shall send Market Notices to the appropriate ERCOT stakeholder group distribution lists.

Commercial Operations Market Guide

Section 6

November 1, 2007

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Commercial Operations Market Guide

Section 7

November 1, 2007

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Commercial Operations Market Guide

Section 8: ERCOT Settlement and Invoice Process

October 1, 2015

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8 ERCOT SETTLEMENT AND INVOICE PROCESS

8.1 Invoice Process

The process for receiving the ERCOT daily Invoice based on Settlement Statements are documented in Protocol Section 9.6, Settlement Invoices for the Day-Ahead Market and Real-Time Market. This Section explains the process for Invoices that are not settled according to the Protocol timeline.

8.1.2 *Types of Ad Hoc Invoices*

The following are types of Settlements that will be invoiced on an ad hoc basis:

- (a) Recurring ad hoc charges - These are recurring ad hoc charges that are not included in other ERCOT market Settlement Invoices including the following:
 - (i) Wide Area Network (WAN) fee; and
 - (ii) Electric Reliability Organization (ERO) fee.
- (b) Other ad hoc Settlements - These are Settlements that are issued infrequently and are not included in ERCOT market Settlement Invoices including litigation and other undefined scenarios such as the following:
 - (i) Uplift of short pays;
 - (ii) Litigation; and
 - (iii) Other undefined scenarios.

8.1.3 *Method of Communication*

- (1) ERCOT will communicate with Market Participants regarding the posting of ad hoc Invoices by sending Market Notices to registered contacts of Market Participants and public e-mail distribution lists applicable to the Invoices.
- (2) Market Notices regarding ad hoc invoices will be sent to the following contact types:
 - (a) Primary Authorized Representative;
 - (b) Backup Authorized Representative;
 - (c) Accounts payable; and
 - (d) Accounts payable backup.

8.1.4 *Timing of Communication*

ERCOT will send Market Notices regarding ad hoc invoices as many days in advance of the posting of the Invoice as possible, but no later than the next Business Day after the ad hoc Invoice is posted.

8.1.5 *Content of Communication*

The Market Notice from ERCOT will contain as much detail as possible including the following:

- (a) A subject line indicating the appropriate urgency and action required.
- (b) A description of the type of Market Participants to which ad hoc Invoices have been issued.
- (c) Contact information for ERCOT personnel to be contacted for inquiries regarding ad hoc Invoices.
- (d) When and where the Invoice will be posted. Ad hoc Invoices are normally posted on the Market Information System (MIS) Certified Area.

8.1.6 *Market Participants*

Each Market Participant should ensure that the accounting contacts registered with ERCOT are current to ensure that the Invoices are received and paid in a timely manner.

8.2 **Settlement Statements and Invoices**

- (1) The Real-Time Market (RTM), the Day-Ahead Market (DAM), and the Congestion Revenue Right (CRR) Auction are settled separately. Each type of Settlement has a unique set of statements and/or Invoices and settles according to a different timeline. Settlement Statements and Invoices can apply to a registered CRR Account Holder (CRRAH), a registered Qualified Scheduling Entity (QSE), or both. The table below provides details regarding the various statements and Invoices.

Type	Invoice or Statement	Recipient	Frequency	Post Timing	Payment Due
CRR	CRR Auction Invoice	<ul style="list-style-type: none"> • CRRAHs 	Monthly	1 st Business Day after completion of a CRR Auction (Monthly and Annual CRR Auctions will be invoiced separately)	3 rd Bank Business Day after Invoice posts (<i>or next day that is both Business Day and Bank Business Day</i>)

SECTION 8: ERCOT SETTLEMENT AND INVOICE PROCESS

Type	Invoice or Statement	Recipient	Frequency	Post Timing	Payment Due
	CRR Auction Revenue Distribution Invoice	<ul style="list-style-type: none"> • QSEs (with Load) 	Monthly	1 st Business Day after RTM Initial Statement posts for the last day of the relevant month and 1 st Business Day after RTM Final Statement posts for the last day of the relevant month	5 th Bank Business Day after Invoice posts (<i>or next day that is both Business Day and Bank Business Day</i>)
	CRR Balancing Account Invoice	<ul style="list-style-type: none"> • CRRRAH (due a shortfall refund) • QSEs (with load) 	Monthly	1 st Business Day after RTM Initial Statement posts for the last day of the relevant month	1 st Bank Business Day after the due date of the Settlement Invoice that includes the RTM Initial Settlement statement for the last day of the month (<i>or next day that is both Business Day and Bank Business Day</i>) *Note: Payout to market only
DAM	DAM Statement	<ul style="list-style-type: none"> • QSEs • CRRRAHs 	Daily	2 nd Business after the Operating Day	n/a
	DAM Resettlement Statement	<ul style="list-style-type: none"> • QSEs • CRRRAHs 	Ad hoc	Ad hoc (<i>on Business Day</i>)	n/a
RTM	RTM Initial Settlement Statement	<ul style="list-style-type: none"> • QSEs • CRRRAHs 	Daily	Operating Day + 5 (<i>or next Business Day</i>)	n/a
	RTM Final Settlement Statement	<ul style="list-style-type: none"> • QSEs • CRRRAHs 	Daily	Operating Day + 55 (<i>or next Business Day</i>)	n/a
	RTM True-Up Settlement Statement	<ul style="list-style-type: none"> • QSEs • CRRRAHs 	Daily	Operating Day + 180 (<i>or next Business Day</i>)	n/a
	RTM Resettlement Settlement Statement	<ul style="list-style-type: none"> • QSEs • CRRRAHs 	Ad hoc	Ad hoc (<i>on Business Day</i>)	n/a
STL	Settlement Invoice	<ul style="list-style-type: none"> • QSE • CRRRAHs 	Daily	Every Business Day – Rolls up all statements posted that day	2 nd Bank Business Day after the Invoice posts, (<i>or next day that is both Business Day and Bank Business Day</i>)
	Default Uplift Invoice	<ul style="list-style-type: none"> • QSEs • CRRRAHs 	Ad hoc	Ad hoc (<i>on Business Day</i>) *Market Notice required	5 th Bank Business Day after the Invoice posts, (<i>or next day that is both Business Day and Bank Business Day</i>)

Type	Invoice or Statement	Recipient	Frequency	Post Timing	Payment Due
MISC	Miscellaneous Invoice	<ul style="list-style-type: none"> • QSEs • CRRAHs 	Ad hoc	Ad hoc (<i>on Business Day</i>) *Market Notice required	Specified in the Market Notice

- (2) Upon approval and posting of Settlement Statements and Invoices, the associated data is sent to the Credit Monitoring & Management (CMM) system for use in credit calculations. Similarly, when payment is made to or from the QSE/CRRAH, the payment data is subsequently sent to the CMM system.
- (3) The QSE Settlement Statements and Invoices and the CRRAH Statements and Invoices are available on the Market Information System (MIS) Certified Area. Statements and Invoices are 'MIS Certified' meaning they are Market Participant specific and have data proprietary to individual Entities. Therefore, these files are only available to those Entities owning the data and having a matching Data Universal Numbering System (DUNS) Number.
- (4) Market Participants must have access to the ERCOT MIS and a Digital Certificate with appropriate roles in order to retrieve data via the MIS and/or Application Programmatic Interface (API). This Digital Certificate must be obtained from your Entity's User Security Administrator (USA) and must contain the role of QSE Extracts (for QSEs) or CRR Extracts (for CRRs) in order to view and download statements, Invoices and/or related Settlement extracts.
- (5) Invoices, statements and extracts are also available via the API. To download the information from the API, utilize the report type IDs as listed in the ERCOT Market Information List (EMIL), along with the GetReport functionality on the API. For details regarding this option, refer to the External Web Services information posted to the ERCOT website.
- (6) In addition to statements and Invoices, the Settlements Calendar which provides statement, Invoice and dispute posting information details, is provided as an extract and can be found on both the MIS Public Area and on the ERCOT website. Supporting information for the Settlements Calendar can be found in the Settlements Calendar User Guide and in the Data Definition Language (DDL) and Extensible Markup Language (XML) Schema Definition (XSD).
- (7) Settlement details, including the supporting input, intermediate, and output Settlement billing determinants and other data associated with Settlement Statements and Invoices are found in the appropriate Settlements extracts and reports. When viewing QSE/CRRAH Settlement Statements, a negative amount represents a payment due to the QSE/CRRAH and a positive amount represents a payment due to ERCOT. More information about the available extracts and reports, as well as example statements and Invoices, are available on the MIS Public Area and on the ERCOT website. Descriptions and definitions for the billing determinants can be found on the ERCOT website in the

Settlement Charge Matrix and in the relevant Protocol sections. (Also see Section 10, Extracts and Reports).

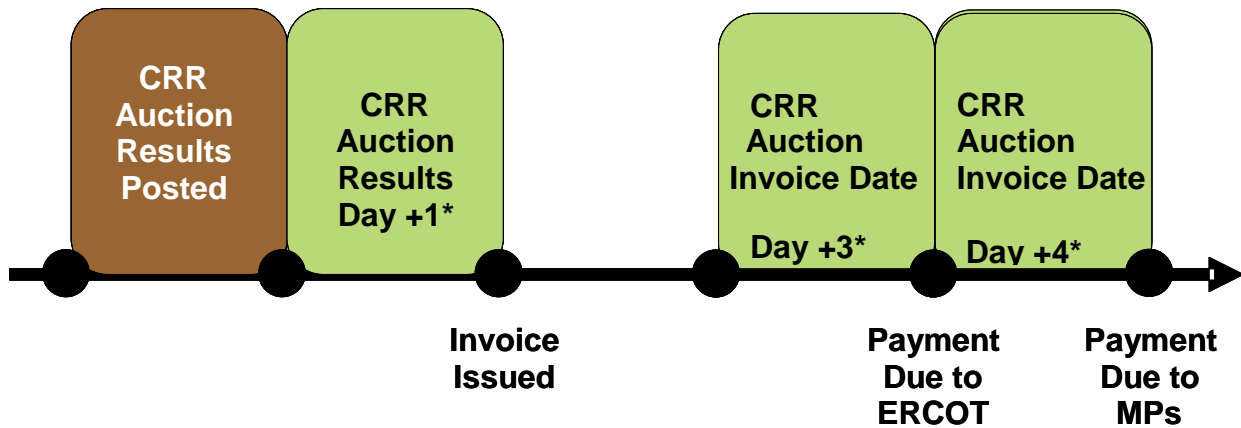
- (8) Information about the Settlements Calendar, statements, and Invoices may be found in Protocol Section 9, Settlement and Billing.

8.2.1 Congestion Revenue Right (CRR) Settlement Invoices


8.2.1.1 CRR Auction Award Invoices

Refer to Protocol Sections 9.8, CRR Auction Award Invoices, and 9.9, Payment Process for CRR Auction Invoices, for details regarding CRR Auction invoicing. Monthly and Annual CRR Auctions are invoiced separately. Additionally, each auction of the CRR Long-Term Auction Sequence auctions will be invoiced separately.

CRR Auction Invoice Timeline



***Must be a Business Day or move to next Business Day.**



CRR AUCTION INVOICE

Auction: MONTHLY-FEBRUARY_2013

Invoice No: CRR450
Invoice Date: 01/24/2013

Payments are due to ERCOT by 5:00 P.M. (CPT) on: 01/29/2013
Payments will be made to Invoice Recipients by 5:00 P.M. (CPT) on: 01/30/2013

AMOUNT OWED (DUE): \$366.45

INVOICE RECIPIENT

Name: CRRAH 1 (CRRAH)
ID: 1234567895000

CRR ID	HEDGE TYPE	PCRR TYPE	BUY/SELL	AMOUNT	CLEARING PRICE	AWARD FEE
15480000	OPTPAMT		B	\$158.45	\$0.02	\$0.00
15480001	OPTPAMT		B	\$27.69	\$0.01	\$4.31
15480002	OPTPAMT		B	\$55.37	\$0.01	\$8.63
15480003	OPTPAMT		B	\$54.49	\$0.01	\$1.51
15480004	OPTPAMT		B	\$54.49	\$0.01	\$1.51
TOTAL				\$350.49		\$15.96

REMITTANCE INFORMATION

	ERCOT Account	Recipient Account
Account Name	ERCOT ACCOUNT	CRRAH 1 ACCOUNT
Bank Name	ERCOT BANK	CRRAH 1 BANK
ABA Routing Number	444444444	222222222
Account Number	33333333333	11111111111

Overdue Terms
In the event ERCOT does not receive your payment by close of business on the "Payments are due to ERCOT" date, CRR Bids awarded and/or PCRRs allocated shall be forfeited by the Invoice Participant.

8.2.1.2 CRR Auction Revenue Distribution (CARD) Invoice

Refer to Protocol Sections 9.10, CRR Auction Revenue Distribution Invoices, and 9.11, Payment Process for CRR Auction Revenue Distribution, for details regarding CRR Auction Revenue Distribution (CARD) invoicing. The 'Time Period' label on the Invoice indicates the month relevant to the CRR Auction revenue being paid out to QSEs.



CRR AUCTION REVENUE DISTRIBUTION (CARD INVOICE)

Time Period:	FEB 2010
Invoice No:	CR053
Invoice Date:	02/11/2010
Payments are due to ERCOT by 5:00 P.M. (CPT) on:	02/19/2010
Payments will be made to Invoice Recipients by 5:00 P.M. (CPT) on:	02/20/2010
AMOUNT OWED (DUE):	\$7,059.30

INVOICE RECIENT

Name: GSE1
ID: 1234567892000

DESCRIPTION	CATEGORY	MONTHLY TOTALS	BILLABLE AMOUNT
LACMRIBILLAMT - Load-Allocated CRR Monthly Revenue Non-Zonal Bill Amount	INITIAL Distribution	(\$774,425.34)	(\$774,425.34)
	FINAL Distribution	(\$800,425.34)	(\$26,000.00)
LACMRZBILLAMT - Load-Allocated CRR Monthly Revenue Zonal Bill Amount	INITIAL Distribution	(\$316,466.90)	(\$316,466.90)
	FINAL Distribution	(\$297,526.20)	\$18,940.70
TOTALS	INITIAL Distribution		(\$1,090,892.24)
	FINAL Distribution		(\$7,059.30)

REMITTANCE INFORMATION

	ERCOT Account	Recipient Account
Account Name	ERCOT	GSE1
Bank Name	ERCOT Bank	GSE1 Owner Bank
ABA Routing Number	111111111	222222222
Account Number	333333333	444444444

Overdue Terms

In the event ERCOT does not receive your payment by close of bank business on the "Payment are due to ERCOT" date, your credit standing with ERCOT may be affected and subject to review.

8.2.1.3 CRR Balancing Account (CRRBA) Invoice

Refer to Protocol Sections 9.12, CRR Balancing Account Invoices, and 9.13, Payment Process for CRR Balancing Account, for details regarding CCR Balancing Account (CRRBA) invoicing.

The “Time Period” label on the Invoice indicates the month relevant to the balancing account funds being paid out to CRRAHs and/or QSEs.



CRR BALANCING ACCOUNT INVOICE

Time Period: **JAN-2010**

Invoice No: **CBA10**

Invoice Date: **02/11/2010**

Payments will be made to Invoice Recipients by 5:00 P.M. (CPT) on: **02/26/2010**

AMOUNT OWED (DUE): (\$5,714.71)

INVOICE RECIPIENT

Name: **CRRAH1**
ID: **1234567895000**

DESCRIPTION

CRRRAMT - CRR Refund Amount AMOUNT (\$5,714.71)

AMOUNT OWED (DUE): (\$5,714.71)

REMITTANCE INFORMATION

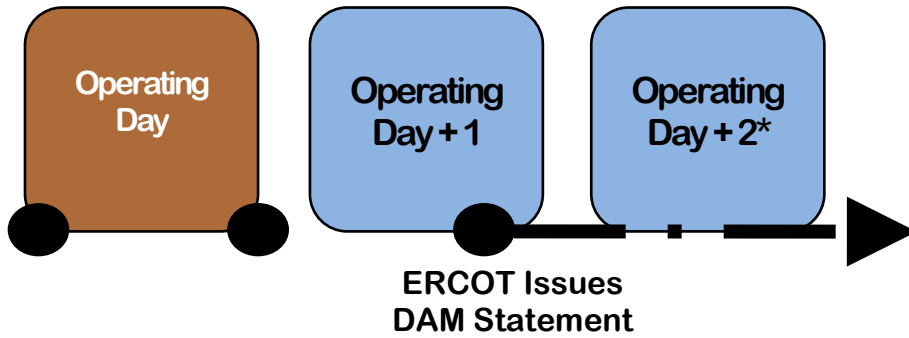
	ERCOT Account	Recipient Account
Account Name	ERCOT	CRRAH1
Bank Name	ERCOT Bank	CRR Owner Bank
ABA Routing Number	111111111	555555555
Account Number	333333333	666666666

8.2.2 Day-Ahead Market Statements

The DAM Statements for CRRAHs and QSEs are issued two days after the Operating Day.

Refer to Protocol Section 9.2, Settlement Statements for the Day-Ahead Market, for details regarding DAM Statements. In the case of a “No DAM” scenario, where DAM is not successfully executed for an Operating Day, DAM Statements will not be generated or posted for that Operating Day.

DAM Statement Timeline



*Must be a Business Day or move to next Business Day.

DAM Statement

Participant Name		OSE1		SETTLEMENT SUMMARY	
Participant ID		1234567892000			
Statement ID		DAM_021010_1234567892000_D1		Operating Day 02/10/2010	
TOTALS					
Status	Version	Billed Amount			
DAM	1	\$2,884,232.71			
				Operating Day Total	\$2,884,232.71
▶ DAY-AHEAD ANCILLARY SERVICES				BILLABLE AMT: \$55,921.22	
▶ DAY-AHEAD ENERGY				BILLABLE AMT: \$2,828,311.49	
▶ DAY-AHEAD MAKE-WHOLE				NO ACTIVITY	
▶ DAY-AHEAD CONGESTION REVENUE RIGHTS				NO ACTIVITY	
TOTALS					
Status	Version	Billed Amount			
DAM	1	\$2,884,232.71			
				Operating Day Total	\$2,884,232.71

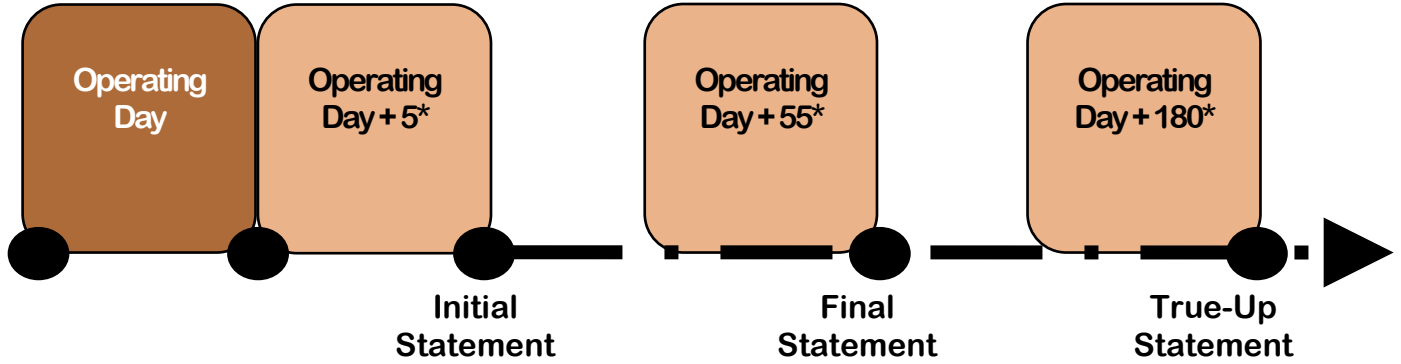
8.2.3 Real-Time Market Statements

8.2.3.1 Real-Time Market Statements

- (1) Refer to Protocol Section 9.5, Settlement Statements for Real-Time Market, for details regarding RTM Settlement Statements.

- (2) There are four types of RTM Settlement Statements: Initial, Final, True-Up and Resettlement.
- (3) The figure below illustrates the timing of each statement. Resettlements can occur at any point in accordance with Protocol Section 9.5.6, RTM Resettlement Statement.

RTM Statement Timeline



****Must be a Business Day or move to next Business Day.***

8.2.3.1.1 *RTM Initial Statement*

ERCOT		REAL-TIME MARKET STATEMENT	
Participant Name	GSE1	SETTLEMENT SUMMARY	
Participant ID	01234567892999		
Statement ID	RTM_011510_01234567892999_H	Operating Day	01/15/2010
TOTALS			
Status	Version	Billed Amount	
RTM_INITIAL	1	\$1,342,652.00	
		Operating Day Total	\$1,342,652.00
▶ REAL-TIME ANCILLARY SERVICES		BILLABLE AMT: \$1,086.41	
▶ BLACK START CAPACITY		BILLABLE AMT: \$207.43	
▶ EMERGENCY OPERATIONS		NO ACTIVITY	
▶ GENERATION RESOURCE BASE-POINT DEVIATION		BILLABLE AMT: \$2197.08	
▶ REAL-TIME CONGESTION REVENUE RIGHTS		BILLABLE AMT: \$893,268.67	
▶ REAL-TIME ENERGY		BILLABLE AMT: \$633,718.83	
▶ REAL-TIME REVENUE NEUTRALITY ALLOCATION		BILLABLE AMT: (\$191,330.65)	
▶ RELIABILITY MUST-RUN		BILLABLE AMT: \$440.19	
▶ RELIABILITY UNIT COMMITMENT		BILLABLE AMT: (\$1,986.85)	
▶ VOLTAGE SUPPORT		NO ACTIVITY	
▶ ADMINISTRATIVE FEES		BILLABLE AMT: \$5,051.77	
TOTALS			
Status	Version	Billed Amount	
RTM_INITIAL	1	\$1,342,652.00	
		Operating Day Total	\$1,342,652.00

8.2.3.1.2 RTM Final Statement

ERCOT		REAL-TIME MARKET STATEMENT	
Participant Name	QSEI	SETTLEMENT SUMMARY	
Participant ID	01234567892000		
Statement ID	RTM_010510_01234567892000_F2	Operating Day	01/15/2010
TOTALS			
Status	Version	Billed Amount	
RTM_INITIAL	1	\$1,342,052.00	
RTM_FINAL	2	\$010.63	
		Operating Day Total	\$1,343,163.40
▶ REAL-TIME ANCILLARY SERVICES		BILLABLE AMT: \$344.02	
▶ BLACK START CAPACITY		BILLABLE AMT: \$113.00	
▶ EMERGENCY OPERATIONS		NO ACTMNTY	
▶ GENERATION RESOURCE BASE-POINT DEVIATION		BILLABLE AMT: \$0.00	
▶ REAL-TIME CONGESTION REVENUE RIGHTS		BILLABLE AMT: (\$256.61)	
▶ REAL-TIME ENERGY		BILLABLE AMT: (\$1,529.40)	
▶ REAL-TIME REVENUE NEUTRALITY ALLOCATION		BILLABLE AMT: \$2,011.04	
▶ RELIABILITY MUST-RUN		BILLABLE AMT: (\$52.02)	
▶ RELIABILITY UNIT COMMITMENT		BILLABLE AMT: (\$1,340.77)	
▶ VOLTAGE SUPPORT		NO ACTMNTY	
▶ ADMINISTRATIVE FEES		BILLABLE AMT: \$421.29	
TOTALS			
Status	Version	Billed Amount	
RTM_INITIAL	1	\$1,342,052.00	
RTM_FINAL	2	\$010.63	
		Operating Day Total	\$1,343,163.40

8.2.3.1.3 RTM True-Up Statement

ERCOT		REAL-TIME MARKET STATEMENT	
Participant Name	05E1	SETTLEMENT SUMMARY	
Participant ID	#1234567892999		
Statement ID	RTM_#11518_#1234567892999_T3	Operating Day	#115/2018
TOTALS			
Status	Version	Billed Amount	
RTM_INITIAL	1	\$1,342,652.00	
RTM_FINAL	2	\$510.63	
RTM_TRUEUP	3	\$204.37	
Operating Day Total			\$1,343,367.00
▶ REAL-TIME ANCILLARY SERVICES		BILLABLE AMT: \$50.47	
▶ BLACK START CAPACITY		BILLABLE AMT: \$59.03	
▶ EMERGENCY OPERATIONS		NO ACTIVITY	
▶ GENERATION RESOURCE BASE-POINT DEVIATION		BILLABLE AMT: \$0.00	
▶ REAL-TIME CONGESTION REVENUE RIGHTS		BILLABLE AMT: \$0.00	
▶ REAL-TIME ENERGY		BILLABLE AMT: (\$35.59)	
▶ REAL-TIME REVENUE NEUTRALITY ALLOCATION		BILLABLE AMT: \$104.21	
▶ RELIABILITY MUST-RUN		BILLABLE AMT: (\$81.74)	
▶ RELIABILITY UNIT COMMITMENT		BILLABLE AMT: \$0.00	
▶ VOLTAGE SUPPORT		NO ACTIVITY	
▶ ADMINISTRATIVE FEES		BILLABLE AMT: \$27.99	
TOTALS			
Status	Version	Billed Amount	
RTM_INITIAL	1	\$1,342,652.00	
RTM_FINAL	2	\$510.63	
RTM_TRUEUP	3	\$204.37	
Operating Day Total			\$1,343,367.00

8.2.3.1.4 *RTM Resettlement Statement*

REAL-TIME MARKET STATEMENT

Participant Name **OSE1** SETTLEMENT SUMMARY
 Participant ID **01234567892000**
 Statement ID **RTM_020110_01234567892000_R3** Operating Day **02/01/2010**

TOTALS

Status	Version	Billed Amount
RTM_INITIAL	1	(\$7,554.50)
RTM_FINAL	2	\$0.00
RTM_RESETTLEMENT	3	\$119.77
Operating Day Total		(\$7,434.81)

▶ REAL-TIME ANCILLARY SERVICES	BILLABLE AMT: \$33.18
▶ BLACK START CAPACITY	BILLABLE AMT: \$40.64
▶ EMERGENCY OPERATIONS	NO ACTIVITY
▶ GENERATION RESOURCE BASE-POINT DEVIATION	BILLABLE AMT: \$0.00
▶ REAL-TIME CONGESTION REVENUE RIGHTS	BILLABLE AMT: (\$154.27)
▶ REAL-TIME ENERGY	BILLABLE AMT: \$19.65
▶ REAL-TIME REVENUE NEUTRALITY ALLOCATION	BILLABLE AMT: \$150.49
▶ RELIABILITY MUST-RUN	BILLABLE AMT: (\$54.90)
▶ RELIABILITY UNIT COMMITMENT	BILLABLE AMT: \$0.00
▶ VOLTAGE SUPPORT	NO ACTIVITY
▶ ADMINISTRATIVE FEES	BILLABLE AMT: \$84.98

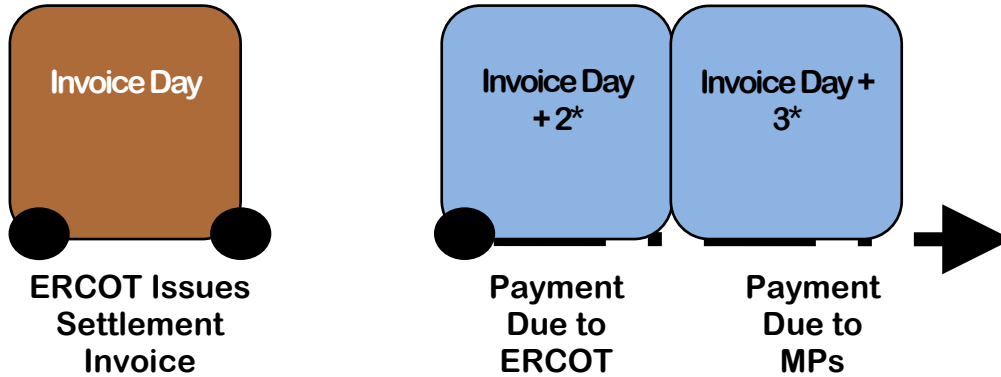
TOTALS

Status	Version	Billed Amount
RTM_INITIAL	1	(\$7,554.50)
RTM_FINAL	2	\$0.00
RTM_RESETTLEMENT	3	\$119.77
Operating Day Total		(\$7,434.81)

8.2.3.2 **Settlement Invoice**

Refer to Protocol Section 9.6, Settlement Invoices for the Day-Ahead Market and Real-Time Market, for details regarding the invoicing process. The daily Settlement invoicing process finds

and includes the DAM, RTM Initial, Final, True-Up and/or Resettlement Statements that are posting on the same day.



***Must be a Business Day or move to next Business Day.**

SETTLEMENT INVOICE

Invoice No: STL13388
 Invoice Date: 01/02/2013
 Payments are due to ERCOT by 5:00 P.M. 01/04/2013
 Payments will be made to Invoice Recipients by 5:00 P.M. 01/07/2013


AMOUNT OWED (DUE): (\$31,855.92)

INVOICE RECIPIENT				
Name:	QSE1 (QSE)			
ID:	123456789			
CATEGORY	STATEMENT ID	OPERATING DAY	STATEMENT AMOUNT	SUBTOTAL
DAM Statements	DAM_STATEMENT_20121228_123456789_D1	12/28/2012	(\$0.01)	
		DAM Statements Subtotal		(\$0.01)
Initial Statements	RTM_INITIAL_STATEMENT_20121223_123456789_I1	12/23/2012	(\$16,885.34)	
	RTM_INITIAL_STATEMENT_20121224_123456789_I1	12/24/2012	(\$14,976.48)	
		Initial Statements Subtotal		(\$31,861.82)
Final Statements	RTM_FINAL_STATEMENT_20121103_123456789_F2	11/03/2012	\$0.00	
	RTM_FINAL_STATEMENT_20121104_123456789_F2	11/04/2012	\$0.00	
		Final Statements Subtotal		\$0.00
True-Up Statements	RTM_TRUEUP_STATEMENT_20120705_123456789_T3	07/05/2012	(\$0.73)	
	RTM_TRUEUP_STATEMENT_20120706_123456789_T3	07/06/2012	\$6.64	
		True-Up Statements Subtotal		\$5.91
		NET AMOUNT OWED (DUE)		(\$31,855.92)
REMITTANCE INFORMATION				
Account Name	ERCOT Account	Recipient Account	QSE1 ACCOUNT	
Bank Name	ERCOT BANK		QSE1 BANK	
ABA Routing Number	444444444		222222222	
Account Number	3333333333		11111111111	

Overdue Terms
 In the event ERCOT does not receive your payment by close of bank business on the "Payments are due to ERCOT" date a late fee of Prime + 2% APR may be applied to any outstanding balance.

8.2.3.3 Default Uplift Invoice

Refer to Protocol Sections 9.19.1, Default Uplift Invoices, and 9.19.2, Payment Process for Default Uplift Invoices, for details regarding the Default Uplift Invoicing process. The Default Uplift Invoicing process allocates DAM and/or RTM losses to QSEs and CRRAHs.



DEFAULT UPLIFT INVOICE

Invoice No: DEF1209
 Invoice Date: 09/02/2014

Payments are due to ERCOT by 5:00 P.M. (CPT) on: 09/09/2014
 Payments will be made to Invoice Recipients by 5:00 P.M. (CPT) on: 09/10/2014

AMOUNT OWED (DUE): \$167.07

INVOICE RECIPIENT				
Name:	QSE 1			
ID:	1234567892000			

DESCRIPTION	INVOICE DUE	REFERENCE	UPLIFTED AMOUNT	BILLABLE AMOUNT
September 2014 Default	03/04/2014	STL16843	\$7,997.56	
Subtotal - September 2014 Default			\$7,997.56	
Previous Uplift for September 2014 Default			\$0.00	
Reduction due to \$2.5M cap			\$0.00	
TOTAL - September 2014 Default			\$7,997.56	\$167.07
			NET AMOUNT DUE	\$167.07

REMITTANCE INFORMATION		
	ERCOT Account	Recipient Account
Account Name	ELECTRIC RELIABILITY COUNCIL OF TEXAS INC	QSE 1
Bank Name	ERCOT Bank	QSE 1 Owner Bank
ABA Routing Number	111111111	333333333
Account Number	222222222	444444444

Overdue Terms
 In the event ERCOT does not receive your payment by close of bank business on the "Payments are due to ERCOT" date a late fee of Prime + 2% APR may be applied to any outstanding balance.

8.2.3.4 Miscellaneous Invoice

- (1) In the event that ERCOT cannot reasonably Invoice Market Participants via one of the other Protocol-defined Invoices, ERCOT may utilize the Miscellaneous Invoice. Use of the Miscellaneous Invoice would be noticed to the market and could be in support of any invoicing activity described as "ad hoc" in Section 8.1, Invoice Process, of this document. The Miscellaneous Invoice posts to the same location on MIS as other QSE/CRRAH Invoices. This Invoice is generated out of the Settlements and Billing System using data which is derived and input by analysts. The Invoice format allows for flexibility to communicate descriptive information which varies depending on the nature of the ad hoc Invoice.



MISCELLANEOUS INVOICE

Category: **MISC**Invoice No: **MSC100**
Invoice Date: **05/11/2009**Payments are due to ERCOT by 5:00 P.M. (CPT) on: **05/16/2009**
Payments will be made to Invoice Recipients by 5:00 P.M. (CPT) on: **05/17/2009****AMOUNT OWED (DUE):** **\$2,500.00**

INVOICE RECIPIENT

Name: **QSE1**
ID: **1234567892000**

DESCRIPTION 1	DESCRIPTION 2	DESCRIPTION 3	DESCRIPTION 4	AMOUNT
Ad-Hoc Reason Description	March 2009	Allocation Factor = 0.1111		2500.00

REMITTANCE INFORMATION

	ERCOT Account	Recipient Account
Account Name	ERCOT	QSE1 Bank
Bank Name	ERCOT BANK	QSE1 Owner Bank
ABA Routing Number	111111111	222222222
Account Number	333333333	444444444

Overdue Terms

In the event ERCOT does not receive your payment by close of bank business on the "Payments are due to ERCOT" date your credit standing with ERCOT may be affected and subject to review.

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Section 9

November 1, 2007

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Commercial Operations Market Guide

Section 10: Extracts and Reports

March 1, 2017

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10 EXTRACTS AND REPORTS

- (1) ERCOT provides reports and extracts to assist Market Participants in understanding data pertaining to, but not limited to, energy and Ancillary Services, market prices, retail and wholesale activity, Load Profiling, Metering, Data Aggregation and Settlements. Extracts and reports provide supplemental data to allow Market Participants a view into ERCOT's operational and commercial systems. Extract data is provided in raw form to facilitate the loading of data into a database. Reports are in a formatted presentation which facilitates stand-alone reading.
- (2) ERCOT publishes information regarding extracts and reports at <http://www.ercot.com/services/mdt/>. This information includes, but is not limited to, the ERCOT Market Information List (EMIL), Data Definition Language (DDL), XML Schema Definition (XSD), user guides and market aid documentation.

10.1 Security Classification Types

- (1) For more information on public, secure and certified data security classifications, please see the definition of Market Information System (MIS) in Protocol Section 2, Definitions and Acronyms.

10.2 Subscribing to Extracts

- (1) Market Participants who wish to receive certain certified extracts must access the extract subscriber application which allows Market Participants to subscribe/unsubscribe to the listed extracts. The individual extract user guides contain specific information on the availability and format of the given extract.

10.3 ERCOT Market Information List

- (1) The ERCOT Market Information List (EMIL) is an inventory list of all products externally delivered by ERCOT as required by Protocols and Other Binding Documents. For definitions and descriptions of EMIL content, please refer to the "Definitions Tab" within the EMIL.
- (2) The EMIL contains unique report type ids for each product as delivered by ERCOT as well as attribute information on the corresponding product.

Attribute information includes:

- (a) Name of product;
- (b) Description;
- (c) Traceability references;

- (d) Data delivery access points;
 - (e) Recipient list;
 - (f) Supporting reference material information;
 - (g) Report type id;
 - (h) Format;
 - (i) Inclusion on Extract Subscriber: and
 - (j) Market Information System (MIS) specific information for data classification and location.
- (3) Reference materials include Data Definition Language (DDL) and XML Schema Definition (XSD), which can be found on the ERCOT website as well as the MIS. DDLs and XSDs are used in conjunction with .csv and .xml file formats. DDLs are used to load .csv files into a relational database and include the column and table name definitions. XSDs provide the data tag and element information for use with .xml files and are also used for web services. Other reference materials available include user guides and market aides. These documents will provide specifics regarding content, format, Extract Subscriber, loading suggestions, use, etc.
- (4) Report type ids are listed for each product that can be retrieved using the external web service “Get Report” functionality.
- (5) The “MIS” tab within the EMIL workbook contains the EMIL id, product name and MIS navigation information used to locate the menu tab, landing page and portlet posting location.
- (6) The “Traceability” tab contains the EMIL id, product name and traceability reference to Protocols or Other Binding Documents.

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Section 11: Disputes and Data Extract Variances

October 1, 2015

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11 DISPUTES AND DATA EXTRACT VARIANCES

11.1 ERCOT Disputes

- (1) Section 9, Settlement and Billing, describes the various requirements for the implementation and maintenance of the Dispute Management Process. Qualified Scheduling Entities (QSEs) in the Day-Ahead Market (DAM) and Real-Time Market (RTM) and QSEs and Congestion Revenue Right (CRR) Account Holders for the DAM, RTM, and CRR markets are responsible for the review of their Settlement Statements and Settlement Invoices to verify the accuracy of the Settlement data used to produce the Settlement Statement and Settlement Invoice. Recipients must submit any dispute related to the Settlement Statement or Settlement Invoice data. All communication to and from ERCOT concerning disputes must be through either the Market Information System (MIS) Certified Area dispute tool or other electronic communications. Recipients shall be able to file the dispute, create the dispute-associated activities and view the progress of the dispute.
- (2) In accordance with Protocols, ERCOT will issue Resettlement Statements as soon as possible due to data error other than prices that result in an impact greater than two percent of the total payments due to ERCOT, otherwise ERCOT will wait until the next scheduled Settlement. Protocol Sections 9.2.5, DAM Resettlement Statement, and 9.5.6, RTM Resettlement Statement, describes the timing of resettlements due to Settlement and billing disputes.

11.1.1 Overview

The following figures illustrate an overview of the process flow of the Dispute Management System, detailed process flows based on the type of statement being disputed, and the process for denied disputes. Protocol Section 9 also describes the timing of disputes.

Figure 1: Dispute Management System Process Flow Overview

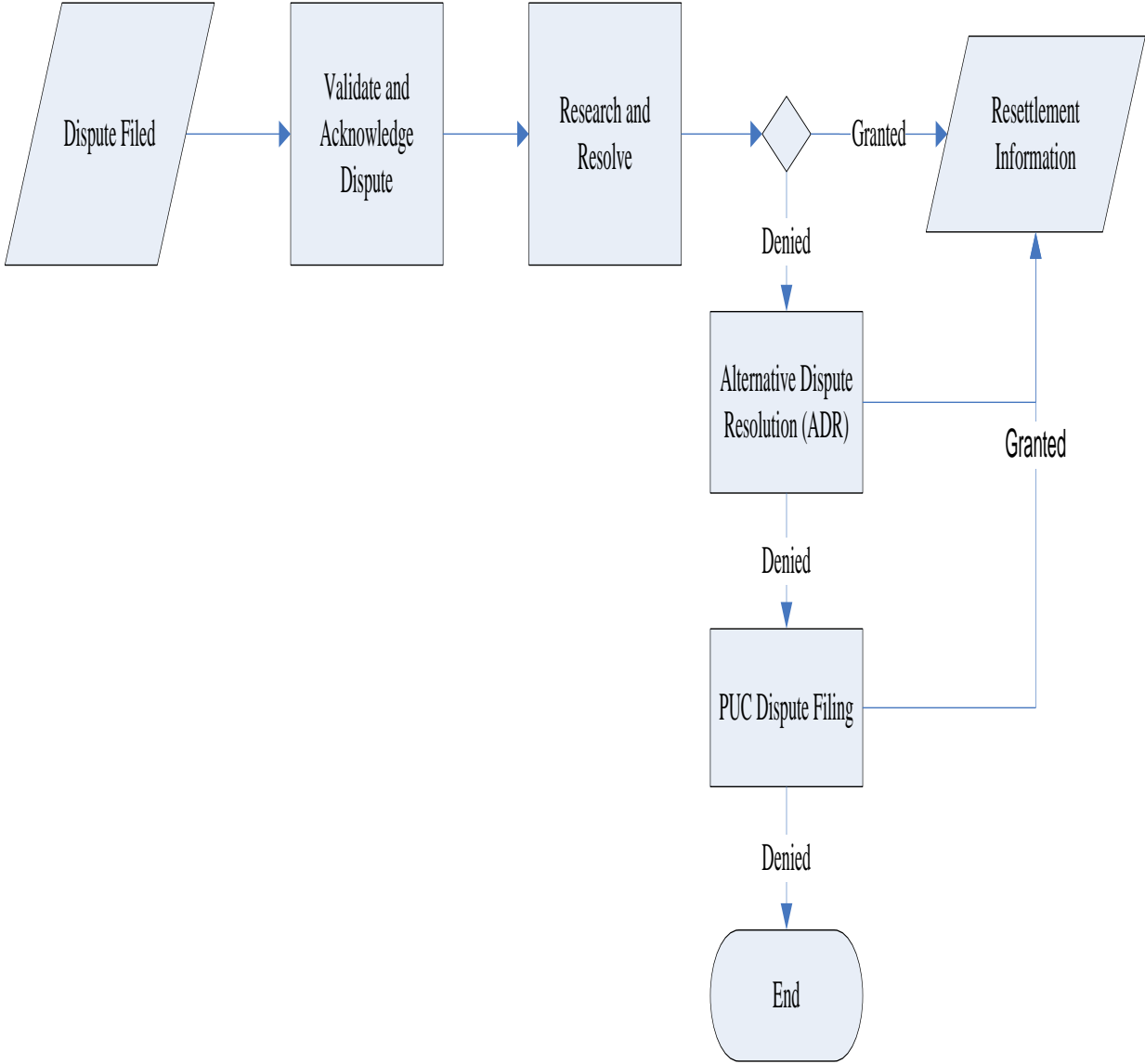


Figure 2: Process for Disputing a Real-Time Statement and Invoice

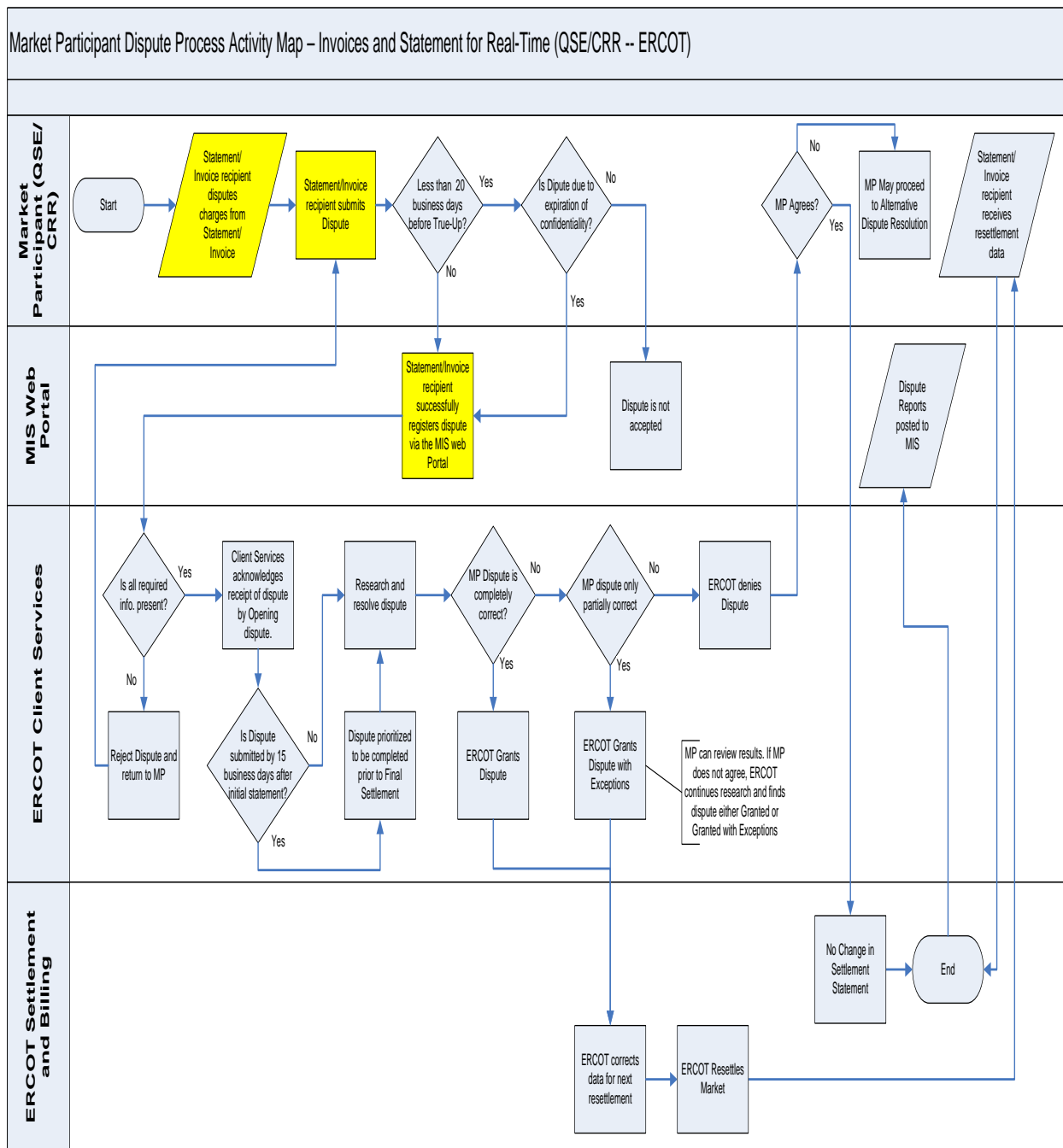


Figure 3: Process for Disputing Statements and Invoices Other than Real-Time

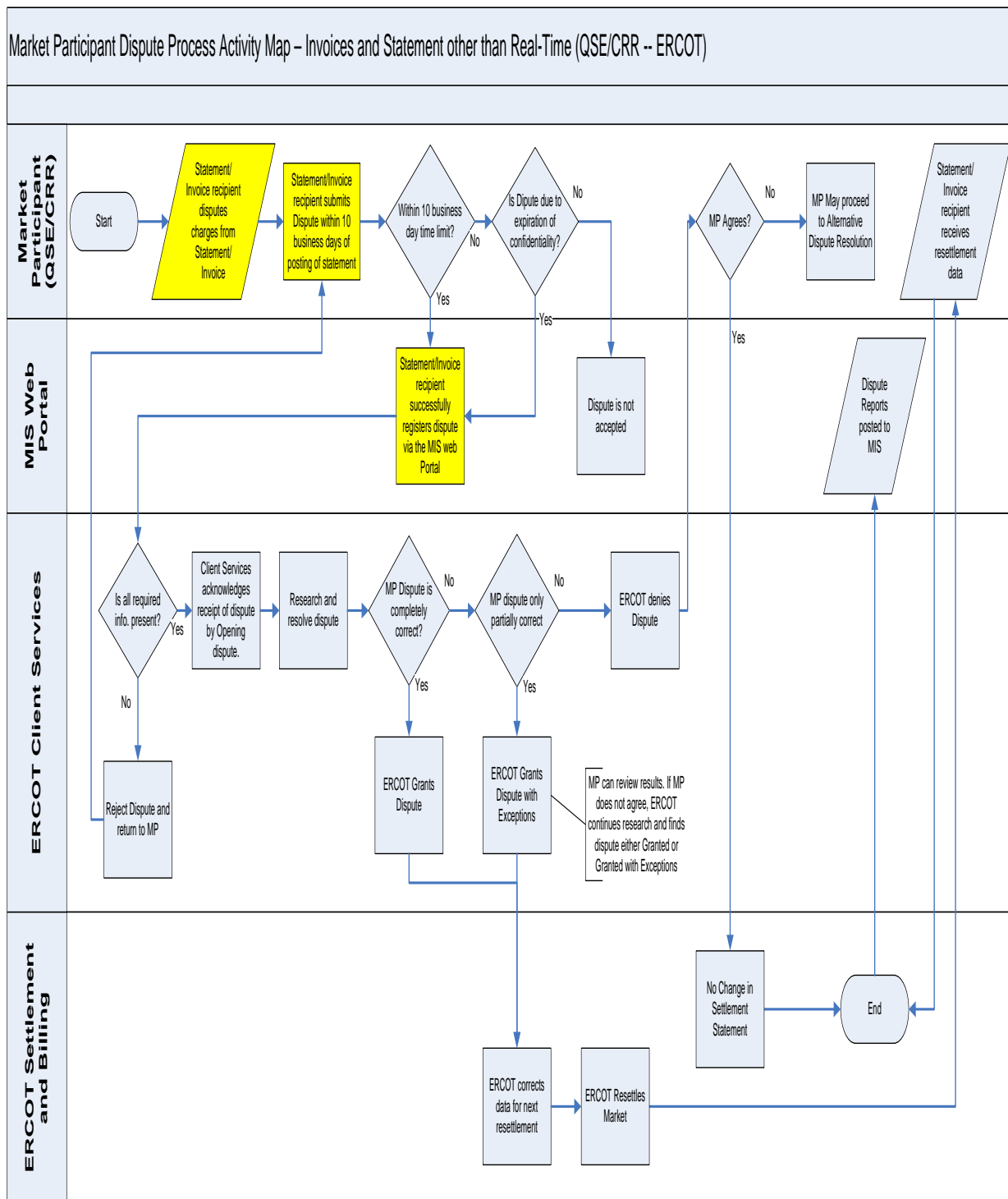
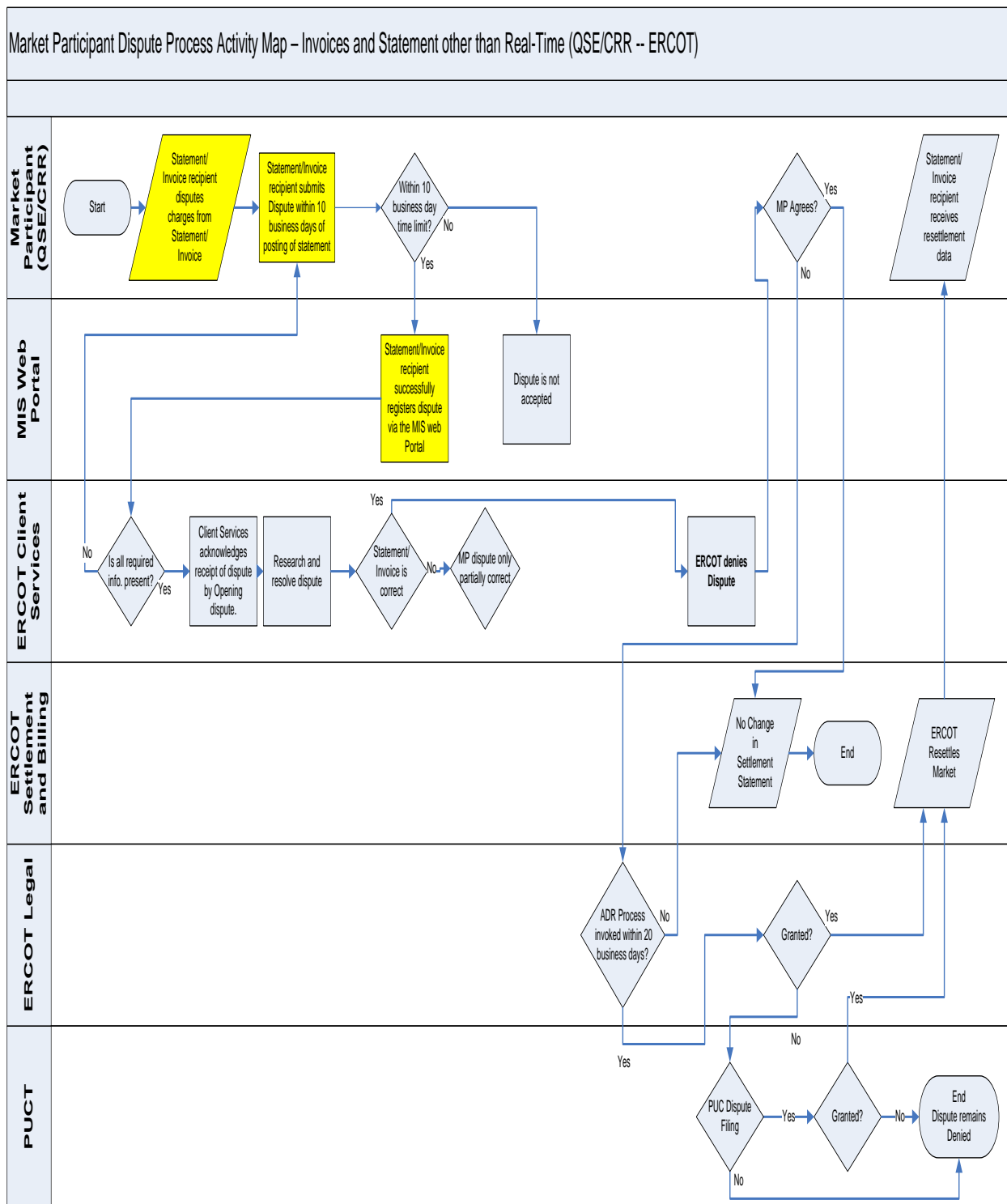


Figure 4: Process for a Denied Dispute



11.1.2 Settlement Calendar

- (1) The Settlement Calendar provides the dates by which ERCOT will post, process payments, and administer disputes for Settlement Statements and Invoices, including:
 - (a) Settlement Statements for the DAM and RTM; and
 - (b) Settlement Invoice, CRR Auction, CRR Auction Revenue Distribution (CARD), and CRR Balancing Account (CRRBA).
- (2) The Settlement Calendar is provided as an extract and can be found on the MIS Public Area under Settlements Information and on the ERCOT website. Supporting information for the Settlement Calendar (i.e. the Data Definition Language (DDL) and Extensible Markup Definitions) are also available on both the MIS Public Area and the ERCOT website.

11.1.3 Dispute Access

- (1) There are two methods available for filing a dispute, MIS Web Portal and Application Programmatic Interface (API).
 - (a) MIS Web Portal – The web portal user interface utilizes the Market Participant’s Digital Certificate for authentication. The disputes area can be found by navigating to the on Markets/Settlements landing page or the applications home page. From either page, you can open the dispute application, based on roles, Create Nodal Settlement Dispute or Find Nodal Settlement Disputes.

Market Participants also have the ability to search for or view disputes using the ‘Find Nodal Settlement Disputes’ function on the Graphic User Interface (GUI). Disputes may be viewed and searched for by dispute IDs and various other criteria.
 - (b) API – Allows you to utilize a third-party application to submit your disputes to and from ERCOT. See the External Interfaces Specification (EIP) document on the ERCOT.com website for the API technical requirements.

11.1.4 Dispute Items

- (1) The following are a list of the statement and Invoice items that can be disputed. For Invoices, the items not listed on the statement can be disputed, such as interest.
 - (a) DAM Statement;
 - (b) DAM Resettlement Statement;
 - (c) RTM Initial Statement;
 - (d) RTM Final Statement;

- (e) RTM True-Up Statement;
- (f) Any RTM Resettlement Statement issued after the RTM True-Up Statement;
- (g) Default Uplift Invoice;
- (h) CRR Auction Invoice;
- (i) CARD Invoice; and
- (j) CRRBA Invoice.

11.1.5 Valid Dispute Statuses and Resolutions

An automatic Notification will be sent to the disputing Entity if there is a change in the dispute resolution or dispute status.

- (a) Statuses:
 - (i) Not Started – The initial status of the dispute when it is submitted to ERCOT.
 - (ii) Open – ERCOT has begun to work on the issue.
 - (iii) Alternative Dispute Resolution (ADR) – The Market Participant begins the ADR process once ERCOT has denied a dispute.
 - (iv) Closed – The dispute has been resolved.
 - (v) Withdrawn – Market Participant withdraws the dispute.
- (b) Resolutions:
 - (i) Granted – ERCOT grants the dispute and the adjustments display on the next Settlement Statement for the Operating Day.
 - (ii) Granted with Exceptions – ERCOT grants a partial adjustment of the disputed amount. The Market Participant is notified of the exception(s).
 - (iii) Denied – ERCOT rejects the dispute. An automatic Notification will be sent to the disputing Market Participant.

11.1.6 Dispute Reporting

ERCOT will post a summary level dispute report and a Market Participant specific dispute extract on the MIS Certified Area.

- (a) Market Participant Dispute Extract – This certified extract provides QSEs and CRR Account Holders with the current status of all of their Entity specific

disputes that are not closed or withdrawn, as well as all disputes closed or withdrawn within the last 120 days.

- (b) ERCOT Summary Dispute Report – This report is a summary by Operating Day , status and market type (DAM and RTM) with resolution and count of disputes, as disputes move to a ‘Closed’ or ‘Withdrawn’ status, the data will remain available on the report for 30 days before’ rolling off’.

11.2 Data Extract Variances

11.2.1 Overview

- (1) The Data Extract Variance or “DEV” is a type of MarkeTrak used to assist in the expedited resolution of Electric Service Identifier (ESI ID) level data variances between ERCOT and Market Participant systems. The DEV should only be utilized after transactions have been attempted by comparing the information provided in the daily ERCOT ESI ID Service History & Usage Extract (727 Data Extract) and the Market Participants internal system data. The ESI ID Service History & Usage Extract is provided by ERCOT through the Market Information System (MIS). The Data Definition Language (DDL) description file for this extract is located on the ERCOT website under DDLs. Manual intervention will only be accepted after all other resolution paths have been exhausted.
- (2) If a variance submitted according to the MarkeTrak Users Guide is not resolved prior to the True-Up Settlement, a Market Participant may seek correction of the ESI ID service history, usage information and resettlement pursuant to the provisions of Protocol Section 20, Alternative Dispute Resolution Procedure. The True-Up Settlement timelines and variance request deadlines are available on the True-Up Settlement and Variance Request Calendar located on the ERCOT website.
- (3) For more information on types and subtypes of DEV issues and the DEV resolution process, refer to the Retail Market Guide Section 7.2.3, MarkeTrak Data Extract Variance Processes, and the MarkeTrak Users Guide, Sections 5, DEV LSE, and 6, Non LSE DEV are available on the ERCOT website.
- (4) The MarkeTrak Users Guide can be found on the ERCOT website:
 - (a) Select Services.
 - (b) Select Client Services.
 - (c) Select MarkeTrak Information.
 - (d) Select MarkeTrak Users Guide.

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Section 12: Renewable Energy Credits

August 1, 2010

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12 RENEWABLE ENERGY CREDITS

- (1) The State of Texas Renewable Energy Credit Trading Program is addressed in Protocol Section 14, State of Texas Renewable Energy Credit Trading Program.
- (2) In support of the State of Texas' goals related to installation of generating capacity from renewable energy technologies, ERCOT administers the Renewable Energy Credit (REC) Trading Program. As part of the REC Trading Program, each competitive Retail Entity with Load in Texas is assigned an annual REC requirement.

12.1 Purpose and History

- (1) The State of Texas Renewable Energy Credit (REC) Trading Program was developed as a result of legislative action in Senate Bill 7, Texas Electricity Energy Restructuring. The objective of this part of Senate Bill 7 was to increase the capacity of renewable resource generation in Texas to 2,880 MWs by the year 2009 from an already existing 880 MWs.
- (2) The State of Texas' REC Trading Program was extended and expanded on September 1, 2005 as a result of legislative action in Senate Bill 20, 79th Legislature, 1st Called Session (2005), which amended Public Utility Regulatory Act (PURA) § 39.904, relating to the *Goal for Renewable Energy*. Senate Bill 20 increased the goal of capacity of renewable resource generation in Texas to 5,880 MWs by 2015 and 10,000 MWs by 2025. Senate Bill 20 also stipulates a goal that 500 MWs of the target MWs will be from non-wind renewable generation. This goal is to further promote solar power and biomass technologies.
- (3) Due to the optimum locations of Wind-powered Generation Resources (WGRs) in Texas, transmission congestion can limit the flow of renewable generation to the ERCOT Transmission Grid. In July 2007, the Public Utility Commission of Texas (PUCT) announced its approval for additional transmission lines that can deliver 10,000 more MWs of renewable power by 2012. The goal of the Energy Transmission Plan is to increase transmission capacity to get clean energy from remote areas to cities. Competitive Renewable Energy Zones (CREZs) were designated in the optimum areas in the state and it is to these locations that electric transmission infrastructure will be constructed.

12.1.1 Public Utility Commission of Texas (PUCT)

For more information on the PUCT ruling and goals see P.U.C. SUBST. R. 25.173, Goal for Renewable Energy.

12.1.2 Renewable Resource Generation

Renewable resource generation is generation that is not derived from fossil fuels, waste products from fossil fuels, or waste products from inorganic sources. Renewable resource generation technology relies on an energy source that is naturally regenerated, for example, the sun, wind, geothermal, hydroelectric, tidal energy, biomass, and biomass-based waste products.

12.1.3 REC Trading Program Overview

- (1) The statewide Texas REC Trading Program applies to competitive Retail Entities that offer Customer Choice, as defined by the P.U.C. SUBST. R. 25.173, Goal for Renewable Energy, including:
 - (a) Retail Electric Providers (REPs);
 - (b) Opt-in Municipally Owned Utilities (MOUs) and distribution Cooperatives;
 - (c) Investor Owned Utilities (IOUs) that have unbundled pursuant to PURA Chapter 39, Restructuring of Electric Utility Industry.
- (2) Competitive Retail Entities are required to obtain and retire RECs based on their Load Ratio Share (LRS) of the competitive retail Load served in Texas, and the annual statewide REC mandate.
- (3) Any renewable resource generator, as defined by the P.U.C. SUBST. R. 25.173, in Texas can earn RECs.
- (4) The statewide Texas REC Trading Program is open to anyone wanting to trade (buy or sell) RECs.
- (5) Opt-out Notice – Beginning with the 2008 Compliance Period, a Customer receiving electrical service at transmission-level voltage (60 kV or higher or that receives electric service directly through a utility-owned substation that is connected to the transmission network at 60 kV or higher) who files an opt-out notice with the PUCT and provides the information to ERCOT for the applicable Compliance Period shall have its Load excluded from the Renewable Portfolio Standard (RPS) calculation. For detailed information about the opt-out notice exemption see P.U.C. SUBST. R. 25.173. Renewable resource generators wishing to participate are required to be certified by the PUCT. The PUCT certification forms are available at the PUCT's website at <http://www.puc.state.tx.us/electric/business/rec/rec.cfm>. See Protocol Section 14, State of Texas Renewable Energy Credit Trading Program, for reporting requirements of REC generators and REC offset generators and the process for the awarding of RECs.

12.1.3.1 Participant Responsibilities

Participant responsibilities for ERCOT, the PUCT, REC generators, competitive Retail Entities, and other Entities are described in Protocol Section 14, State of Texas Renewable Energy Credit Trading Program. Other Entities may participate if they are legal Entities in the State of Texas, sign an agreement with ERCOT to participate in the market, and establish a REC trading account with ERCOT.

12.1.4 REC Attributes and Uses

- (1) Attributes of RECs, including how they are defined and how they are described by vintage year, quarter, technology type, resource, facility identification, quantity, and REC

number, may be found in Protocol Section 14, State of Texas Renewable Energy Credit Trading Program.

- (2) RECs have a useful life of three Compliance Periods. A Compliance Period is a calendar year beginning January 1 and ending December 31 of a year in which RECs are required to be retired by a competitive Retail Entity. See the Protocol Section 14 for an example.
- (3) Uses for RECs include, but are not limited to:
 - (a) Annual RPS compliance requirements for competitive Retail Entities.
 - (b) Financial instrument tradable on the REC market.
 - (c) PUCT labeling initiative: RECs can be used for verification of advertising claims for green power programs.

12.1.5 REC Offsets

See Protocol Section 14, State of Texas Renewable Energy Credit Trading Program, for more information on how generators qualified for REC offsets prior to June 1, 2001 in the REC Trading Program.

12.2 Determining RPS Requirements for Retail Entities

As the Renewable Energy Credit (REC) Trading Program Administrator, ERCOT determines the annual Renewable Portfolio Standard (RPS) requirement for each competitive Retail Entity in Texas using the formulas set forth in Protocol Section 14, State of Texas Renewable Energy Credit Trading Program.

12.2.1 Timing for Notification of Final RPS Requirement (FRR) and Mandatory Retirement

- (1) As set forth in subsection (n)(1) of P.U.C. SUBST. R.25.173, Goal for Renewable Energy, ERCOT will notify each competitive Retail Entity of its total final adjusted RPS requirement for the previous Compliance Period on January 31st.
- (2) As set forth in subsection (n)(2) of P.U.C. SUBST. R.25.173, each competitive Retail Entity must submit to ERCOT a quantity of RECs equal to its Final RPS Requirement (FRR) for the previous Compliance Period by March 31st. This is done by retiring the RECs in the competitive Retail Entity's REC trading account.

12.2.2 ERCOT Reporting to the PUCT and PUCT Penalties and Enforcement

See Protocol Section 14, State of Texas Renewable Energy Credit Trading Program, for more information about ERCOT reporting to the Public Utility Commission of Texas (PUCT) and PUCT penalties and enforcement.

12.2.3 *Process for Determining RPS Requirements for Competitive Retailers*

- (1) First, a Statewide RPS Requirement (SRR) is determined, using the Annual Capacity Target (ACT), the number of hours in a year, 8,760 hours, and the Capacity Conversion Factor (CCF). Plus, the Compliance Premiums used for the previous year's mandate are added back into the SRR. See Section 12.2.4, Public Data, below for more information on the CCF.
- (2) Second, a Preliminary RPS Requirement for each competitive Retail Entity is determined, using the SRR, the sales of the specific competitive Retail Entity, Customer Retail Sales (CRSRES), in MWhs, to Texas Customers during the Compliance Period excluding opt-out noticed Customer Loads, and the Total Sales (TS) of all competitive Retail Entities, in MWhs, to Texas Customers during the Compliance Period, excluding opt-out noticed Customer Loads. The sum of the Preliminary RPS Requirement for all competitive Retail Entities will equal the SRR.
- (3) Third, ERCOT determines the Adjusted RPS Requirement (ARR) due to offsets assigned to competitive Retail Entities, using the Preliminary RPS Requirement and the Total Offsets. The competitive Retail Entity is entitled to Eligible Offsets (EOs) received during the Compliance Period. ERCOT also determines the Total Usable Offsets (TUO), using the SRR and the sum of all of the ARR's.
- (4) Last, ERCOT determines the FRR for each competitive Retail Entity, using the ARR, TUO, CRSRES, TS, and any previous year's adjustments.
- (5) This is an iterative process that will solve until the optimal allocation is reached with all FRRs resolved to the nearest whole REC.

12.2.4 *Public Data*

A Texas REC trading account is not required to access the following public data:

- (1) Total Competitive Energy Sales in Texas

The Total Competitive Energy Sales in Texas can be found at <https://www.texasrenewables.com> under "Public Reports" under "Load" is the Total Competitive Energy sales in Texas. Total Competitive Energy Sales is the total Un-Adjusted Metered Load (AML) of all competitive retail sales of competitive Retail Entities (in MWh) to Texas Customers. The Load meter data is provided by year, both monthly and year-to-date, and is updated each month by ERCOT. The posted values will change as Load changes with consecutive settlements and will become constant when used in the FRR calculation.

- (2) Current Capacity Conversion Factor (CCF)

ERCOT revises the CCF every two years. The CCF is used in the calculation to determine the SRR. The SRR is used in the calculations to determine the Preliminary RPS Requirement for competitive Retail Entities, the TUOs, and the FRR. The current

CCF may be found at <https://www.texasrenewables.com> located on the REC Message Board.

(3) Quarterly/Annual Renewable Energy Generation in Texas by Technology Type

The Quarter & Annual Renewable Energy Generation in Texas by Technology Type can be found at <https://www.texasrenewables.com> under Public Reports under Generator is the Quarter & Annual Renewable Energy Generation in Texas by Technology Type. Other Public Information available includes:

- (a) List of account holders;
- (b) Accounts by type;
- (c) Accounts by technology type;
- (d) REC generators, repowered Facilities;
- (e) Existing/New Capacity;
- (f) Quarter and Annual Renewable Energy Generation in Texas by technology type; and
- (g) REC message board.

12.3 Texas REC Trading Program and User's Guide

- (1) The [texasrenewables.com](https://www.texasrenewables.com) website provides a secure portal for Renewable Energy Credit (REC) Trading Account Holders to manage their REC inventory. Account holders may view, sort, batch or singly identify RECs to transfer or retire. All activities are available online, including account registration. There are no limits on the number of REC trading accounts. All data is available online for at least three years.
- (2) The [texasrenewables.com](https://www.texasrenewables.com) website may be accessed directly at <https://www.texasrenewables.com> or from the ERCOT website under "VIEW OTHER ERCOT WEBSITES" and Renewable Energy Credits.

12.3.1 Texas REC User's Guide

Texas REC User's Guide is available on the [texasrenewables.com](https://www.texasrenewables.com) website, under the headings Public Reports and Help Guide. The User's Guide outlines the functionality of the REC Trading Program including account management, generator, and aggregator registration and how to submit generator meter data.

12.3.2.1 Micro-generators and REC Aggregators

Registration and the reporting of production meter data for micro-generators and REC aggregators are addressed in paragraph (q) of P.U.C. SUBST. R.25.173, Goal for Renewable

Energy. Micro-generators are encouraged to find an aggregation company to associate themselves with, however, if they choose, they may register and participate on their own.

12.3.2 REC Trading Program Account Holder Assistance

- (1) Contact the ERCOT RPS Administrator via email, Info@ercot.com for REC Trading Account Holder assistance.
- (2) The Help function, located at the top right of the screen, in the Texas-REC Trading Program is an excellent online reference.