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Luminant 041221	Proposed addressing the subject of QSE and CRR Account Holder background checks at a later date
DC Energy 041421	Supported the 4/12/21 Luminant comments, re-inserted two Business Day minimum and default disclosure concepts from the 4/12/21 DC Energy comments
ERCOT 042021	Clarified that if any Principal of a QSE/CRR Account Holder is or was a Principal of a terminated ERCOT Market Participant with an existing obligation for Default Uplift Ratio Share, the terminated Market Participant must remain current on its payment obligations for Default Uplift Invoices in order for the QSE/CRR Account Holder to become or remain a QSE/ CRR Account Holder
Credit WG 042121	Noted NPRR1073 will provide positive credit impacts and is consistent with the ERCOT filing at the Public Utility Commission of Texas (PUCT) regarding implementation of default allocation rules
Luminant 042621	Requested TAC table NPRR1073
Luminant 051721	Revised item (1)(f) of Section 16.1.2 to limit the definition of a Principal to officers or individuals granted the ability to make decisions that would bind the Entities
ERCOT 052521	Updated the NPRR title, revision description, and business case to reflect the current intent of the NPRR; proposed language to add a "look-back" period and remove disclosure language in the QSE/CRR Account Holder application specific to NPRR1067, Market Entry Qualifications, Continued Participation Requirements, and Credit Risk Assessment; and provided ERCOT's understanding of the impacts of the implementation of NPRR1073 as compared to NPRR1067
Shell 052521	Revised the definition of Principal to revert item (1)(e) of Section 16.1.2 to the original language submitted by ERCOT in NPRR1067; proposed to limit past linkages of a Principal to an Entity to six months before the termination or default in order to capture the decision makers who led the Entities into the outstanding payment obligation; added clarity to QSE and CRR Account Holder applications by specifically stating that the disqualification or defaults reference are related to ISO markets and clearing houses; proposed removal of part III (B) of the CRR Account Holder application (Section 23, Form A) & part IV (B) of the QSE application (Section 23, Form G) with intent for further discussion at a later time

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Shell 052521	Responded to 5/25/21 ERCOT comments, proposed to revert item (1)(e) of Section 16.1.2 to the original language submitted by ERCOT in NPRR1067; and provided additional questions for discussion
WMS 060421	Requested TAC continue to table NPRR1073 for further review by the Market Credit Working Group (MCWG) and an ERCOT workshop on securitization
Luminant 070621	Further modified definition of "Principal" in Section 16.1.2
WMS 071321	Endorsed NPRR1073 as amended by the 7/6/21 Luminant comments
Credit WG 072121	Acknowledged positive credit impacts, supported the 7/6/21 Luminant comments, noted the need for a subsequent NPRR to address the appeal process for Entities deemed to be Principals under NPRR1073

Market Rules Notes

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

- NPRR1067, Market Entry Qualifications, Continued Participation Requirements, and Credit Risk Assessment

  - 16.1.2, Principal of a Market Participant (new)
  - 16.2.1, Criteria for Qualification as a Qualified Scheduling Entity
  - 16.2.1.1, QSE Background Check Process (new)
  - 16.2.1.1, Data Agent-Only Qualified Scheduling Entities
  - 16.2.2, QSE Application Process
  - 16.2.2.2, Incomplete Applications
  - 16.2.2.3, ERCOT Approval or Rejection of Qualified Scheduling Entity Application
  - 16.2.3.2, Maintaining and Updating QSE Information
  - 16.8.1, Criteria for Qualification as a CRR Account Holder
  - 16.8.1.1, CRR Account Holder Background Check Process (new)
  - 16.8.2, CRR Account Holder Application Process
  - 16.8.2.2, Incomplete Applications
  - 16.8.2.3, ERCOT Approval or Rejection of CRR Account Holder Application
  - 16.8.3.1, Maintaining and Updating CRR Account Holder Information
  - Section 23 Form A: Congestion Revenue Right (CRR) Account Holder Application for Registration
  - Section 23 Form G: QSE Application and Service for Registration Form
  - ERCOT Fee Schedule

Proposed Protocol Language Revision

Board Report

16.1.2 *Principal of a Market Participant*

(1)   For purposes of Section 16, Registration and Qualification of Market Participants, a Principal is any of the following, as related to a registered Market Participant or Market Participant applicant:

    (a)   A sole proprietor of a sole proprietorship;

    (b)   A general partner of a general partnership;

    (c)   An executive of a company (e.g., president, chief executive officer, chief operating officer, chief financial officer, general counsel, or equivalent position);

    (d)   A manager, managing member, or a member vested with the management authority of a limited liability company or limited liability partnership;

    (e)   A shareholder with more than 10% equity of the Entity; or

    (f)   A person that has authority to make decisions under these Protocols on behalf of the registered Market Participant or applicant, and is not otherwise controlled by any of the other Principal types listed above, or as otherwise identified by ERCOT.

16.2.1 *Criteria for Qualification as a Qualified Scheduling Entity*

(1)   To become and remain a Qualified Scheduling Entity (QSE), an Entity must meet the following requirements:

    (a)   Submit a properly completed QSE application for qualification, including any applicable fee, necessary disclosures, and designation of Authorized Representatives, each of whom is responsible for administrative communications with the QSE and each of whom has enough authority to commit and bind the QSE and the Entities it represents;

    (b)   Sign a Standard Form Market Participant Agreement;

    (c)   Sign any required Agreements relating to use of the ERCOT network, software, and systems;

    (d)   Demonstrate to ERCOT's reasonable satisfaction that the Entity is capable of performing the functions of a QSE;

    (e)   Demonstrate to ERCOT's reasonable satisfaction that the Entity is capable of complying with the requirements of all ERCOT Protocols and Operating Guides;

    (f)   Satisfy ERCOT's creditworthiness and capitalization requirements as set forth in this Section, unless exempted from these requirements by Section 16.17,

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Exemption for Qualified Scheduling Entities Participating Only in Emergency Response Service;

(g) Be generally able to pay its debts as they come due. ERCOT may request evidence of compliance with this qualification only if ERCOT reasonably believes that a QSE is failing to comply with it;

(h) Provide all necessary bank account information and arrange for Fedwire system transfers for two-way confirmation;

(i) Be financially responsible for payment of Settlement charges for those Entities it represents under these Protocols;

(j) Comply with the backup plan requirements in the Operating Guides;

(k) Maintain a 24-hour, seven-day-per-week scheduling center with qualified personnel for the purposes of communicating with ERCOT relating to Day-Ahead and Operating Day exchange of market and operational obligations in representing Load, Resources, and market positions. Those personnel must be responsible for operational communications and must have sufficient authority to commit and bind the QSE and the Entities that it represents;

(l) Demonstrate and maintain a working functional interface with all required ERCOT computer systems; and

(m) Allow ERCOT, upon reasonable notice, to conduct a site visit to verify information provided by the QSE.

(2) If a QSE chooses to use Electronic Data Interchange (EDI) transactions to receive Settlement Statements and Invoices, it must participate in and successfully complete testing as described in Section 19.8, Retail Market Testing, before starting operations with ERCOT as a QSE.

(3) A QSE or QSE applicant must be able to demonstrate to ERCOT's reasonable satisfaction that none of its Principals were or are Principals of any Entity with an outstanding payment obligation that remains owing to ERCOT under any Agreement or these Protocols. For purposes of this section, ERCOT will only consider disqualifying those Principals of the QSE or QSE applicant who were Principals of the other Entity at a time during which the unpaid financial obligation remained owing to ERCOT or during the 120-day period prior to the date on which the unpaid financial obligation first became due and owing to ERCOT.

(4) If any of a QSE's or QSE applicant's Principals were or are Principals of a terminated Market Participant with an obligation for Default Uplift Ratio Share allocated under Protocol Section 9.19.1, the terminated Market Participant must be current on all payment obligations for Default Uplift Invoices in order for the QSE to remain, or QSE applicant to become, a registered QSE. For purposes of this section, ERCOT will only consider as disqualifying those Principals of the QSE or QSE applicant who were

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Principals of the other Entity at a time during which the other Entity was not current on its payment obligation for Default Uplift Invoices or 120 days prior to the date the other Entity first failed to pay a Default Uplift Invoice.

(5)   A QSE shall promptly notify ERCOT of any change that a reasonable examiner may deem material to the QSE's ability to continue to meet the requirements set forth in this Section, and any material change in the information provided by the QSE to ERCOT that may adversely affect the reliability or safety of the ERCOT System or the financial security of ERCOT. This includes any changes in the Principals of the QSE. If the QSE fails to so notify ERCOT of such change within two Business Days after becoming aware of the change, then ERCOT may, after providing notice to each Entity represented by the QSE, refuse to allow the QSE to perform as a QSE and take any other action ERCOT deems appropriate, in its sole discretion, to prevent ERCOT or Market Participants from bearing potential or actual risks, financial or otherwise, arising from those changes, and in accordance with these Protocols.

(6)   Subject to the following provisions of this paragraph, a QSE may partition itself into any number of subordinate QSEs ("Subordinate QSEs"). If a single Entity requests to partition itself into more than four Subordinate QSEs, ERCOT may implement the request subject to ERCOT's reasonable determination that the additional requested Subordinate QSEs will not be likely to overburden ERCOT's staffing or systems. ERCOT shall adopt an implementation plan allowing phased-in registration for these additional Subordinate QSEs in order to mitigate system or staffing impacts. However, ERCOT may not unreasonably delay that registration.

(7)   Each Subordinate QSE must be treated as an individual QSE for all purposes including communications and control functions except for liability, financial security, and financial liability requirements under this Section. That liability, financial security, and financial liability is cumulative for all Subordinate QSEs for the single Entity signing the QSE Agreement.

(8)   Continued qualification as a QSE is contingent upon compliance with all applicable requirements in these Protocols. ERCOT may suspend a QSE's rights as a Market Participant when ERCOT reasonably determines that it is an appropriate remedy for the Entity's failure to satisfy any applicable requirement.

16.2.1.1   Data Agent-Only Qualified Scheduling Entities

(1)   An Entity may request registration as a Data Agent-Only QSE by submitting a completed Data Agent-Only QSE application. ERCOT will consider the application and register the Entity as a Data Agent-Only QSE in accordance with the same processes in Section 16.2, Registration and Qualification of Qualified Scheduling Entities, generally applicable to the QSE application process.

(2)   An Entity is eligible to register as a Data Agent-Only QSE and maintain that registration if it:

(a)   Meets all the eligibility criteria to qualify as a QSE under paragraph (1) of Section 16.2.1, Criteria for Qualification as a Qualified Scheduling Entity, except for items (f), (h), (j), and (k);

(b)   Is not also registered as a Congestion Revenue Right (CRR) Account Holder;

(c)   Does not participate in the Day-Ahead Market (DAM) or Real-Time Market (RTM);

(d)   Does not participate in the Emergency Response Service (ERS) market;

(e)   Does not have decision making authority over the Resources for which the Entity provides agency services; and

(f)   Maintains 24-hour, seven-day-per-week support contact with qualified personnel to support and resolve any data or communication issues with ERCOT.

(3)   A registered Data Agent-Only QSE may only be appointed to act as the authorized agent of a QSE that meets all requirements of Section 16.2.1 for the limited purpose of exchanging or communicating certain types of data with ERCOT provided that a QSE Agency Agreement making such appointment has been properly executed by the parties and accepted by ERCOT. If a Data Agent-Only QSE is appointed as such an agent, it shall perform its agency services in accordance with the terms of the QSE Agency Agreement and the requirements for Wide Area Network (WAN) Participants under the Nodal Operating Guide Section 7, Telemetry and Communication. Once a Data Agent-Only QSE has been designated as an agent as provided herein, it will be authorized to act on behalf of the designating QSE and the Market Participant represented by the designating QSE.

(4)   A Data Agent-Only QSE shall comply with the obligations applicable to QSEs under this Section 16, Registration and Qualification of Market Participants, but is exempt from the following requirements:

(a)   Paragraph (1)(f) of Section 16.2.1;

(b)   Paragraph (1)(h) of Section 16.2.1;

(c)   Paragraph (1)(j) of Section 16.2.1;

(d)   Paragraph (1)(k) of Section 16.2.1;

(e)   Section 16.11, Financial Security for Counter-Parties; and

(f)   Section 16.16, Additional Counter-Party Qualification Requirements.

(5)   ERCOT will ensure that its systems prevent participation by a Data Agent-Only QSE in the DAM and RTM.

(6) A Data Agent-Only QSE may request to change its registration to a QSE that meets all the requirements of Section 16.2.1 and is registered with ERCOT as such by submitting a written request to ERCOT. ERCOT will change the Data Agent-Only QSE's registration upon satisfaction of all requirements in Section 16.2.1.

(7) Nothing in this section affects a Data Agent-Only QSE's obligation under paragraph (3) of Section 16.2.1 to provide ERCOT notice of any material change that could adversely affect the reliability or safety of the ERCOT System.

16.2.2 QSE Application Process

(1) To register as a QSE, an applicant must submit to ERCOT a completed Section 23 Form G: QSE Application and Service Filing for Registration Form and any applicable fee. ERCOT shall post on the ERCOT website the form in which QSE applications must be submitted, all materials that must be provided with the QSE application and the fee schedule, if any, applicable to QSE applications. The QSE application shall be attested to by a duly authorized officer or agent of the applicant. The QSE applicant shall promptly notify ERCOT of any material changes affecting a pending application using the appropriate form posted on the ERCOT website. The application must be submitted at least 60 days before the proposed date of commencement of service.

16.2.2.2 Incomplete QSE Applications

(1) Within ten Business Days after receiving a QSE application, ERCOT shall notify the applicant in writing if the application is incomplete. An application will not be deemed complete until ERCOT has received all information necessary to conduct an evaluation of whether the applicant satisfies the requirements to be registered as a QSE.

(2) If a QSE application is incomplete, ERCOT's notice of incompletion to the applicant must explain the deficiencies and describe the additional information necessary to make the QSE application complete. The QSE applicant has five Business Days after it receives the notice, or a longer period if ERCOT allows, to provide the additional required information.

(3) If the applicant does not respond to the incompletion notice within the time allotted, ERCOT shall reject the application and shall notify the applicant using the procedures below.

(4) ERCOT will notify the applicant of the date on which the application is deemed complete.

16.2.2.3 ERCOT Approval or Rejection of Qualified Scheduling Entity Application

(1) ERCOT will approve or reject a QSE application within 60 days after the application has been deemed complete as provided for in Section 16.2.2.2, Incomplete QSE Applications,

unless ERCOT determines that additional time is needed to complete its review of the application. ERCOT will notify the applicant when additional time is needed to complete its review and will provide a date by which ERCOT expects to complete its review. If ERCOT's initial evaluation indicates that there may be a basis to reject the application, ERCOT may contact the applicant prior to rendering a final decision on the application to determine if further information can be provided by the applicant to resolve the identified concern.

(2)   If ERCOT rejects a QSE application, ERCOT shall send the applicant a rejection letter explaining the grounds upon which ERCOT rejected the QSE application. Appropriate grounds for rejecting a QSE application include the following:

    (a)   Required information is not provided to ERCOT in the allotted time;

    (b)   Noncompliance with technical requirements; and

    (c)   Noncompliance with other specific eligibility requirements in this Section or in any other Protocols.

(3)   Not later than ten Business Days after receiving a rejection letter, the QSE applicant may challenge the rejection of its QSE application using the dispute resolution procedures set forth in Section 20, Alternative Dispute Resolution Procedure. The applicant may submit a new QSE application and fee at any time, and ERCOT shall process the new QSE application under this Section.

(4)   If ERCOT approves the QSE application, ERCOT shall send the applicant a Standard Form Market Participant Agreement and any other required Agreements relating to use of the ERCOT network, software, and systems for the applicant's signature.

(5)   If ERCOT fails to approve or deny the QSE application within 60 days after the application is deemed complete, and also fails to notify the applicant that additional time is needed to complete its review, the QSE applicant may seek relief using the dispute resolution procedures set forth in Section 20.

16.2.3.2   Maintaining and Updating QSE Information

(1)   Each QSE must timely update information the QSE provided to ERCOT in the application process, and a QSE must promptly respond to any reasonable request by ERCOT for updated information regarding the QSE or the information provided to ERCOT by the QSE, including:

    (a)   The QSE's addresses;

    (b)   A list of Principals, as defined in Section 16.1.2, Principal of a Market Participant;

    (c)   A list of Affiliates; and

(d)   Designation of the QSE's officers, directors, Authorized Representatives, Credit Contacts, and User Security Administrator (USA) (all per the QSE application) including the addresses (if different), telephone and facsimile numbers, and e-mail addresses for those persons.

16.8.1   *Criteria for Qualification as a CRR Account Holder*

(1)   To become and remain a Congestion Revenue Right (CRR) Account Holder, an Entity must meet the following requirements:

    (a)   Submit a properly completed CRR Account Holder application (Section 23, Form A, Congestion Revenue Right (CRR) Account Holder Application for Registration) for qualification, including any applicable fee, any necessary disclosures, and designation of "Authorized Representatives," each of whom is responsible for administrative communications with the CRR Account Holder and each of whom has enough authority to commit and bind the CRR Account Holder;

    (b)   Sign a CRR Account Holder Agreement;

    (c)   Sign any required Agreements relating to use of the ERCOT network, software, and systems;

    (d)   Demonstrate to ERCOT's reasonable satisfaction that the Entity is capable of performing the functions of a CRR Account Holder;

    (e)   Demonstrate to ERCOT's reasonable satisfaction that the Entity is capable of complying with the requirements of all ERCOT Protocols and Operating Guides;

    (f)   Satisfy ERCOT's creditworthiness requirements as set forth in this Section;

    (g)   Be generally able to pay its debts as they come due; ERCOT may request evidence of compliance with this qualification only if ERCOT reasonably believes that a CRR Account Holder is failing to comply with it;

    (h)   Provide all necessary bank account information and arrange for Fedwire system transfers for two-way confirmation;

    (i)   Be financially responsible for payment of its Settlement charges under these Protocols; and

    (j)   Not be an unbundled Transmission Service Provider (TSP), Distribution Service Provider (DSP), or an ERCOT employee.

(2)   A CRR Account Holder or CRR Account Holder applicant must be able to demonstrate to ERCOT's reasonable satisfaction that none of its Principals were or are Principals of any Entity with an outstanding payment obligation that remains owing to ERCOT under

any Agreement or these Protocols. For purposes of this section, ERCOT will only consider disqualifying those Principals of the CRR Account Holder or CRR Account Holder applicant who were Principals of the other Entity at a time during which the unpaid financial obligation remained owing to ERCOT or during the 120-day period prior to the date on which the unpaid financial obligation first became due and owing to ERCOT.

(3)   If any of a CRR Account Holder's or CRR Account Holder applicant's Principals were or are Principals of a terminated Market Participant with an obligation for Default Uplift Ratio Share allocated under Protocol Section 9.19.1, the terminated Market Participant must be current on all payment obligations for Default Uplift Invoices in order for the CRR Account Holder to remain, or CRR Account Holder applicant to become, a registered CRR Account Holder. For purposes of this section, ERCOT will only consider as disqualifying those Principals of the CRR Account Holder or CRR Account Holder applicant who were Principals of the other Entity at a time during which the other Entity was not current on its payment obligation for Default Uplift Invoices or 120 days prior to the date the other Entity first failed to pay a Default Uplift Invoice.

(4)   A CRR Account Holder shall promptly notify ERCOT of any material change that a reasonable examiner could deem material to the CRR Account Holder's ability to continue to meet the requirements set forth in paragraphs (1) to (3) above, and any material change in the information provided by the CRR Account Holder to ERCOT that may adversely affect the financial security of ERCOT. This includes any changes in the Principals of the CRR Account Holder. If the CRR Account Holder fails to so notify ERCOT of the following within two Business Days after becoming aware of the change, then ERCOT may refuse to allow the CRR Account Holder to continue to perform as a CRR Account Holder and take any other action ERCOT deems appropriate, in its sole discretion, to prevent ERCOT or Market Participants from bearing potential or actual risks, financial or otherwise, arising from those changes, and in accordance with these Protocols.

(5)   Continued qualification as a CRR Account Holder is contingent upon compliance with all applicable requirements in these Protocols. ERCOT may suspend a CRR Account Holder's rights as a Market Participant when ERCOT reasonably determines that it is an appropriate remedy for the Entity's failure to satisfy any applicable requirement.

16.8.2   CRR Account Holder Application Process

(1)   To register as a CRR Account Holder, an applicant must submit to ERCOT a completed Section 23 Form A: Congestion Revenue Right (CRR) Account Holder Application for Registration and any applicable fee. ERCOT shall post on the ERCOT website the form in which CRR Account Holder applications must be submitted, all materials that must be provided with the CRR Account Holder application and the fee schedule, if any, applicable to CRR Account Holder applications. The CRR Account Holder application shall be attested to by a duly authorized officer or agent of the applicant. The CRR Account Holder applicant shall promptly notify ERCOT of any material changes

affecting a pending application using the appropriate form posted on the ERCOT website. The application must be submitted at least 60 days before the first day of participation in the CRR Auction process or purchase of CRRs.

16.8.2.2   Incomplete CRR Account Holder Applications

(1)   Within ten Business Days after receiving a CRR Account Holder application, ERCOT shall notify the applicant in writing if the application is incomplete. An application will not be deemed complete until ERCOT has received all information necessary to conduct an evaluation of whether the applicant satisfies the requirements to be registered as a CRR Account Holder.(2)   If a CRR Account Holder application is incomplete, ERCOT's notice of incompletion to the applicant must explain the deficiencies and describe the additional information necessary to make the CRR Account Holder application complete. The CRR Account Holder applicant has five Business Days after it receives the notice, or a longer period if ERCOT allows, to provide the additional required information. (3)   If the applicant does not respond to the incompletion notice within the time allotted, ERCOT shall reject the application and shall notify the applicant using the procedures below.

(4)   ERCOT will notify the applicant of the date on which the application is deemed complete.

16.8.2.3   ERCOT Approval or Rejection of CRR Account Holder Application

(1)   ERCOT will approve or reject a CRR Account Holder application within 60 days after the application has been deemed complete as provided for in Section 16.8.2.2, Incomplete CRR Account Holder Applications, unless ERCOT determines that additional time is needed to complete its review of the application. ERCOT will notify the applicant when additional time is needed to complete its review and will provide a date by which ERCOT expects to complete its review. If ERCOT's initial evaluation indicates that there may be a basis to reject the application, ERCOT may contact the applicant prior to rendering a final decision on the application to determine if further information can be provided by the applicant to resolve the identified concern.

(2)   If ERCOT rejects a CRR Account Holder application, ERCOT shall send the applicant a rejection letter explaining the grounds upon which ERCOT rejected the CRR Account Holder application. Appropriate grounds for rejecting a CRR Account Holder application include the following:

(a)   Required information is not provided to ERCOT in the allotted time;

(b)   Noncompliance with technical requirements; and

(c)   Noncompliance with other specific eligibility requirements in this Section or in any other Protocols.

(3)   Not later than ten Business Days after receiving a rejection letter, the CRR Account Holder applicant may challenge the rejection of its CRR Account Holder application using the dispute resolution procedures set forth in Section 20, Alternative Dispute Resolution Procedure. The applicant may submit a new CRR Account Holder application and fee at any time, and ERCOT shall process the new CRR Account Holder application under this Section.

(4)   If ERCOT approves the CRR Account Holder application, ERCOT shall send the applicant a CRR Account Holder Agreement and any other required Agreements relating to use of the ERCOT network, software, and systems for the applicant's signature.

(5)   If ERCOT fails to approve or deny the CRR Account Holder application within 60 days after the application is deemed complete, and fails to notify the applicant that additional time is needed to complete its review, the CRR Account Holder may seek relief using the dispute resolution procedures set forth in Section 20.

16.8.3.1   Maintaining and Updating CRR Account Holder Information

(1)   Each CRR Account Holder must timely update information the CRR Account Holder provided to ERCOT in the application process, and a CRR Account Holder must promptly respond to any reasonable request by ERCOT for updated information regarding the CRR Account Holder or the information provided to ERCOT by the CRR Account Holder, including:

   (a)   The CRR Account Holder's addresses;

   (b)   A list of Principals;

   (c)   A list of Affiliates; and

   (d)   Designation of the CRR Account Holder's officers, directors, Authorized Representatives, Credit Contacts, and User Security Administrator (all per the CRR Account Holder application) including the addresses (if different), telephone and facsimile numbers, and e-mail addresses for those persons.

ERCOT Nodal Protocols

Section 23

Form A: Congestion Revenue Right (CRR) Account Holder Application for Registration

TBD

Board Report

Date Received: _____

CONGESTION REVENUE RIGHT (CRR) ACCOUNT HOLDER
APPLICATION FOR REGISTRATION

This application is for approval as a CRR Account Holder by the Electric Reliability Council of Texas Inc. (ERCOT) in accordance with the ERCOT Protocols. Information may be inserted electronically to expand the reply spaces as necessary. ERCOT will accept the completed, executed application via email to MPRegistration@ercot.com (.pdf version), via facsimile to (512) 225-7079, or via mail to Market Participant Registration, 7620 Metro Center Drive, Austin, Texas 78744. In addition to the application, ERCOT must receive an application fee in the amount of $500 via check or wire transfer. If you need assistance filling out this form, or if you have any questions, please call (512) 248-3900.

This application must be signed by the Authorized Representative, Backup Authorized Representative or an Officer of the company listed herein, as appropriate. ERCOT may request additional information as reasonably necessary to support operations under the ERCOT Protocols.

PART I – ENTITY INFORMATION

Legal Name of the Applicant:	
Legal Address of the Applicant:	Street Address:
	City, State, Zip:
DUNS¹ Number:	

¹ Defined in Section 2.1, Definitions.

☐ **Check if entity is a Non-Opt In Entity (NOIE).**

1. Authorized Representative ("AR"). Defined in Section 2.1, Definitions.

Name:		Title:	
Address:			
City:		**State:**		**Zip:**	
Telephone:		**Fax:**	
Email Address:	

2. Backup AR. *(Optional)* This person may sign any form for which an AR's signature is required and will perform the functions of the AR in the event the AR is unavailable.

Name:		Title:	
Address:			
City:		**State:**		**Zip:**	
Telephone:		**Fax:**	
Email Address:	

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3. Type of Legal Structure. (Please indicate only one.)

☐ Individual	☐ Partnership	☐ Municipally Owned Utility
☐ Electric Cooperative	☐ Limited Liability Company	☐ Corporation
☐ Other: _____		

If Applicant is not an individual, provide the state in which the Applicant is organized, _____, and the date of organization: _____

4. User Security Administrator (USA). As defined in Section 16.12, User Security Administrator and Digital Certificates, the USA is responsible for managing the Market Participant's access to ERCOT's computer systems through Digital Certificates.

Name:		Title:	
Address:			
City:		**State:**	**Zip:**
Telephone:		**Fax:**	
Email Address:			

5. Backup USA. *(Optional)* This person may perform the functions of the USA as defined in the ERCOT Protocols in the event the USA is unavailable.

Name:		Title:	
Address:			
City:		**State:**	**Zip:**
Telephone:		**Fax:**	
Email Address:			

6. Cybersecurity. This contact is responsible for communicating Cybersecurity Incidents.

Name:		Title:	
Address:			
City:		**State:**	**Zip:**
Telephone:		**Fax:**	
Email Address:			

7. Allocation Eligibility. Indicate if the Applicant is eligible for the allocation described below:

☐ **Pre-Assigned Congestion Revenue Right (PCRR) Allocations.** ERCOT shall allocate PCRRs to eligible Municipally Owned Utilities (MOUs) and Electric Cooperatives (ECs) pursuant to Section 7.4, Allocation of Pre-Assigned Congestion Revenue Rights.

8. Proposed commencement date for service: _____

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PART II – BANKING INFORMATION FOR FUNDS TRANSFERS

1. Banking Information. Applicant must be able to conduct Electronic Funds Transfers (EFTs) for the settlement of financial transactions with ERCOT.

Bank Name:	
Account Name:	
Account No.:	
ABA Number:	

2. Accounts Payable Contact (Settlement & Billing).

Name:			**Title:**	
Address:				
City:		**State:**		**Zip:**
Telephone:		**Fax:**		
Email Address:				

3. Backup Accounts Payable Contact (Settlement & Billing). *(Optional)*

Name:			**Title:**	
Address:				
City:		**State:**		**Zip:**
Telephone:		**Fax:**		
Email Address:				

PART III – ADDITIONAL REQUIRED INFORMATION

1. Officers and Principals. Provide the name of all officers and the name and position of all Principals, as defined by ERCOT Protocol Section 16.1.2, Principal of a Market Participant.. In addition, ERCOT will obtain the names of all individuals and/or entities listed with the Texas Secretary of State as having binding authority for the Applicant. ERCOT will use this list of individuals to determine who can execute such documents as the Standard Form Market Participant Agreement (Section 22, Attachment A), Amendment to the Standard Form Market Participant Agreement (Section 22, Attachment C), Digital Certificate Audit Attestation, etc. Alternatively, additional documentation (Articles of Incorporation, Board Resolutions, Delegation of Authority, Secretary's Certificate, etc.) can be provided to prove binding authority for the Applicant.

2. Affiliates and Other Registrations. Provide the name, legal structure, and relationship of each of the Applicant's affiliates, if applicable. See Section 2.1, Definitions, for the definition of "Affiliate." Please also provide the name and type of any other ERCOT Market Participant registrations held by the Applicant. *(Attach additional pages if necessary.)*

Affiliate Name (or name used for other ERCOT registration)	**Type of Legal Structure** (partnership, limited liability company, corporation, etc.)	**Relationship** (parent, subsidiary, partner, affiliate, etc.)

3. Disclosures. Provide the name of any Principal of the Applicant that is now, or was at any point in time, a Principal of any other Entity that is now, or was at any point in time, a registered ERCOT Market Participant, along with the name of the relevant ERCOT Market Participant and the dates during which the Principal of the Applicant was a Principal of the other Entity.

4. Counter-Party Credit Application. Complete the Counter-Party Credit Application, located at http://www.ercot.com/services/rq/credit, and submit as instructed in conjunction with this application, in accordance with Section 16.8, Registration and Qualification of Congestion Revenue Rights Account Holders.

5. Annual Certification Form to Meet ERCOT Additional Minimum Participation. Complete Section 22 Attachment J, Annual Certification Form to Meet ERCOT Additional Minimum Participation Requirements, and submit in conjunction with this application, pursuant to Section 16.16.3, Verification of Risk Management Framework.

6. Qualified Scheduling Entity (QSE) Acknowledgment. Provide all information requested in Attachment A below and have the document executed by both parties, *ONLY* if the Applicant is a Non-Opt-In Entity (NOIE) and eligible for Pre-assigned CRRs.

PART IV – SIGNATURE

I affirm that I have personal knowledge of the facts stated in this application and that I have the authority to submit this application form on behalf of the Applicant. I further affirm that all statements made and information provided in this application form are true, correct and complete, and that the Applicant will provide to ERCOT any changes in such information in a timely manner.

Signature of AR, Backup AR or Officer:	
Printed Name of AR, Backup AR or Officer:	
Date:	

Board Report

Attachment A – QSE Acknowledgment

**Acknowledgment by Designated QSE for
Scheduling and Settlement Responsibilities with ERCOT
Applicable only if CRRAH is a NOIE and eligible for Pre-Assigned CRRs**

The Applicant below has named the QSE listed below as its designated QSE to represent the Applicant for scheduling and Settlement transactions with ERCOT.

The Applicant's designated QSE, listed below, hereby acknowledges that it does represent the Applicant and that it shall be responsible for the Applicant's scheduling and Settlement transactions with ERCOT pursuant to the ERCOT Protocols.

The requested effective date for such representation is: _____ **

or

Establish partnership at the earliest possible date ☐

Acknowledgment by **QSE**:

Signature of AR for QSE:	
Printed Name of AR:	
Email Address of AR:	
Date:	
Name of Designated QSE:	
DUNS of Designated QSE:	

Acknowledgment by **Applicant**:

Signature of AR for MP:	
Printed Name of AR:	
Email Address of AR:	
Date:	
Name of MP:	
DUNS No. of MP:	

** *Actual effective date will depend on time needed to implement the relationship in ERCOT systems once ERCOT has received all necessary information (a minimum of three Business Days), and may be later than the requested effective date. ERCOT will notify the parties of the actual effective date.*

ERCOT Nodal Protocols

Section 23

Form G: QSE Application and Service Filing for Registration Form

TBD

Board Report

QUALIFIED SCHEDULING ENTITY (QSE)
APPLICATION AND SERVICE FILING FOR REGISTRATION

This application is for approval as a Qualified Scheduling Entity (QSE) by Electric Reliability Council of Texas Inc. (ERCOT) in accordance with the ERCOT Protocols. Information may be inserted electronically to expand the reply spaces as necessary. ERCOT will accept the completed, executed application via email to MPRegistration@ercot.com (.pdf version), via facsimile to (512) 225-7079, or via mail to Market Participant Registration, 7620 Metro Center Drive, Austin, Texas 78744. In addition to the application, ERCOT must receive an application fee in the amount of $500 via check. If you need assistance filling out this form, or if you have any questions, please call (512) 248-3900.

This application must be signed by the Authorized Representative, Backup Authorized Representative or an Officer of the company listed herein, as appropriate. ERCOT may request additional information as reasonably necessary to support operations under the ERCOT Protocols.

PART I – ENTITY INFORMATION

Legal Name of the Applicant:	
Legal Address of the Applicant:	Street Address:
	City, State, Zip:
DUNS[1] Number:	

[1]Defined in Section 2.1, Definitions.

☐ **Check if Applying as an Emergency Response Service (ERS) Only QSE.**

1. Authorized Representative ("AR"). Defined in Section 2.1, Definitions.

Name:		Title:	
Address:			
City:	State:	Zip:	
Telephone:	Fax:		
Email Address:			

2. Backup AR. *(Optional)* This person may sign any form for which an AR's signature is required and will perform the functions of the AR as defined in the ERCOT Protocols in the event the AR is unavailable.

Name:		Title:	
Address:			
City:	State:	Zip:	
Telephone:	Fax:		
Email Address:			

3. Type of Legal Structure. (Please indicate only one.)

Board Report

☐ Individual   ☐ Partnership   ☐ Municipally Owned Utility
☐ Electric Cooperative   ☐ Limited Liability Company   ☐ Corporation
☐ Other: _____

If Applicant is not an individual, provide the state in which the Applicant is organized, _____, and the date of organization: _____.

4. User Security Administrator (USA). As defined in Section 16.12, User Security Administrator and Digital Certificates, the USA is responsible for managing the Market Participant's access to ERCOT's computer systems through Digital Certificates.

Name:		Title:	
Address:			
City:		**State:**		**Zip:**	
Telephone:		**Fax:**		
Email Address:			

5. Backup USA. *(Optional)* This person may perform the functions of the USA as defined in the ERCOT Protocols in the event the USA is unavailable.

Name:		Title:	
Address:			
City:		**State:**		**Zip:**	
Telephone:		**Fax:**		
Email Address:			

6. Cybersecurity. This contact is responsible for communicating Cybersecurity Incidents.

Name:		Title:	
Address:			
City:		**State:**		**Zip:**	
Telephone:		**Fax:**		
Email Address:			

7. 24x7 Control or Operations Center. As defined in item (1)(k) of Section 16.2.1, Criteria for Qualification as a Qualified Scheduling Entity, the 24x7 control or operations center is responsible for operational communications and shall have sufficient authority to commit and bind the QSE.

Desk Name:			
Address:			
City:		**State:**		**Zip:**	
Telephone:		**Fax:**		
Email Address:			

8. Compliance Contact. This person is responsible for compliance related issues.

Name:		Title:	
Address:			
City:		State:	Zip:
Telephone:		Fax:	
Email Address:			

9. Proposed commencement date for service: _____

PART II – BANKING INFORMATION FOR FUNDS TRANSFERS

1. Banking Information. Applicant must be able to conduct Electronic Funds Transfers (EFTs) for the settlement of financial transactions with ERCOT.

Bank Name:	
Account Name:	
Account No.:	
ABA Number:	

2. Accounts Payable Contact (Settlement & Billing).

Name:		Title:	
Address:			
City:		State:	Zip:
Telephone:		Fax:	
Email Address:			

Backup Accounts Payable Contact (Settlement & Billing). *(Optional.)*

Name:		Title:	
Address:			
City:		State:	Zip:
Telephone:		Fax:	
Email Address:			

PART III – DECLARATION OF SUBORDINATE QSEs

If the QSE intends to partition itself into subordinate QSEs (Sub-QSEs), please enter information for each Sub-QSE below. If a Sub-QSE will have a different 24x7 Contact than the QSE, please provide that information in the spaces provided below. The Sub-QSE name must have a reference to the Legal Entity Name. For example: Legal Name of Market Participant (SQ1), Legal Name of Market Participant (SQ2), etc.

Board Report

Sub-QSE One (SQ1)
Name: **Proposed commencement date for service:**
24x7 Contact information same? ☐ **Yes** ☐ **No (If no, complete the section below)**

Name:			Title:	
Address:				
City:		State:		Zip:	
Telephone:		Fax:		
Email Address:				

Sub-QSE Two (SQ2)
Name: **Proposed commencement date for service:**
24x7 Contact information same? ☐ **Yes** ☐ **No (If no, complete the section below)**

Name:			Title:	
Address:				
City:		State:		Zip:	
Telephone:		Fax:		
Email Address:				

Sub-QSE Three (SQ3)
Name: **Proposed commencement date for service:**
24x7 Contact information same? ☐ **Yes** ☐ **No (If no, complete the section below)**

Name:			Title:	
Address:				
City:		State:		Zip:	
Telephone:		Fax:		
Email Address:				

Sub-QSE Four (SQ4)
Name: **Proposed commencement date for service:**
24x7 Contact information same? ☐ **Yes** ☐ **No (If no, complete the section below)**

Name:			Title:	
Address:				
City:		State:		Zip:	
Telephone:		Fax:		
Email Address:				

PART IV – ADDITIONAL REQUIRED INFORMATION

1. Officers and Principals. Provide the name of all officers and the name and position of each Principal, as defined by ERCOT Protocol Section 16.1.2, Principal of a Market Participant. In addition, ERCOT will obtain the names of all individuals and/or entities listed with the Texas Secretary of State as having binding authority for the Applicant. ERCOT will use this list of individuals to determine who can execute such documents as the Standard Form Market Participant Agreement (Section 22, Attachment A), Amendment to Standard Form Market Participant

Board Report

Agreement (Section 22, Attachment C), Digital Certificate Audit Attestation, etc. Alternatively, additional documentation (Articles of Incorporation, Board Resolutions, Delegation of Authority, Secretary's Certificate, etc.) can be provided to prove binding authority for the Applicant.

2. Affiliates and Other Registrations. Provide the name, legal structure, and relationship of each of the Applicant's affiliates, if applicable. See Section 2.1, Definitions, for the definition of "Affiliate." Please also provide the name and type of any other ERCOT Market Participant registrations held by the Applicant. *(Attach additional pages if necessary.)*

3. Disclosures. Provide the name of any Principal of the Applicant that is now, or was at any point in time, a Principal of any other Entity that is now, or was at any point in time, a registered ERCOT Market Participant, along with the name of the relevant ERCOT Market Participant and the dates during which the Principal of the Applicant was a Principal of the other Entity.

4. Counter-Party Credit Application. Complete the Counter-Party Credit Application, located at http://www.ercot.com/services/rq/credit, and submit as instructed in conjunction with this application, in accordance with Section 16.2, Registration and Qualification of Qualified Scheduling Entities.

Affiliate Name (or name used for other ERCOT registration)	Type of Legal Structure (partnership, limited liability company, corporation, etc.)	Relationship (parent, subsidiary, partner, affiliate, etc.)

5. Annual Certification Form to Meet ERCOT Additional Minimum Participation. Complete Section 22, Attachment J, Annual Certification Form to Meet ERCOT Additional Minimum Participation Requirements, and submit in conjunction with this application, pursuant to Section 16.16.3, Verification of Risk Management Framework.

PART V – SIGNATURE

I affirm that I have personal knowledge of the facts stated in this application and that I have the authority to submit this application form on behalf of the Applicant. I further affirm that all statements made and information provided in this application form are true, correct and complete, and that the Applicant will provide to ERCOT any changes in such information in a timely manner.

Board Report

Signature of AR, Backup AR or Officer:	
Printed Name of AR, Backup AR or Officer:	
Date:	

Board Report

ERCOT Fee Schedule
TBD

The following is a schedule of ERCOT fees currently in effect.

Description	Nodal Protocol Reference	Calculation/Rate/Comment
ERCOT System Administration fee	9.16.1	$0.555 per MWh to fund ERCOT activities subject to Public Utility Commission of Texas (PUCT) oversight. This fee is charged to all Qualified Scheduling Entities (QSEs) based on Load represented.
Private Wide Area Network fees	9.16.2	Actual cost of using third party communications network - Initial equipment installation cost not to exceed $25,000, and monthly network management fee not to exceed $1,500.
ERCOT Generation Interconnection fee (Not Refundable)	NA	Application to interconnect generation meeting the requirements of Planning Guide Section 5.1.1, Applicability, to the ERCOT Transmission Grid. $5,000 (less than or equal to 150MW) $7,000 (greater than 150MW)
Full Interconnection Study Application fee (Not Refundable)	NA	$15 per MW – to support ERCOT system studies and coordination. Applicable MW amount per Planning Guide Section 5, Generation Resource Interconnection or Change Request.
Map Sale fees	NA	$20 - $40 per map request (by size)
Qualified Scheduling Entity Application fee	9.16.2	$500 per Entity
Competitive Retailer Application fee	9.16.2	$500 per Entity
Congestion Revenue Right (CRR) Account Holder Application fee	9.16.2	$500 per Entity
Independent Market Information System Registered Entity fee (IMRE)	9.16.2	$500 per Entity
Voluminous Copy fee	NA	$0.15 per page in excess of 50 pages

Revised ERCOT Impact Analysis Report

NPRR Number	1073	NPRR Title	Market Participant Application Changes
Impact Analysis Date	July 27, 2021		
Estimated Cost/Budgetary Impact	Annual Recurring Operations and Maintenance (O&M) Budget Cost: $160k – $190k See ERCOT Staffing Impacts		
Estimated Time Requirements	No project required. This Nodal Protocol Revision Request (NPRR) can take effect within 3 - 4 weeks after Public Utility Commission of Texas (PUCT) approval.		
ERCOT Staffing Impacts (across all areas)	There will be ongoing operational impacts to the following ERCOT department totaling 0.8 Full-Time Employee (FTE) to support this NPRR: • General Counsel (0.8 FTE effort) ERCOT has assessed its ability to absorb the ongoing efforts of this NPRR with current staff and concluded the need for one additional FTE in the Legal Department: • General Counsel (1.0 FTE effort) *1640 hours per year to review new Qualified Scheduling Entity (QSE) and Congestion Revenue Right Account Holder (CRRAH) applications and perform review of existing QSEs and CRRAH.		
ERCOT Computer System Impacts	No impacts to ERCOT computer systems.		
ERCOT Business Function Impacts	ERCOT will update its business processes to implement this NPRR.		
Grid Operations & Practices Impacts	No impacts to ERCOT grid operations and practices.		

Evaluation of Interim Solutions or Alternatives for a More Efficient Implementation
None offered.

Comments
None.

Board Report

NPRR Number	1078	NPRR Title	Clarification of Potential Uplift
Date of Decision		August 10, 2021	
Action		Recommended Approval	
Timeline		Urgent - Given the imminent commencement of the default uplift process, and the substantial amounts due to be recovered, urgency is requested to clarify the calculation of the "Potential Uplift" (PUL) component to ensure more accurate collateralization of Counter-Parties.	
Proposed Effective Date		Upon Public Utility Commission of Texas (PUCT) approval – August 20, 2021	
Priority and Rank Assigned		Not applicable	
Nodal Protocol Sections Requiring Revision		16.11.4.1, Determination of Total Potential Exposure for a Counter-Party	
Related Documents Requiring Revision/Related Revision Requests		None	
Revision Description		This Nodal Protocol Revision Request (NPRR) clarifies the definition of potential uplift within the calculation of a Counter-Party's "Total Potential Exposure Any" (TPEA).	
Reason for Revision		☐ Addresses current operational issues. ☐ Meets Strategic goals (tied to the <u>ERCOT Strategic Plan</u> or directed by the ERCOT Board). ☒ Market efficiencies or enhancements ☐ Administrative ☐ Regulatory requirements ☐ Other: (explain) *(please select all that apply)*	
Business Case		As discussed at the May 19, 2021 Credit Work Group (Credit WG) meeting, the existing definition of PUL contains ambiguous language carried over from the Zonal Protocols which would benefit from clarification to ensure collateralization of uplift charges is consistent with amounts due to ERCOT from Counter-Parties.	

	The language proposed in this NPRR is intended to ensure only amounts due to be paid by Counter-Parties to ERCOT through the default uplift process are subject to collateralization and to also set a limit on the amount collateralized to prevent further financial harm to Market Participants as a result of this default cost recovery process.
Credit Work Group Review	See 6/16/21 Credit WG comments
PRS Decision	On 6/10/21, PRS unanimously voted to grant NPRR1078 Urgent status; to recommend approval of NPRR1078 as revised by PRS; and to forward to TAC NPRR1078. All Market Segments participated in the vote.
Summary of PRS Discussion	On 6/10/21, the sponsor provided an overview of NPRR1078 and proposed desktop edits to lower the proposed limit from "ten years' worth" to "five years' worth" of uplift charges.
TAC Decision	On 6/23/21, TAC voted via roll call to recommend approval of NPRR1078 as recommended by PRS in the 6/10/21 PRS Report and the Impact Analysis for NPRR1078 with a recommended effective date of upon ERCOT Board approval. There was one abstention from the Municipal (CPS Energy) Market Segment. All Market Segments participated in the vote.
Summary of TAC Discussion	On 6/23/21, there was no discussion.
ERCOT Opinion	ERCOT supports approval of NPRR1078.
ERCOT Market Impact Statement	ERCOT Staff has reviewed NPRR1078 and believes the market impact for NPRR1078 provides one or more of the following benefits: transparency, efficiency, and/or reliability; and/or aligns with current market rules.
Board Decision	On 8/10/21, the ERCOT Board recommended approval of NPRR1078 as recommended by TAC in the 6/23/21 TAC Report with a recommended effective date of upon PUCT approval.

Sponsor	
Name	Bill Barnes
E-mail Address	bill.barnes@nrg.com
Company	Reliant Energy Retail Services LLC
Phone Number	512-691-6137
Cell Number	315-885-5925

Board Report

Market Segment	Independent Retail Electric Provider (IREP)

Market Rules Staff Contact	
Name	Cory Phillips
E-Mail Address	cory.phillips@ercot.com
Phone Number	512-248-6464

Comments Received	
Comment Author	**Comment Summary**
Credit WG 061621	Endorsed NPRR1078 noting positive credit impacts as it appropriately margins Market Participants for known credit risk related to future default allocation
CPS Energy 062221	Abstained from the TAC vote on NPRR1078 due to pending litigation in which CPS Energy has challenged the constitutionality of the policy underlying Section 16.11.4.1

Market Rules Notes

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

- NPRR1067, Market Entry Qualifications, Continued Participation Requirements, and Credit Risk Assessment
    - Section 16.11.4.1

Proposed Protocol Language Revision

16.11.4.1   Determination of Total Potential Exposure for a Counter-Party

(1)   A Counter-Party's TPE is the sum of its "Total Potential Exposure Any" (TPEA) and TPES:

    (a)   TPEA is the positive net exposure of the Counter-Party that may be satisfied by any forms of Financial Security defined under paragraphs (1)(a) through (1)(d) of Section 16.11.3, Alternative Means of Satisfying ERCOT Creditworthiness Requirements. TPEA will include all exposure not included in TPES.

    (b)   TPES is the positive net exposure of the Counter-Party that may be satisfied only by forms of Financial Security defined under paragraphs (1)(b) through (1)(d) of Section 16.11.3. The Future Credit Exposure (FCE) that reflects the future mark-to-market value for CRRs registered in the name of the Counter-Party is included in TPES.

Board Report

(2)   For all Counter-Parties:

$$\text{TPEA} = \text{Max}[0, \text{MCE}, \text{Max}[0, ((1\text{-TOA}) * \text{EAL}_q + \text{TOA} * \text{EAL}_t + \text{EAL}_a)]] + \text{PUL}$$

$$\text{TPES} = \text{Max}[0, \text{FCE}_a] + \text{IA}$$

The above variables are defined as follows:

Variable	Unit	Description
EAL $_q$	$	*Estimated Aggregate Liability for all QSEs that represents Load or generation*—EAL for all QSEs represented by the Counter-Party if at least one QSE represented by the Counter-Party represents either Load or generation.
EAL $_t$	$	*Estimated Aggregate Liability for all QSEs* —EAL for all QSEs represented by the Counter-Party if none of the QSEs represented by the Counter-Party represent either Load or generation.
EAL $_a$	$	*Estimated Aggregate Liability for all CRR Account Holders*—EAL for all CRR Account Holders represented by the Counter-Party.
PUL	$	*Potential Uplift*—Potential uplift to the Counter-Party, to the extent and in the proportion that the Counter-Party represents Entities to which an uplift of a short payment will be made pursuant to Section 9.19, Partial Payments by Invoice Recipients. It is calculated as the sum of: (a) Amounts expected to be uplifted within one year of the date of the calculation; and (b) the lesser of: (1) 25% of amounts expected to be uplifted beyond one year of the date of the calculation; or (2) five years' worth of uplift charges.
FCE $_a$	$	*Future Credit Exposure for all CRR Account Holders*—FCE for all CRR Account Holders represented by the Counter-Party.
MCE	$	*Minimum Current Exposure*—For each Counter-Party, ERCOT shall determine a Minimum Current Exposure (MCE) as follows: $\text{MCE} = \text{Max}[\text{RFAF} * \text{MAF} * \text{Max}[\{\sum_e \sum_{i=1}^{96} \sum_p [\text{L}_{i,od,p} * \text{RTSPP}_{i,od,p}]/n\},$ $\{\sum_e \sum_{i=1}^{96} \sum_p [[[\text{L}_{i,od,p} * T2 - \text{G}_{i,od,p} * (1\text{-}NUCADJ) * T3] * \text{RTSPP}_{i,od,p}] + [\text{RTQQNET}_{i,od,p} * T5]]/n\},$ $\{\sum_e \sum_{i=1}^{96} \sum_p [\text{G}_{i,od,p} * NUCADJ * T1 * \text{RTSPP}_{i,od,p}]/n\},$ $\{\sum_e \sum_{i=1}^{96} \sum_p \text{DARTNET}_{i,od,p} * T4/n\}],$ $\text{MAF} * \text{IMCE}]$ $\text{RTQQNET}_{i,od,p} = \text{Max}[\sum_c (\text{RTQQES}_{i,od,p,c} - \text{RTQQEP}_{i,od,p,c}), BTCF *$ $\sum_c (\text{RTQQES}_{i,od,p,c} - \text{RTQQEP}_{i,od,p,c})] * \text{RTSPP}_{i,od,p}$ $\text{DARTNET}_{i,od,p} = \text{DAM EOO Cleared}_{i,od,p} * \text{DART}_{i,od,p} + \text{DAM TPO Cleared}_{i,od,p} * \text{DART}_{i,od,p} + \text{DAM PTP Cleared}_{i,od,p} * \text{DARTPTP}_{i,od,p} - \text{DAM EOB Cleared}_{i,od,p} * \text{DART}_{i,od,p}$ Where:

Board Report

Variable	Unit	Description
		$G_{i,od,p} =$ *Total Metered Generation at all Resource Nodes* for the Counter-Party for interval i for Operating Day od at Settlement Point p $L_{i,od,p} =$ *Total Adjusted Metered Load (AML) at all Load Zones* for the Counter-Party for interval i for Operating Day od at Settlement Point p $MAF =$ *Market Adjustment Factor*—Used to provide for the potential for overall price increases based on changes to ERCOT market rules or market conditions. This factor shall not be set below 100%. Revisions to this factor will be recommended by the Technical Advisory Committee (TAC) and the ERCOT Finance and Audit (F&A) Committee, and approved by the ERCOT Board. Such revisions shall be implemented on the 45th calendar day following ERCOT Board approval unless otherwise directed by the ERCOT Board. $NUCADJ =$ *Net Unit Contingent Adjustment*—To allow for situations where a generator may unintentionally or intentionally meet its requirement from the Real-Time Market (RTM) $RTQQNET_{i,od,p} =$ *Net QSE-to-QSE Energy Trades* for the Counter-Party for interval i for Operating Day od at Settlement Point p $RTQQES_{i,od,p,c} =$ *QSE Energy Trades* for which the Counter-Party is the seller for interval i for Operating Day od at Settlement Point p with Counter-Party c $RTQQEP_{i,od,p,c} =$ *QSE Energy Trades* for which the Counter-Party is the buyer for interval i for Operating Day od at Settlement Point p with Counter-Party c $BTCF =$ *Bilateral Trades Credit Factor* $RTSPP_{i,od,p} =$ *Real-Time Settlement Point Price* for interval i for Operating Day od at Settlement Point p $DARTNET_{i,od,p} =$ *Net DAM activities* for the Counter-Party for interval i for Operating Day od at Settlement Point p $DART_{i,od,p} =$ *Day-Ahead - Real-Time Spread* for interval i for Operating Day od at Settlement Point p $DAM\ EOB\ Cleared_{i,od,p} = DAM\ Energy\ Only\ Bids\ Cleared$ for interval i for Operating Day od at Settlement Point p $DAM\ EOO\ Cleared_{i,od,p} = DAM\ Energy\ Only\ Offers\ Cleared$ for interval i for Operating Day od at Settlement Point p $DAM\ TPO\ Cleared_{i,od,p} = DAM\ Three-Part\ Offers\ Cleared$ for interval i for Operating Day od at Settlement Point p $DAM\ PTP\ Cleared_{i,od,p} = DAM\ Point-to-Point\ (PTP)\ Obligations\ Cleared$ for interval i for Operating Day od at Settlement Point p $DARTPTP_{i,od,p} =$ *Day-Ahead - Real-Time Spread* for value of PTP Obligation for interval i for Operating Day od at Settlement Point p $c =$ Bilateral Counter-Party $cif =$ *Cap Interval Factor* - Represents the historic largest percentage of System-Wide Offer Cap (SWCAP) intervals during a calendar day

Variable	Unit	Description
		e = Most recent n Operating Days for which RTM Initial Settlement Statements are available
		i = Settlement Interval
		n = Days used for averaging
		nm = Notional Multiplier
		od = Operating Day
		p = A Settlement Point

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

Variable	Unit	Description
MCE	$	*Minimum Current Exposure*—For each Counter-Party, ERCOT shall determine a Minimum Current Exposure (MCE) as follows:

$$MCE = Max[\{\sum_e \Sigma_{i=1}^{96} \Sigma_p [L_{i,od,p} * RTSPP_{i,od,p}]/n\}, \{\Sigma_e \Sigma_{i=1}^{96} \Sigma_p [[[L_{i,od,p} * T2 - G_{i,od,p} * (1-NUCADJ) * T3] * RTSPP_{i,od,p}] + [RTQQNET_{i,od,p} * T5]]/n\},$$

$$\{\Sigma_e \Sigma_{i=1}^{96} \Sigma_p [G_{i,od,p} * NUCADJ * T1 * RTSPP_{i,od,p}]/n\},$$

$$\{\{\Sigma_e \Sigma_{i=1}^{96} \Sigma_p DARTNET_{i,od,p} * T4/n\} + \{\Sigma_e \Sigma_{i=1}^{96} DARTASONET_{i,od,c} * T4/n\}\}],$$

$$MAF * IMCE]$$

$$RTQQNET_{i,od,p} = Max[\Sigma_c(RTQQES_{i,od,p,c} - RTQQEP_{i,od,p,c}), BTCF *$$

$$\Sigma_c(RTQQES_{i,od,p,c} - RTQQEP_{i,od,p,c})] * RTSPP_{i,od,p}$$

$$DARTNET_{i,od,p} = DAM\ EOO\ Cleared_{i,od,p} * DART_{i,od,p} + DAM\ TPO\ Cleared_{i,od,p} * DART_{i,od,p} + DAM\ PTP\ Cleared_{i,od,p} * DARTPTP_{i,od,p} - DAM\ EOB\ Cleared_{i,od,p} * DART_{i,od,p}$$

$$DARTASONET_{i,od} = DAM\ ASOO\ Cleared_{i,od} * DARTMCPC_{i,od}$$

Where:

$G_{i,od,p}$ =   *Total Metered Generation at all Resource Nodes* for the Counter-Party for interval i for Operating Day od at Settlement Point p

$L_{i,od,p}$ =   *Total Adjusted Metered Load (AML) at all Load Zones* for the Counter-Party for interval i for Operating Day od at Settlement Point p

MAF =   *Market Adjustment Factor*—Used to provide for the potential for overall price increases based on changes to ERCOT market rules or market conditions. This factor shall not be set below 100%. Revisions to this factor

Variable	Unit	Description
		will be recommended by the Technical Advisory Committee (TAC) and the ERCOT Finance and Audit (F&A) Committee, and approved by the ERCOT Board. Such revisions shall be implemented on the 45th calendar day following ERCOT Board approval unless otherwise directed by the ERCOT Board.
		$NUCADJ$ = *Net Unit Contingent Adjustment*—To allow for situations where a generator may unintentionally or intentionally meet its requirement from the Real-Time Market (RTM)
		$RTQQNET_{i,od,p}$ = *Net QSE-to-QSE Energy Trades* for the Counter-Party for interval i for Operating Day od at Settlement Point p
		$RTQQES_{i,od,p,c}$ = *QSE Energy Trades* for which the Counter-Party is the seller for interval i for Operating Day od at Settlement Point p with Counter-Party c
		$RTQQEP_{i,od,p,c}$ = *QSE Energy Trades* for which the Counter-Party is the buyer for interval i for Operating Day od at Settlement Point p with Counter-Party c
		$DARTASONET_{i,od}$ = *Net DAM Ancillary Service Only activities* for interval i for Operating Day od
		DAM ASOO Cleared $_{i,od}$ = DAM Ancillary Service Only Offers Cleared in DAM for interval i for Operating Day od
		$DARTMCPC_{i,od}$ = Day-Ahead – Real-Time MCPC Spread for interval i for Operating Day od
		$BTCF$ = *Bilateral Trades Credit Factor*
		$RTSPP_{i,od,p}$ = *Real-Time Settlement Point Price* for interval i for Operating Day od at Settlement Point p
		$DARTNET_{i,od,p}$ = *Net DAM activities* for the Counter-Party for interval i for Operating Day od at Settlement Point p
		$DART_{i,od,p}$ = *Day-Ahead - Real-Time Spread* for interval i for Operating Day od at Settlement Point p
		DAM EOB Cleared $_{i,od,p}$ = *DAM Energy Only Bids Cleared* for interval i for Operating Day od at Settlement Point p
		DAM EOO Cleared $_{i,od,p}$ = *DAM Energy Only Offers Cleared* for interval i for Operating Day od at Settlement Point p
		DAM TPO Cleared $_{i,od,p}$ = *DAM Three-Part Offers Cleared* for interval i for Operating Day od at Settlement Point p
		DAM PTP Cleared $_{i,od,p}$ = *DAM Point-to-Point (PTP) Obligations Cleared* for interval i for Operating Day od at Settlement Point p
		$DARTPTP_{i,od,p}$ = *Day-Ahead - Real-Time Spread* for value of PTP Obligation for interval i for Operating Day od at Settlement Point p
		c = Bilateral Counter-Party
		cif = *Cap Interval Factor* - Represents the historic largest percentage of System-Wide Offer Cap (SWCAP) intervals during a calendar day
		e = Most recent n Operating Days for which RTM Initial Settlement Statements are available

Variable	Unit	Description
		$i =$ Settlement Interval $n =$ Days used for averaging $nm =$ Notional Multiplier $od =$ Operating Day $p =$ A Settlement Point
IMCE	$	*Initial Minimum Current Exposure* $IMCE = TOA * (SWCAP * nm * cif\%)$
TOA	None	*Trade-Only Activity*—Counter-Party that does not represent either a Load or a generation QSE. Set to "0" if Counter-Party represents a QSE that has an association with a Load Serving Entity (LSE) or a Resource Entity, or if Counter-Party does not represent any QSE; otherwise set to 1.
q	None	QSEs represented by Counter-Party.
a	None	CRR Account Holders represented by Counter-Party.
IA	$	*Independent Amount*—The amount required to be posted as defined in Section 16.16.1, Counter-Party Criteria.
RFAF	None	*Real-Time Forward Adjustment Factor*—The adjustment factor for RTM-related forward exposure as defined in Section 16.11.4.3.3, Forward Adjustment Factors.

The above parameters are defined as follows:

Parameter	Unit	Current Value*
nm	None	50
cif	Percentage	9%
NUCADJ	Percentage	Minimum value of 20%.
$T1$	Days	2
$T2$	Days	5
$T3$	Days	5
$T4$	Days	1
$T5$	Days	For a Counter-Party that represents Load this value is equal to 5, otherwise this value is equal to 2.
BTCF	Percentage	80%
n	Days	14
* The current value for the parameters referenced in this table above will be recommended by TAC and approved by the ERCOT Board. ERCOT shall update parameter values on the first day of the month following		

Parameter	Unit	Current Value*
ERCOT Board approval unless otherwise directed by the ERCOT Board. ERCOT shall provide a Market Notice prior to implementation of a revised parameter value.		

(3)   If ERCOT, in its sole discretion, determines that the TPEA or the TPES for a Counter-Party calculated under paragraphs (1) or (2) above does not adequately match the financial risk created by that Counter-Party's activities under these Protocols, then ERCOT may set a different TPEA or TPES for that Counter-Party. ERCOT shall, to the extent practical, give to the Counter-Party the information used to determine that different TPEA or TPES. ERCOT shall provide written or electronic Notice to the Counter-Party of the basis for ERCOT's assessment of the Counter-Party's financial risk and the resulting creditworthiness requirements.

(4)   ERCOT shall monitor and calculate each Counter-Party's TPEA and TPES daily.

Revised ERCOT Impact Analysis Report

NPRR Number	1078	NPRR Title	Clarification of Potential Uplift
Impact Analysis Date	July 27, 2021		
Estimated Cost/Budgetary Impact	None.		
Estimated Time Requirements	No project required. This Nodal Protocol Revision Request (NPRR) can take effect upon Public Utility Commission of Texas (PUCT) approval.		
ERCOT Staffing Impacts (across all areas)	Ongoing Requirements: No impacts to ERCOT staffing.		
ERCOT Computer System Impacts	No impacts to ERCOT computer systems.		
ERCOT Business Function Impacts	ERCOT will update its business processes to implement this NPRR.		
Grid Operations & Practices Impacts	No impacts to ERCOT grid operations and practices.		

Evaluation of Interim Solutions or Alternatives for a More Efficient Implementation
None offered.

Comments
None.

Board Report

NPRR Number	1079	NPRR Title	Day-Ahead Market RRS / ECRS 48-Hour Report Clarification
Date of Decision		August 10, 2021	
Action		Recommended Approval	
Timeline		Normal	
Proposed Effective Date		Upon system implementation of Nodal Protocol Revision Request (NPRR) 863, Creation of ERCOT Contingency Reserve Service and Revisions to Responsive Reserve	
Priority and Rank Assigned		Not applicable	
Nodal Protocol Sections Requiring Revision		3.2.5, Publication of Resource and Load Information	
Related Documents Requiring Revision/Related Revision Requests		None	
Revision Description		This NPRR splits ERCOT Contingency Reserve Service (ECRS) and Fast Frequency Reserve (FFR) project language from the 48-hour Day-Ahead Market (DAM) report requirements.	
Reason for Revision		☐ Addresses current operational issues. ☐ Meets Strategic goals (tied to the ERCOT Strategic Plan or directed by the ERCOT Board). ☒ Market efficiencies or enhancements ☐ Administrative ☐ Regulatory requirements ☐ Other: (explain) *(please select all that apply)*	
Business Case		The decision to deliver ECRS with the Passport project revealed the need to capture updates for the 48-hour DAM report. Upon the completion of the FFR project, Responsive Reserve (RRS) revisions will be implemented, but ECRS changes will come in a future release. This NPRR will help align the reporting requirements and ensure the grey-box logic remains correct with other DAM NPRR language that is impacted by the RRS / ECRS split.	

Board Report

Credit Work Group Review	ERCOT Credit Staff and the Credit Work Group (Credit WG) have reviewed NPRR1079 and do not believe that it requires changes to credit monitoring activity or the calculation of liability.
PRS Decision	On 6/10/21, PRS unanimously voted via roll call to recommend approval of NPRR1079 as submitted. All Market Segments participated in the vote. On 7/15/21, PRS unanimously voted via roll call to endorse and forward to TAC the 6/10/21 PRS Report and Impact Analysis for NPRR1079. All Market Segments participated in the vote.
Summary of PRS Discussion	On 6/10/21, ERCOT Staff provided an overview of NPRR1079. On 7/15/21, there was no discussion.
TAC Decision	On 7/28/21, TAC unanimously voted via roll call to recommend approval of NPRR1079 as recommended by PRS in the 7/15/21 PRS Report. All Market Segments participated in the vote.
Summary of TAC Discussion	On 7/28/21, there was no discussion.
ERCOT Opinion	ERCOT supports approval of NPRR1079.
ERCOT Market Impact Statement	ERCOT Staff has reviewed NPRR1079 and believes the market impact for NPRR1079 provides one or more of the following benefits: transparency, efficiency, and/or reliability; and/or aligns with current market rules.
Board Decision	On 8/10/21, the ERCOT Board recommended approval of NPRR1079 as recommended by TAC in the 7/28/21 TAC Report.

Sponsor	
Name	Alfredo Moreno
E-mail Address	Alfredo.Moreno@ercot.com
Company	ERCOT
Phone Number	512-248-6977
Market Segment	Not applicable

Market Rules Staff Contact	
Name	Cory Phillips
E-Mail Address	Cory.phillips@ercot.com

Board Report

Phone Number	512-248-6464

Comments Received	
Comment Author	**Comment Summary**
None	

Market Rules Notes
None

Proposed Protocol Language Revision

3.2.5   *Publication of Resource and Load Information*

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

> *[NPRR1007 and NPRR1014: Replace applicable portions of paragraph (1) above with the following upon system implementation of the Real-Time Co-Optimization (RTC) project for NPRR1007; or upon system implementation for NPRR1014:]*
>
> (1)   Two days after the applicable Operating Day, ERCOT shall post on the ERCOT website for the ERCOT System and, if applicable, for each Disclosure Area, the information derived from each execution of SCED. The Disclosure Area is the 2003 ERCOT CMZs. Posting requirements will be applicable to Generation Resources, ESRs, and Controllable Load Resources physically located in the defined Disclosure Area. This information shall not be posted if the posting of the information would reveal any individual Market Participant's Protected Information. The information posted by ERCOT shall include:

   (a)   An aggregate energy supply curve based on non-IRR Generation Resources with Energy Offer Curves that are available to SCED. The energy supply curves will be calculated beginning at the sum of the Low Sustained Limits (LSLs) and ending at the sum of the HSLs for non-IRR Generation Resources with Energy Offer Curves, with the dispatch for each Generation Resource constrained between the Generation Resource's LSL and HSL. The result will represent the ERCOT System energy supply curve economic dispatch of the non-IRR

Generation Resources with Energy Offer Curves at various pricing points, not taking into consideration any physical limitations of the ERCOT System;

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

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

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

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

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

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

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

(e)   The sum of the Base Points, High Ancillary Service Limit (HASL) and Low Ancillary Service Limit (LASL) of non-IRR Generation Resources with Energy

Offer Curves, sum of the Base Points, HASL and LASL of WGRs with Energy Offer Curves, sum of the Base Points, HASL and LASL of PVGRs with Energy Offer Curves, and the sum of the Base Points, HASL and LASL of all remaining Generation Resources dispatched in SCED;

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

(c)   An aggregate energy Demand curve based on the DAM Energy Bid curves available to the DAM, not taking into consideration any physical limitations of the ERCOT System;

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

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

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

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

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

[NPRR863, NPRR1007, NPRR1014, and NPRR1015: Replace applicable portions of paragraph (3) above with the following upon system implementation of NPRR863 for NPRR863 and NPRR1015; or upon system implementation for NPRR1014; or upon system implementation of the Real-Time Co-Optimization (RTC) project for NPRR1007:]

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

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

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

(c)   An aggregate energy Demand curve based on the DAM Energy Bid curves and including the bid portion of Energy Bid/Offer Curves available to the DAM, not taking into consideration any physical limitations of the ERCOT System;

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

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

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

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

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

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

> *[NPRR1007 and NPRR1014: Replace applicable portions of paragraph (4) above with the following upon system implementation of the Real-Time Co-Optimization (RTC) project for NPRR1007; or upon system implementation for NPRR1014:]*
>
> (4) ERCOT shall post on the ERCOT website the following information for each Resource for each execution of SCED 60 days prior to the current Operating Day:

> (a) The Generation Resource name and the Generation Resource's Energy Offer Curve (prices and quantities):
>
> (i) As submitted;
>
> (ii) As submitted and extended (or truncated) with proxy Energy Offer Curve logic by ERCOT to fit to the operational HSL and LSL values that are available for dispatch by SCED; and
>
> (iii) As mitigated and extended for use in SCED, including the Incremental and Decremental Energy Offer Curves for DSRs;

> *[NPRR1000: Replace paragraph (iii) above with the following upon system implementation:]*
>
> (iii) As mitigated and extended for use in SCED;

> *[NPRR1007 and NPRR1014: Insert applicable portions of paragraph (b) below upon system implementation of the Real-Time Co-Optimization (RTC) project for NPRR1007; or upon system implementation for NPRR1014; and renumber accordingly:]*
>
> (b) The Resource name and the Resource's Ancillary Service Offer Curve (prices and quantities) for each type of Ancillary Service:
>
> (i) As submitted; and
>
> (ii) As submitted and extended with proxy Ancillary Service Offer Curve logic by ERCOT.

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

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

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

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

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

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

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

(i)   The Generation Resource name;

(ii)   The Generation Resource status;

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

(iv)   The Generation Resource Base Point from SCED;

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

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

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

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

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

(i)   The Generation Resource name;

(ii)   The Generation Resource status;

> (iii)   The Generation Resource HSL, LSL, High Dispatch Limit (HDL), and Low Dispatch Limit (LDL);
>
> (iv)   The Generation Resource Base Point from SCED;
>
> (v)   The telemetered Generation Resource net output used in SCED;
>
> (vi)   The Ancillary Service Resource awards for each Ancillary Service;
>
> (vii)   The Generation Resource Startup Cost and minimum energy cost used in the Reliability Unit Commitment (RUC);
>
> (viii)   The telemetered Normal Ramp Rates; and
>
> (ix)   The telemetered Ancillary Service capabilities; and

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

(i)   The Load Resource name;

(ii)   The Load Resource status;

(iii)   The MPC for a Load Resource;

(iv)   The LPC for a Load Resource;

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

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

(vii)   The telemetered real power consumption; and

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

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

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

(i)   The Load Resource name;

(ii)   The Load Resource status;

(iii)   The MPC for a Load Resource;

(iv)   The LPC for a Load Resource;

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

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

(vii)   The telemetered real power consumption;

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

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

(x)   The telemetered Normal Ramp Rates;

(xi)   The telemetered Ancillary Service capabilities; and

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

(i)   As submitted; and

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

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

(i)   The ESR name;

(ii)   The ESR status;

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

(iv)   The ESR Base Point from SCED;

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

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

(vii) The telemetered Normal Ramp Rates;

(viii) The telemetered Ancillary Service capabilities; and

(ix) The telemetered State of Charge in MWh.

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

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

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

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

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

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

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

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

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

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

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

> *[NPRR1007 and NPRR1014: Replace applicable portions of paragraph (9) above with the following upon system implementation of the Real-Time Co-Optimization (RTC) project for NPRR1007; or upon system implementation for NPRR1014:]*
>
> (10) ERCOT shall post on the ERCOT website the offer price and the name of the Entity submitting the offer for the highest-priced Ancillary Service Offer selected in the DAM or RTM for each Ancillary Service three days after the end of the applicable Operating Day. If multiple Entities submitted the highest-priced offers selected, all Entities shall be identified on the ERCOT website. The report shall specify whether the Ancillary Service Offer was selected in a DAM or RTM.

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

  (a) The Resource name;

  (b) The name of the Resource Entity;

  (c) Except for Load Resources that are not SCED qualified, the name of the Decision Making Entity (DME) controlling the Resource, as reflected in the Managed

Capacity Declaration submitted by the Resource Entity in accordance with Section 3.6.2, Decision Making Entity for a Resource; and

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

[NPRR1014: Insert items (m)-(o) below upon system implementation:]

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

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

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

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

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

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

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

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

ERCOT Impact Analysis Report

NPRR Number	1079	NPRR Title	Day-Ahead Market RRS / ECRS 48-Hour Report Clarification
Impact Analysis Date	May 20, 2021		
Estimated Cost/Budgetary Impact	None.		
Estimated Time Requirements	No project required. This Nodal Protocol Revision Request (NPRR) can take effect upon implementation of NPRR863, Creation of ERCOT Contingency Reserve Service and Revisions to Responsive Reserve.		
ERCOT Staffing Impacts (across all areas)	Ongoing Requirements: No impacts to ERCOT staffing.		
ERCOT Computer System Impacts	No impacts to ERCOT computer systems.		
ERCOT Business Function Impacts	No impacts to ERCOT business functions.		
Grid Operations & Practices Impacts	No impacts to ERCOT grid operations and practices.		

Evaluation of Interim Solutions or Alternatives for a More Efficient Implementation
None offered.

Comments
There are no additional impacts to this NPRR beyond what was captured in the Impact Analysis for NPRR863.

Board Report

NPRR Number	1083	NPRR Title	Modification of Uplift Allocation Rules to Address Role of Central Counter-Party Clearinghouses
Date of Decision		August 10, 2021	
Action		Recommended Approval	
Timeline		Urgent – Urgent status is necessary to ensure allocation of uplift charges in accordance with TX SB1580, which became effective immediately upon its passage on June 18, 2021.	
Proposed Effective Date		Upon Public Utility Commission of Texas (PUCT) approval – August 20, 2021	
Priority and Rank Assigned		Not applicable	
Nodal Protocol Sections Requiring Revision		9.19.1, Default Uplift Invoices 9.19.4, Exemption for Central Counter-Party Clearinghouses Regulated as Derivatives Clearing Organizations (new)	
Related Documents Requiring Revision/Related Revision Requests		None	
Revision Description		This Nodal Protocol Revision Request (NPRR) effectuates newly enacted Section 39.159 of the Texas Utilities Code, by prohibiting the allocation of uplift charges to Qualified Scheduling Entities (QSEs) that: (1) otherwise would be subject to uplift charges solely as a result of acting as central Counter-Party clearinghouses in wholesale market transactions in ERCOT; and (2) are regulated as Derivatives Clearing Organizations (DCOs) as defined by the Commodity Exchange Act, 7 U.S.C. § 1a.	
Reason for Revision		☐ Addresses current operational issues. ☒ Meets Strategic goals (tied to the <u>ERCOT Strategic Plan</u> or directed by the ERCOT Board). ☒ Market efficiencies or enhancements ☐ Administrative ☐ Regulatory requirements ☐ Other: (explain) *(please select all that apply)*	
Business Case		TX SB1580, which went into effect immediately upon its passage on June 18, 2021, prohibits the allocation of uplift charges to DCOs	

	acting as central counterparty clearinghouses to wholesale transactions in ERCOT. Revision of the Nodal Protocols is necessary to reflect this legislative mandate.
Credit Work Group Review	See 7/21/21 Credit WG comments
PRS Decision	On 7/15/21, PRS voted via roll call to grant NPRR1083 Urgent status; to recommend approval of NPRR1083 as amended by the 7/14/21 ICE NGX comments; and to forward to TAC NPRR1083. There were seven abstentions from the Consumer (2) (Nucor, Occidental Chemical), Independent Generator (3) (Luminant, Enel Green Power, EDP Renewables), Independent Power Marketer (IPM) (Enerwise Global), and Municipal (CPS Energy) Market Segments. All Market Segments participated in the vote.
Summary of PRS Discussion	On 7/15/21, the sponsor provide an overview of NPRR1083, the request for Urgent status, and the 7/14/21 ICE NGX comments. Participants acknowledged the need to align the Protocols with recent legislative actions.
TAC Decision	On 7/28/21, TAC voted via roll call to recommend approval of NPRR1083 as recommended by PRS in the 7/15/21 PRS Report with a recommended effective date of upon PUCT approval; and the Revised Impact Analysis. There were two abstentions from the Independent Generator (Luminant) and Municipal (CPS Energy) Market Segments. All Market Segments participated in the vote.
Summary of TAC Discussion	On 7/28/21, there was no discussion.
ERCOT Opinion	ERCOT supports approval of NPRR1083.
ERCOT Market Impact Statement	ERCOT Staff has reviewed NPRR1083 and believes the market impact for NPRR1083 provides one or more of the following benefits: transparency, efficiency, and/or reliability; and/or aligns with current market rules.
Board Decision	On 8/10/21, the ERCOT Board recommended approval of NPRR1083 as recommended by TAC in the 7/28/21 TAC Report.

Sponsor	
Name	Martin McGregor
E-mail Address	martin.mcgregor@ice.com
Company	ICE NGX Canada Inc.

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Phone Number	403-974-1710
Cell Number	403-479-4639
Market Segment	Not applicable

Market Rules Staff Contact	
Name	Cory Phillips
E-Mail Address	Cory.phillips@ercot.com
Phone Number	512-248-6464

Comments Received	
Comment Author	**Comment Summary**
ICE NGX 071421	Provided additional edits to relocate the proposed exemption language from Section 9.19.1 to a new Section 9.19.4
Credit WG 072121	Determined that NPRR1083 would not require changes to the credit methodology; will reduce the Counter-Parties that would be subject to the default uplift, and therefore could increase default uplift amounts and credit requirements for Counter-Parties not covered by the exemption; and is in compliance with TX SBs 3, 1580 & HB4492

Market Rules Notes

Please note the following NPRR(s) also propose revisions to Section 9.19.1:

- NPRR995, RTF-6 Create Definition and Terms for Settlement Only Energy Storage

Proposed Protocol Language Revision

9.19.1 Default Uplift Invoices

(1) ERCOT shall collect the total short-pay amount for all Settlement Invoices for a month, less the total payments expected from a payment plan, from Qualified Scheduling Entities (QSEs) and CRR Account Holders. ERCOT must pay the funds it collects from payments on Default Uplift Invoices to the Entities previously short-paid. ERCOT shall notify those Entities of the details of the payment.

(2) Each Counter-Party's share of the uplift is calculated using the best available Settlement data for each Operating Day in the month prior to the month in which the default occurred (the "reference month"), and is calculated as follows:

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$$DURSCP_{cp} = TSPA * MMARS_{cp}$$

Where:

$$MMARS_{cp} = MMA_{cp} / MMATOT$$

$$MMA_{cp} = Max \{ \textstyle\sum_{mp} (URTMG_{mp} + URTDCIMP_{mp}),$$

$$\textstyle\sum_{mp} (URTAML_{mp} + UWSLTOT_{mp}),$$

$$\textstyle\sum_{mp} URTQQES_{mp},$$

$$\textstyle\sum_{mp} URTQQEP_{mp},$$

$$\textstyle\sum_{mp} UDAES_{mp},$$

$$\textstyle\sum_{mp} UDAEP_{mp},$$

$$\textstyle\sum_{mp} (URTOBL_{mp} + URTOBLLO_{mp}),$$

$$\textstyle\sum_{mp} (UDAOPT_{mp} + UDAOBL_{mp} + UOPTS_{mp} + UOBLS_{mp}),$$

$$\textstyle\sum_{mp} (UOPTP_{mp} + UOBLP_{mp})\}$$

[NPRR917, NPRR1012, and NPRR1065: Replace applicable portions of the formula "MMA $_{cp}$" above with the following upon system implementation of NPRR917 for NPRR917 and NPRR1065; or upon system implementation of the Real-Time Co-Optimization (RTC) project for NPRR1012:]

$$MMA_{cp} = Max \{ \textstyle\sum_{mp} (URTMG_{mp} + URTDCIMP_{mp} + USOGTOT_{mp}),$$

$$\textstyle\sum_{mp} (URTAML_{mp} + UWSLTOT_{mp}),$$

$$\textstyle\sum_{mp} URTQQES_{mp},$$

$$\textstyle\sum_{mp} URTQQEP_{mp},$$

$$\textstyle\sum_{mp} UDAES_{mp},$$

$$\textstyle\sum_{mp} UDAEP_{mp},$$

$$\textstyle\sum_{mp} (URTOBL_{mp} + URTOBLLO_{mp}),$$

$$\textstyle\sum_{mp} (UDAOPT_{mp} + UDAOBL_{mp} + UOPTS_{mp} + UOBLS_{mp}),$$

$$\textstyle\sum_{mp} (UOPTP_{mp} + UOBLP_{mp}),$$

$$\textstyle\sum_{mp} UDAASOAWD_{mp}\}$$

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$$\text{MMATOT} = \sum_{cp} (\text{MMA}_{cp})$$

Where:

$\text{URTMG}_{mp} = \sum_{p, r, i} (\text{RTMG}_{mp, p, r, i})$, excluding RTMG for RMR Resources and RTMG in Reliability Unit Commitment (RUC)-Committed Intervals for RUC-committed Resources

$\text{URTDCIMP}_{mp} = \sum_{p, i} (\text{RTDCIMP}_{mp, p, i}) / 4$

$\text{URTAML}_{mp} = \max(0, \sum_{p, i} (\text{RTAML}_{mp, p, i}))$

$\text{URTQQES}_{mp} = \sum_{p, i} (\text{RTQQES}_{mp, p, i}) / 4$

$\text{URTQQEP}_{mp} = \sum_{p, i} (\text{RTQQEP}_{mp, p, i}) / 4$

$\text{UDAES}_{mp} = \sum_{p, h} (\text{DAES}_{mp, p, h})$

$\text{UDAEP}_{mp} = \sum_{p, h} (\text{DAEP}_{mp, p, h})$

$\text{URTOBL}_{mp} = \sum_{(j, k), h} (\text{RTOBL}_{mp, (j, k), h})$

$\text{URTOBLLO}_{mp} = \sum_{(j, k), h} (\text{RTOBLLO}_{mp, (j, k), h})$

$\text{UDAOPT}_{mp} = \sum_{(j, k), h} (\text{DAOPT}_{mp, (j, k), h})$

$\text{UDAOBL}_{mp} = \sum_{(j, k), h} (\text{DAOBL}_{mp, (j, k), h})$

$\text{UOPTS}_{mp} = \sum_{(j, k), h} (\text{OPTS}_{mp, (j, k), h})$

$\text{UOBLS}_{mp} = \sum_{(j, k), h} (\text{OBLS}_{mp, (j, k), h})$

$\text{UOPTP}_{mp} = \sum_{(j, k), h} (\text{OPTP}_{mp, j, h})$

$\text{UOBLP}_{mp} = \sum_{(j, k), h} (\text{OBLP}_{mp, (j, k), h})$

$\text{UWSLTOT}_{mp} = (-1) * \sum_{r, b} (\text{MEBL}_{mp, r, b})$

[NPRR1012: Insert the formula "UDAASOAWD $_{mp}$" below upon system implementation of the Real-Time Co-Optimization (RTC) project:]

$$\text{UDAASOAWD}_{mp} = \sum_{h} (\text{DARUOAWD}_{mp, h} + \text{DARDOAWD}_{mp, h} + \text{DARROAWD}_{mp, h} + \text{DANSOAWD}_{mp, h} + \text{DAECROAWD}_{mp, h})$$

[NPRR917 and NPRR1065: Insert the formula "USOGTOT $_{mp}$" below upon system implementation of NPRR917:]

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$$USOGTOT_{mp} = \sum_{gsc} (MEBSOGNET_{mp, gsc}) + \sum_{p, i} (RTMGSOGZ_{mp, p, i})$$

The above variables are defined as follows:

Variable	Unit	Definition
$DURSCP_{cp}$	$	*Default Uplift Ratio Share per Counter-Party*—The Counter-Party's pro rata portion of the total short-pay amount for all Day-Ahead Market (DAM) and Real-Time Market (RTM) Invoices for a month.
TSPA	$	*Total Short Pay Amount*—The total short-pay amount calculated by ERCOT to be collected through the Default Uplift Invoice process.
$MMARS_{cp}$	None	*Maximum MWh Activity Ratio Share*—The Counter-Party's pro rata share of Maximum MWh Activity in the reference month.
MMA_{cp}	MWh	*Maximum MWh Activity*—The maximum MWh activity of all Market Participants represented by the Counter-Party in the DAM, RTM and CRR Auction in the reference month.
MMATOT	MWh	*Maximum MWh Activity Total*—The sum of all Counter-Party's Maximum MWh Activity in the reference month.
$RTMG_{mp, p, r, i}$	MWh	*Real-Time Metered Generation per Market Participant per Settlement Point per Resource*—The Real-Time energy produced by the Generation Resource r represented by Market Participant mp, at Resource Node p, for the 15-minute Settlement Interval i, where the Market Participant is a QSE.
$URTMG_{mp}$	MWh	*Uplift Real-Time Metered Generation per Market Participant*—The monthly sum of Real-Time energy produced by Generation Resources represented by Market Participant mp, excluding generation for RMR Resources and generation in RUC-Committed Intervals, where the Market Participant is a QSE assigned to the registered Counter-Party.
$RTDCIMP_{mp, p, i}$	MW	*Real-Time DC Import per QSE per Settlement Point*—The aggregated Direct Current Tie (DC Tie) Schedule submitted by Market Participant mp, as an importer into the ERCOT System through DC Tie p, for the 15-minute Settlement Interval i, where the Market Participant is a QSE.
$URTDCIMP_{mp}$	MW	*Uplift Real-Time DC Import per Market Participant*—The monthly sum of the aggregated DC Tie Schedule submitted by Market Participant mp, as an importer into the ERCOT System where the Market Participant is a QSE assigned to a registered Counter-Party.
$RTAML_{mp, p, i}$	MWh	*Real-Time Adjusted Metered Load per Market Participant per Settlement Point*—The sum of the Adjusted Metered Load (AML) at the Electrical Buses that are included in Settlement Point p represented by Market Participant mp for the 15-minute Settlement Interval i, where the Market Participant is a QSE.
$URTAML_{mp}$	MWh	*Uplift Real-Time Adjusted Metered Load per Market Participant*—The monthly sum of the AML represented by Market Participant mp, where the Market Participant is a QSE assigned to the registered Counter-Party.
$RTQQES_{mp, p, i}$	MW	*QSE-to-QSE Energy Sale per Market Participant per Settlement Point*—The amount of MW sold by Market Participant mp through Energy Trades at Settlement Point p for the 15-minute Settlement Interval i, where the Market Participant is a QSE.
$URTQQES_{mp}$	MWh	*Uplift QSE-to-QSE Energy Sale per Market Participant*—The monthly sum of MW sold by Market Participant mp through Energy Trades, where the Market Participant is a QSE assigned to the registered Counter-Party.

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Variable	Unit	Definition
RTQQEP $_{mp, p, i}$	MW	*QSE-to-QSE Energy Purchase per Market Participant per Settlement Point*—The amount of MW bought by Market Participant mp through Energy Trades at Settlement Point p for the 15-minute Settlement Interval i, where the Market Participant is a QSE.
URTQQEP $_{mp}$	MWh	*Uplift QSE-to-QSE Energy Purchase per Market Participant*—The monthly sum of MW bought by Market Participant mp through Energy Trades, where the Market Participant is a QSE assigned to the registered Counter-Party.
DAES $_{mp, p, h}$	MW	*Day-Ahead Energy Sale per Market Participant per Settlement Point per hour*—The total amount of energy represented by Market Participant mp's cleared Three-Part Supply Offers in the DAM and cleared DAM Energy-Only Offers at Settlement Point p, for the hour h, where the Market Participant is a QSE.
UDAES $_{mp}$	MWh	*Uplift Day-Ahead Energy Sale per Market Participant*—The monthly total of energy represented by Market Participant mp's cleared Three-Part Supply Offers in the DAM and cleared DAM Energy-Only Offer Curves, where the Market Participant is a QSE assigned to the registered Counter-Party.
DAEP $_{mp, p, h}$	MW	*Day-Ahead Energy Purchase per Market Participant per Settlement Point per hour*—The total amount of energy represented by Market Participant mp's cleared DAM Energy Bids at Settlement Point p for the hour h, where the Market Participant is a QSE.
UDAEP $_{mp}$	MWh	*Uplift Day-Ahead Energy Purchase per Market Participant*—The monthly total of energy represented by Market Participant mp's cleared DAM Energy Bids, where the Market Participant is a QSE assigned to the registered Counter-Party.
RTOBL $_{mp, (j, k), h}$	MW	*Real-Time Obligation per Market Participant per source and sink pair per hour*—The number of Market Participant mp's Point-to-Point (PTP) Obligations with the source j and the sink k settled in Real-Time for the hour h, and where the Market Participant is a QSE.
URTOBL $_{mp}$	MWh	*Uplift Real-Time Obligation per Market Participant*—The monthly total of Market Participant mp's PTP Obligations settled in Real-Time, counting the quantity only once per source and sink pair, and where the Market Participant is a QSE assigned to the registered Counter-Party.
RTOBLLO $_{q, (j, k)}$	MW	*Real-Time Obligation with Links to an Option per QSE per pair of source and sink*—The total MW of the QSE's PTP Obligation with Links to an Option Bids cleared in the DAM and settled in Real-Time for the source j and the sink k for the hour.
URTOBLLO $_{q, (j, k)}$	MW	*Uplift Real-Time Obligation with Links to an Option per QSE per pair of source and sink*—The monthly total of Market Participant mp's MW of PTP Obligation with Links to Options Bids cleared in the DAM and settled in Real-Time for the source j and the sink k for the hour, where the Market Participant is a QSE assigned to the registered Counter-Party.
DAOPT $_{mp, (j, k), h}$	MW	*Day-Ahead Option per Market Participant per source and sink pair per hour*—The number of Market Participant mp's PTP Options with the source j and the sink k owned in the DAM for the hour h, and where the Market Participant is a CRR Account Holder.
UDAOPT $_{mp}$	MWh	*Uplift Day-Ahead Option per Market Participant*—The monthly total of Market Participant mp's PTP Options owned in the DAM, counting the ownership quantity only once per source and sink pair, and where the Market Participant is a CRR Account Holder assigned to the registered Counter-Party.

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Variable	Unit	Definition
DAOBL $_{mp, (j, k), h}$	MW	*Day-Ahead Obligation per Market Participant per source and sink pair per hour*—The number of Market Participant mp's PTP Obligations with the source j and the sink k owned in the DAM for the hour h, and where the Market Participant is a CRR Account Holder.
UDAOBL $_{mp}$	MWh	*Uplift Day-Ahead Obligation per Market Participant*—The monthly total of Market Participant mp's PTP Obligations owned in the DAM, counting the ownership quantity only once per source and sink pair, where the Market Participant is a CRR Account Holder assigned to the registered Counter-Party.
OPTS $_{mp, (j, k), a, h}$	MW	*PTP Option Sale per Market Participant per source and sink pair per CRR Auction per hour*—The MW quantity that represents the total of Market Participant mp's PTP Option offers with the source j and the sink k awarded in CRR Auction a, for the hour h, where the Market Participant is a CRR Account Holder.
UOPTS $_{mp}$	MWh	*Uplift PTP Option Sale per Market Participant*—The MW quantity that represents the monthly total of Market Participant mp's PTP Option offers awarded in CRR Auctions, counting the awarded quantity only once per source and sink pair, where the Market Participant is a CRR Account Holder assigned to the registered Counter-Party.
OBLS $_{mp, (j, k), a, h}$	MW	*PTP Obligation Sale per Market Participant per source and sink pair per CRR Auction per hour*—The MW quantity that represents the total of Market Participant mp's PTP Obligation offers with the source j and the sink k awarded in CRR Auction a, for the hour h, where the Market Participant is a CRR Account Holder.
UOBLS $_{mp}$	MWh	*Uplift PTP Obligation Sale per Market Participant*—The MW quantity that represents the monthly total of Market Participant mp's PTP Obligation offers awarded in CRR Auctions, counting the quantity only once per source and sink pair, where the Market Participant is a CRR Account Holder assigned to the registered Counter-Party.
OPTP $_{mp, (j, k), a, h}$	MW	*PTP Option Purchase per Market Participant per source and sink pair per CRR Auction per hour*—The MW quantity that represents the total of Market Participant mp's PTP Option bids with the source j and the sink k awarded in CRR Auction a, for the hour h, where the Market Participant is a CRR Account Holder.
UOPTP $_{mp}$	MWh	*Uplift PTP Option Purchase per Market Participant*—The MW quantity that represents the monthly total of Market Participant mp's PTP Option bids awarded in CRR Auctions, counting the quantity only once per source and sink pair, where the Market Participant is a CRR Account Holder assigned to the registered Counter-Party.
OBLP $_{mp, (j, k), a, h}$	MW	*PTP Obligation Purchase per Market Participant per source and sink pair per CRR Auction per hour*—The MW quantity that represents the total of Market Participant mp's PTP Obligation bids with the source j and the sink k awarded in CRR Auction a, for the hour h, where the Market Participant is a CRR Account Holder.
UOBLP $_{mp}$	MWh	*Uplift PTP Obligation Purchase per Market Participant*—The MW quantity that represents the monthly total of Market Participant mp's PTP Obligation bids awarded in CRR Auctions, counting the quantity only once per source and sink pair, where the Market Participant is a CRR Account Holder assigned to the registered Counter-Party.
UWSLTOT $_{mp}$	MWh	*Uplift Metered Energy for Wholesale Storage Load at bus per Market Participant*—The monthly sum of Market Participant mp's Wholesale Storage Load (WSL) energy metered by the Settlement Meter which measures WSL.
MEBL $_{mp, r, b}$	MWh	*Metered Energy for Wholesale Storage Load at bus*—The WSL energy metered by the Settlement Meter which measures WSL for the 15-minute Settlement Interval represented as a negative value, for the Market Participant mp, Resource r, at bus b.

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Variable	Unit	Definition
[NPRR1012: Insert the variables below upon system implementation of the Real-Time Co-Optimization (RTC) project:]		
UDAASOAWD $_{mp}$	MWh	*Uplift Day-Ahead Ancillary Service Only Award per Market Participant*—The monthly total of Market Participant *mp's* Ancillary Service Only Offers awarded in DAM, where the Market Participant is a QSE assigned to the registered Counter-Party.
DARUOAWD $_{mp, h}$	MW	*Day-Ahead Reg-Up Only Award per Market Participant*—The Reg-Up Only capacity quantity awarded in the DAM to the Market Participant *mp* for the hour *h*.
DARDOAWD $_{mp, h}$	MW	*Day-Ahead Reg-Down Only Award per Market Participant*—The Reg-Down Only capacity quantity awarded in the DAM to the Market Participant *mp* for the hour *h*.
DARROAWD $_{mp, h}$	MW	*Day-Ahead Responsive Reserve Only Award per Market Participant*—The Responsive Reserve (RRS) Only capacity quantity awarded in the DAM to the Market Participant *mp* for the hour *h*.
DANSOAWD $_{mp, h}$	MW	*Day-Ahead Non-Spin Only Award per Market Participant*—The Non-Spin Only capacity quantity awarded in the DAM to the Market Participant *mp* for the hour *h*.
DAECROAWD $_{mp, h}$	MW	*Day-Ahead ERCOT Contingency Reserve Service Only Award per Market Participant*—The ERCOT Contingency Reserve Service (ECRS) Only capacity quantity awarded in the DAM to the Market Participant *mp* for the hour *h*.

Variable	Unit	Definition
[NPRR917, NPRR1052, and NPRR1065: Insert the variables " USOGTOT $_{mp}$", " RTMGSOGZ $_{mp.\,p,\,i}$", and "MEBSOGNET $_{mp,\,gsc}$" below upon system implementation of NPRR917:]		
USOGTOT $_{mp}$	MWh	*Uplift Real-Time Settlement Only Generator Site per Market Participant*—The monthly sum of Real-Time energy produced by Settlement Only Generators (SOGs) represented by Market Participant *mp*, where the Market Participant is a QSE assigned to the registered Counter-Party.
RTMGSOGZ $_{mp.\,p,\,i}$	MWh	*Real-Time Metered Generation from Settlement Only Generators Zonal per QSE per Settlement Point*—The total Real-Time energy produced by Settlement Only Transmission Self-Generators (SOTSGs) for the Market Participant *mp* in Load Zone Settlement Point *p*, for the 15-minute Settlement Interval. MWh quantities for Energy Storage System (ESS), Settlement Only Distribution Generators (SODGs), and Settlement Only Transmission Generators (SOTGs) at sites where the ESS capacity constitutes more than 50% of the total SOG nameplate capacity will be included in this value. MWh quantities for SODGs and SOTGs that opted out of nodal pricing pursuant to Section 6.6.3.9, Real-Time Payment or Charge for Energy from a Settlement Only Distribution Generator (SODG) or a Settlement Only Transmission Generator (SOTG), will also be included in this value.
MEBSOGNET $_{q,\,gsc}$	MWh	*Net Metered energy at gsc for an SODG or SOTG Site* —The net sum for all Settlement Meters for SODG or SOTG site *gsc* represented by QSE *q*. A positive value indicates an injection of power to the ERCOT System.
cp	none	A registered Counter-Party.
mp	none	A Market Participant with MWh activity in the reference month that is a currently-registered QSE or CRR Account Holder or that voluntarily terminated its QSE or CRR Account Holder registration.
j	none	A source Settlement Point.
k	none	A sink Settlement Point.
a	none	A CRR Auction.
p	none	A Settlement Point.
i	none	A 15-minute Settlement Interval.
h	none	The hour that includes the Settlement Interval i.
r	none	A Resource.
[NPRR917: Insert the variables "gsc" and "b" below upon system implementation:]		
gsc	none	A generation site code.
b	none	An Electrical Bus.

(3)   The uplifted short-paid amount will be allocated to the Market Participants (QSEs or CRR Account Holders) assigned to a registered Counter-Party based on the pro-rata share of MWhs that the QSE or CRR Account Holder contributed to its Counter-Party's maximum MWh activity ratio share.

(4)   Any uplifted short-paid amount greater than $2,500,000 must be scheduled so that no amount greater than $2,500,000 is charged on each set of Default Uplift Invoices until ERCOT uplifts the total short-paid amount. ERCOT must issue Default Uplift Invoices at least 30 days apart from each other.

(5)   ERCOT shall issue Default Uplift Invoices no earlier than 90 days following a short-pay of a Settlement Invoice on the date specified in the Settlement Calendar. The Invoice Recipient is responsible for accessing the Invoice on the MIS Certified Area once posted by ERCOT.

(6)   Each Default Uplift Invoice must contain:

    (a)   The Invoice Recipient's name;

    (b)   The ERCOT identifier (Settlement identification number issued by ERCOT);

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

    (d)   Run Date – the date on which ERCOT created and published the Default Uplift Invoice;

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

    (f)   Default Uplift Invoice Reference – an identification code used to reference the amount uplifted;

    (g)   Payment Date and Time – the date and time that Default Uplift Invoice amounts must be paid;

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

    (i)   Overdue Terms – the terms that would apply if the Market Participant makes a late payment.

(7)   Each Invoice Recipient shall pay any net debit shown on the Default Uplift Invoice on the payment due date whether or not there is any Settlement and billing dispute regarding the amount of the debit.

9.19.4   *Exemption for Central Counter-Party Clearinghouses Regulated as Derivatives Clearing Organizations*

(1)   Notwithstanding any other provision of Section 9.19, Partial Payments by Invoice Recipients, or these Protocols, ERCOT shall not issue a Default Uplift Invoice to, and

shall not otherwise collect any short-pay amounts from, any QSE that: (1) otherwise would be subject to an uplift charge solely as a result of acting as a central Counter-Party clearinghouse in wholesale market transactions in ERCOT; and (2) is regulated as a Derivatives Clearing Organization as defined by the Commodity Exchange Act, 7 U.S.C. § 1a.

Revised ERCOT Impact Analysis Report

NPRR Number	1083	NPRR Title	Modification of Uplift Allocation Rules to Address Role of Central Counter-Party Clearinghouses
Impact Analysis Date		July 27, 2021	
Estimated Cost/Budgetary Impact		None.	
Estimated Time Requirements		No project required. This Nodal Protocol Revision Request (NPRR) can take effect upon Public Utility Commission of Texas (PUCT) approval.	
ERCOT Staffing Impacts (across all areas)		Ongoing Requirements: No impacts to ERCOT staffing.	
ERCOT Computer System Impacts		No impacts to ERCOT computer systems.	
ERCOT Business Function Impacts		ERCOT will update its business processes to implement this NPRR.	
Grid Operations & Practices Impacts		No impacts to ERCOT grid operations and practices.	

Evaluation of Interim Solutions or Alternatives for a More Efficient Implementation
None offered.

Comments
None.

Board Report

NPRR Number	1086	NPRR Title	Recovery, Charges, and Settlement for Operating Losses During an LCAP Effective Period
Date of Decision		August 10, 2021	
Action		Recommended Approval	
Timeline		Urgent – Urgent status is necessary to align the Protocols with the Public Utility Commission of Texas (PUCT) order amending 16 Tex. Admin. Code (TAC) § 25.505 in Project No. 51871, Review of the Scarcity Pricing Mechanism, as approved at the June 24, 2021, Open Meeting, which became effective on July 14, 2021.	
Proposed Effective Date		Upon PUCT approval – August 20, 2021	
Priority and Rank Assigned		Not applicable	
Nodal Protocol Sections Requiring Revision		2.1, Definitions 4.4.11, System-Wide Offer Caps 6.8, Settlement for Operating Losses During an LCAP Effective Period (new) 6.8.1, Determination of Operating Losses During an LCAP Effective Period (new) 6.8.2, Recovery of Operating Losses During an LCAP Effective Period (new) 6.8.3, Charges for Operating Losses During an LCAP Effective Period (new) 6.8.3.1, Charges for Capacity Shortfalls During an LCAP Effective Period (new) 6.8.3.1.1, Capacity Shortfall Ratio Share for an LCAP Effective Period (new) 6.8.3.2, Uplift Charges for an LCAP Effective Period (new) 6.8.4, Miscellaneous Invoices of Payments and Charges for an LCAP Effective Period (new)	
Related Documents Requiring Revision/Related Revision Requests		None	
Revision Description		This Nodal Protocol Revision Request (NPRR) aligns the Protocols with the order amending 16 TAC § 25.505 in Project No. 51871 (51871 Order), which modifies the value of the Low System-Wide Offer Cap (LCAP) by eliminating a provision that ties the value of LCAP to the natural gas price index, and adding a provision that ensures that a Resource Entity (through its Qualified Scheduling Entity (QSE)) can recover its actual marginal costs when a scarcity	

pricing situation occurs while the LCAP is in effect (LCAP Effective Period).

An LCAP Effective Period occurs when the Peaker Net Margin (PNM) during a calendar year exceeds a threshold of three times the cost of new entry for new generation plants. During an LCAP Effective Period, the System-Wide Offer Cap (SWCAP) will be set to the LCAP for the remainder of the calendar year. For example, if the LCAP goes into effect on August 1, 2021, the SWCAP will be set to the LCAP through December 31, 2021.

In order for a Resource Entity (through its QSE) to recover actual marginal costs for an LCAP Effective Period, the following process will apply:

- The QSE for an eligible Resource Entity will submit a Settlement and billing dispute in accordance with Section 9.14, Settlement and Billing Dispute Process.

- Within 60 days of a Real-Time Market (RTM) Initial Settlement Statement, the QSE will also submit:

  o For a Generation Resource – Information to support the Generation Resource's weighted average fuel price (WAFP);

  o For an Energy Storage Resource (ESR) – The actual variable Operations and Maintenance (O&M) rate and the average electricity cost incurred to charge the ESR for the amount of discharge during the LCAP Effective Period; and

  o An attestation that the information provided is accurate and that fixed costs were not included in any of the costs submitted.

- For a Generation Resource, ERCOT will calculate the Resource's marginal fuel cost by multiplying the WAFP by the average heat rate. For an ESR, ERCOT will set the ESR's actual fuel cost equal to the average electricity cost used to charge the ESR. ERCOT will add a variable O&M component to the marginal fuel cost (for Generation Resources) and to the actual fuel cost (for ESRs) to arrive at a proxy for the actual marginal cost (AMC). Since compensation for operating losses is based on actual marginal costs in excess of LCAP revenues, ERCOT will calculate a marginal energy production value (MEP). This marginal MWh value will then be used to compute the Resource Operating Losses Payment Amount (OPLPAMT).

In the event of recovery of actual marginal costs above the LCAP revenues, this NPRR also includes an LCAP capacity short allocation to charge QSEs that are capacity short at the end of the

	Adjustment Period for the Operating Hour during the LCAP Effective Period. Additionally, this NPRR removes the fifty times Fuel Index Price (FIP) language from Section 4.4.11 to comply with the 51871 Order.
Reason for Revision	☐ Addresses current operational issues. ☒ Meets Strategic goals (tied to the <u>ERCOT Strategic Plan</u> or directed by the ERCOT Board). ☐ Market efficiencies or enhancements ☐ Administrative ☒ Regulatory requirements ☐ Other: (explain) *(please select all that apply)*
Business Case	Alignment between the Protocols and PUCT rules is necessary and proper.
Credit Work Group Review	ERCOT Credit Staff and the Credit Work Group (Credit WG) have reviewed NPRR1086 and do not believe that it requires changes to credit monitoring activity or the calculation of liability.
PRS Decision	On 7/15/21, PRS voted via roll call to grant NPRR1086 Urgent status and to table NPRR1086. There was one abstention from the Cooperative (Pedernales) Market Segment. All Market Segments participated in the vote. On 7/21/21, PRS voted via roll call to recommend approval of NPRR1086 as amended by the 7/20/21 Luminant comments; and to forward to TAC NPRR1086 and the Impact Analysis with a recommended effective date of upon PUCT approval. There were six opposing votes from the Consumer (3) (OPUC, Nucor, Occidental), Cooperative (Brazos), and Municipal (2) (Austin Energy, CPS Energy) Market Segments and five abstentions from the Cooperative (LCRA), Independent Generator (2) (Jupiter Power, Calpine), and Investor Owned Utility (IOU) (2) (Oncor, AEP) Market Segments. All Market Segments participated in the vote.
Summary of PRS Discussion	On 7/15/21, ERCOT staff provided an overview of NPRR1086 and the request for Urgent status. Participants debated the meaning of "marginal" cost as it applies to the LCAP Effective Period, potential scenarios involving fuel purchases during extreme weather events, and, given that NPRR1086 was filed one day before the meeting, requested a special PRS meeting be held on July 21, 2021 to allow participants additional time to review the new language and

	Settlement formulas internally without impacting the overall approval timeline of the NPRR. On 7/21/21, the 7/20/21 ERCOT, Exelon, and Luminant comments were reviewed. Participants debated the meaning of "marginal" cost as it applies to the LCAP Effective Period, and ERCOT staff reviewed scenarios involving fuel purchases during extreme weather events and the impacts of NPRR1086 language on the financial outcomes.
TAC Decision	On 7/28/21, TAC voted via roll call to recommend approval of NPRR1086 as recommended by PRS in the 7/21/21 PRS Report as amended by the 7/27/21 TIEC comments; and the Revised Impact Analysis. There were three opposing votes from the Cooperative (GSEC), Independent Generator (Luminant), and Independent Power Marketer (IPM) (Morgan Stanley) Market Segments and six abstentions from the Independent Generator (Calpine), IPM (2) (DC Energy, Shell), and Municipal (3) (DME, Austin Energy, CPS Energy) Market Segments. All Market Segments participated in the vote.
Summary of TAC Discussion	On 7/28/21, ERCOT and PUCT Staff presented the 7/22/21 Joint Commenters comments and TIEC presented the 7/27/21 TIEC comments. ERCOT staff provided an overview of the capacity shortfall calculations proposed within Section 6.8.3.1 and the Revised Impact Analysis. Participants debated the appropriateness of including certain fuel-related costs (fixed vs. variable) in verifiable costs, particularly during extreme weather events. ERCOT staff reiterated the desire to ensure a Resource recovers all variable costs via this dispute process, allowing a Resource to present their case for what charges should be considered variable under NPRR1086. Participants encouraged ongoing holistic discussions on the interactions between fuel and generation across the ERCOT Region beyond the narrow scope of NPRR1086 to ensure proper incentives are in place. ERCOT and PUCT Staff stated their neutrality on the proposed 0.1 multiplier.
ERCOT Opinion	ERCOT supports approval of NPRR1086.
ERCOT Market Impact Statement	ERCOT Staff has reviewed NPRR1086 and believes the market impact for NPRR1086 provides one or more of the following benefits: transparency, efficiency, and/or reliability; and/or aligns with current market rules.
Board Decision	On 8/10/21, the ERCOT Board recommended approval of NPRR1086 as recommended by TAC in the 7/28/21 TAC Report.

Board Report

Sponsor	
Name	Dave Maggio / Austin Rosel
E-mail Address	David.Maggio@ercot.com / Austin.Rosel@ercot.com
Company	ERCOT
Phone Number	512-248-6998 / 512-248-6686
Cell Number	
Market Segment	Not applicable

Market Rules Staff Contact	
Name	Cory Phillips
E-Mail Address	Cory.Phillips@ercot.com
Phone Number	512-248-6464

Comments Received	
Comment Author	**Comment Summary**
Luminant 071421	Removed language related to the exclusion of fixed costs in the weighted average fuel price for LCAP cost recovery
ERCOT 071521	Opposed the 7/14/21 Luminant comments
PUCT Staff 071521	Endorsed NPRR1086 as submitted
ERCOT 072021	Provided additional language to clarify 1) fuel prices may include all variable costs associated with the purchase, transportation, and storage of fuel; and 2) the payment for operating losses applies only when the Real-Time Settlement Point Price for the Resource is equal to or exceeds the LCAP
Exelon 072021	Proposed additional language to capture circumstances where a generator may be offered at the LCAP and still be dispatched up, and inserted a 10% coefficient to the calculation of the charge to a QSE due to capacity shortfall for an LCAP Effective Period
Luminant 072021	Proposed additional edits to the 7/20/21 Exelon comments to remove ERCOT's language related to the exclusion of fixed costs in the weighted average fuel price for LCAP cost recovery, remove uncertainty on fuel purchase timelines, and utilize Senate Bill 3's "reasonable, verifiable" language

| Joint Commenters 072221 | Reverted changes to the exclusion of fixed costs and the "reasonable, verifiable" language from the 7/20/21 Luminant comments to the previous language |
| TIEC 072721 | Removed the proposed 0.1 multiplier from the capacity shortfall calculation within Section 6.8.3.1 |

| **Market Rules Notes** |
| None |

| **Proposed Protocol Language Revision** |

2.1   DEFINITIONS

High Ancillary Service Limit (HASL)

A dynamically calculated MW upper limit on a Resource to reserve the part of the Resource's capacity committed for Ancillary Service, calculated as described in Section 6.5.7.2, Resource Limit Calculator. HASL is also included in Section 5.7.4.1.1, Capacity Shortfall Ratio Share, Section 6.8.3.1.1, Capacity Shortfall Ratio Share for an LCAP Effective Period, and in the Reliability Unit Commitment (RUC) optimization but is not adjusted for Non-Frequency Responsive Capacity (NFRC) as in Section 6.5.7.2.

Low System-Wide Offer Cap (LCAP) Effective Period

The period in which the System-Wide Offer Cap (SWCAP) is set to the LCAP.

4.4.11   *System-Wide Offer Caps*

(1)   The SWCAP shall be determined in accordance with the Public Utility Commission of Texas (PUCT) Substantive Rules. The methodology for determining the SWCAP is as follows:

    (a)   The Low System-Wide Offer Cap (LCAP) is set at $2,000 per MWh for energy and $2,000 per MW per hour for Ancillary Services.

    (b)   At the beginning of each year, the SWCAP shall be set equal to the High System-Wide Offer Cap (HCAP) and maintained at this level as long as the Peaker Net Margin (PNM) during a year is less than or equal to the PNM threshold per MW-year. If the PNM exceeds the PNM threshold per MW-year during a year, on the next Operating Day, the SWCAP shall be reset to the LCAP for the remainder of that year.

    (c)   ERCOT shall set the PNM threshold at three times the cost of new entry of new generation plants.

The above parameters are defined as follows.

Parameter	Unit	Current Value*
HCAP	$/MWh	9,000
PNM threshold	$/MW-year	315,000
* The current value for the parameters referenced in this table above will be recommended by TAC and approved by the ERCOT Board. ERCOT shall update parameter values on the first day of the month following ERCOT Board approval unless otherwise directed by the ERCOT Board. ERCOT shall provide a Market Notice prior to implementation of a revised parameter value.		

(2)   Any offers that exceed the current SWCAP shall be rejected by ERCOT.

[NPRR1008: Replace Section 4.4.11 above with the following upon system implementation of the Real-Time Co-Optimization (RTC) project:]

4.4.11   Day-Ahead and Real-Time System-Wide Offer Caps

(1)   The DASWCAP and RTSWCAP shall be determined in accordance with the Public Utility Commission of Texas (PUCT) Substantive Rules. The methodology for determining the DASWCAP and RTSWCAP is as follows:

(a)   The Low System-Wide Offer Cap (LCAP) is set at $2,000 per MWh for energy and $2,000 per MW per hour for Ancillary Services.

(b)   At the beginning of each year, the DASWCAP and RTSWCAP shall be set equal to the respective High System-Wide Offer Cap (HCAP) and maintained at this level as long as the Peaker Net Margin (PNM) during a year is less than or equal to the PNM threshold per MW-year. Additionally, the Value of Lost Load (VOLL) used to determine the ASDCs for DAM and RTM shall be set to the HCAP for DAM. If the PNM exceeds the PNM threshold per MW-year the DASWCAP and the VOLL used to determine the ASDCs for DAM and RTM shall be reset per the schedule in Section 4.4.11.1, Scarcity Pricing Mechanism.

(c)   ERCOT shall set the PNM threshold at three times the cost of new entry of new generation plants.

The above parameters are defined as follows:

Parameter	Unit	Current Value*
HCAP – DAM (DASWCAP)	$/MWh	9,000
HCAP – RTM (RTSWCAP)	$/MWh	2,000
PNM threshold	$/MW-year	315,000

> * The current value for the parameters referenced in this table above will be recommended by TAC and approved by the ERCOT Board. ERCOT shall update parameter values on the first day of the month following ERCOT Board approval unless otherwise directed by the ERCOT Board. ERCOT shall provide a Market Notice prior to implementation of a revised parameter value.

(2)   Any offers that exceed the current respective SWCAP shall be rejected by ERCOT.

6.8   Settlement for Operating Losses During an LCAP Effective Period

6.8.1   Determination of Operating Losses During an LCAP Effective Period

(1)   In order for a Qualified Scheduling Entity (QSE) that represents a Generation Resource or Energy Storage Resource (ESR) to recover actual marginal costs for operating losses during a Low System-Wide Offer Cap (LCAP) Effective Period, and incurred as calculated in Section 6.8.2, Recovery of Operating Losses During an LCAP Effective Period, the QSE shall timely submit a Settlement and billing dispute for each affected Operating Day, consistent with the dispute process described in Section 9.14, Settlement and Billing Dispute Process. The QSE shall also submit, through the Settlement and billing dispute process, and within 60 days of the issuance of a Real-Time Market (RTM) Initial Statement for an Operating Day, the following information:

   (a)   For a Generation Resource:

      (i)   All fuel purchases used to determine the weighted average fuel price included in the calculation of the actual marginal operating fuel cost component, for the Generation Resource, for the 15-minute Settlement Interval within the Operating Day.

   (b)   For an ESR:

      (i)   The actual variable O&M rate incurred during the LCAP Effective Period in lieu of the Standard Operations and Maintenance Cost (STOM) defined in Section 6.8.2, Recovery of Operating Losses During an LCAP Effective Period; and

      (ii)   The average electricity cost incurred to charge the ESR for the amount of discharge during the LCAP Effective Period.

   (c)   An attestation signed by an officer or executive with authority to bind the QSE stating that the information contained in the Settlement and billing dispute is accurate and that fixed costs (fees, penalties, and similar non-gas costs) were not included in the calculation of the weighted average fuel price.

(2)   The calculation of operating losses under Section 6.8.2 applies only when the Real-Time Settlement Point Price for the Resource is equal to or exceeds the LCAP or when the Resource's Energy Offer Curve is at the LCAP and the Resource receives a Dispatch Instruction or a Base Point above its Low Sustained Limit (LSL).

(3) Fuel prices may include all variable costs associated with the purchase, transportation, and storage of fuel.

(4) ERCOT will consider the documentation provided by the QSE in order to determine the weighted average fuel price for a Generation Resource or the average fuel cost for an ESR during an LCAP Effective Period.

(5) For purposes of determining operating losses during an LCAP Effective Period, ERCOT may request additional information, documentation, or clarification from the QSE. A QSE shall respond to any such request within ten Business Days.

6.8.2 Recovery of Operating Losses During an LCAP Effective Period

(1) ERCOT shall calculate the recovery of operating losses during an LCAP Effective Period with the actual marginal costs that exceed LCAP revenues in accordance with this Section.

(2) The actual marginal cost (AMC) and marginal energy production (MEP) used to calculate operating losses (OPL) for a Combined Cycle Train are the AMC and MEP that correspond to the Combined Cycle Generation Resource, within a Combined Cycle Train, that operates in Real-Time for the 15-minute Settlement Interval.

(3) Payment for operating losses during an LCAP Effective Period is calculated as follows:

$$OPLPAMT_{q, r, i} = (-1) * (OPL_{q, r, i} + ADJOPL_{q, r, i})$$

Where,

For the Generation Resource:

$$OPL_{q, r, i} = Max(0, (AMC_{q, r, i} - Max(LCAP, RTSPP_{p, i})) * Min(RTMG_{q, r, i}, MEP_{q, r, i}))$$

If ERCOT approved verifiable costs for the Generation Resource:

$$AMC_{q, r, i} = AHR_{q, r, i} * WAFP_{q, r, i} + ROM_{q, r}$$

$$MEP_{q, r, i} = AMF_{q, r, i} / AHR_{q, r, i}$$

Otherwise,

$$AMC_{q, r, i} = PAHR_{q, r, i} * WAFP_{q, r, i} + STOM_{rc}$$

$$MEP_{q, r, i} = AMF_{q, r, i} / PAHR_{q, r, i}$$

For ESRs:

$$OPL_{q, r, i} = Max(0, (AMC_{q, r, i} - Max(LCAP, RTSPP_{p, i})) * RTMG_{q, r, i})$$

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Where,

$$\text{AMC}_{q, r, i} = \text{AFC}_{q, r, i} + \text{STOM}_{rc}$$

The above variables are defined as follows:

Variable	Unit	Definition
OPLPAMT $_{q, r, i}$	$	*Operating Losses Payment Amount* – The operating losses payment to the QSE q, for Resource r, for the 15-minute Settlement Interval i within the Operating Day. Where for a Combined Cycle Train, the Resource r is the Combined Cycle Train.
OPL $_{q, r, i}$	$	*Operating Losses* – The operating losses for Resource r, represented by QSE q, for the 15-minute Settlement Interval i within the Operating Day. Where for a Combined Cycle Train, the Resource r is the Combined Cycle Train.
ADJOPL $_{q, r, i}$	$	*Operating Losses Adjustment* – The adjustment to the operating losses for Resource r, represented by QSE q, for the 15-minute Settlement Interval i within the Operating Day. Where for a Combined Cycle Train, the Resource r is the Combined Cycle Train.
WAFP $_{q, r, i}$	$/MMBtu	*Weighted Average Fuel Price*—The volume-weighted average price of fuel submitted to ERCOT for the LCAP Effective Period for a specific Resource r, represented by QSE q, and specific 15-minute Settlement Interval i within the Operating Day. Where for a Combined Cycle Train, the Resource r is a Combined Cycle Generation Resource within the Combined Cycle Train.
AMC $_{q, r, i}$	$/MWh	*Actual Marginal Cost* – The actual marginal costs for Resource r represented by QSE q for the 15-minute Settlement Interval i within the Operating Day. Where for a Combined Cycle Train, the Resource r is a Combined Cycle Generation Resource within the Combined Cycle Train.
LCAP	$/MWh	*Low System Wide Offer Cap* – The value set per paragraph (1) of Section 4.4.11, System-Wide Offer Caps.
ROM $_{q, r}$	$/MWh	*Raw Verifiable Operations and Maintenance Cost Above LSL* – The raw verifiable O&M cost for the Resource r represented by QSE q for operations above Low Sustained Limit (LSL). Where for a Combined Cycle Train, the Resource r is a Combined Cycle Generation Resource within the Combined Cycle Train.
AMF $_{q, r, i}$	MMBtu	*Actual Marginal Fuel per QSE per Resource* - The actual marginal purchased and delivered fuel for the Resource r represented by QSE q for the 15-minute Settlement Interval i within the Operating Day. The AMF represents only the fuel used to calculate the weighted average fuel price, WAFP. Where for a Combined Cycle Train, the Resource r is a Combined Cycle Generation Resource within the Combined Cycle Train. For Resources that are granted a dispute under Section 9.14.7, Disputes for RUC Make-Whole Payment for Fuel Costs, the actual marginal purchased and delivered fuel shall include only fuel for operations above LSL.

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Variable	Unit	Definition
STOM $_{rc}$	\$/MWh	*Standard Operations and Maintenance Cost* – The standard O&M cost for the Resource category *rc* for operations above LSL, as described in paragraph (6)(c) of Section 5.6.1, Verifiable Costs. For an ESR, STOM shall be set at \$0.3/MWh. **[NPRR1086: Replace the definition above with the following upon system implementation of NPRR1029:]** *Standard Operations and Maintenance Cost* – The standard O&M cost for the Resource category *rc* for operations above LSL, shall be set to the minimum energy variable O&M costs, as described in paragraph (6)(c) of Section 5.6.1, Verifiable Costs. For an ESR, STOM shall be set at \$0.3/MWh and for a DC-Coupled Resource, the value shall be set at \$4.40/MWh.
RTSPP $_{p, i}$	\$/MWh	*Real-Time Settlement Point Price* - The Real-Time Settlement Point Price at the Settlement Point *p*, for the 15-minute Settlement Interval *i*.
AFC $_{q, r, i}$	\$/MWh	*Average Fuel Cost per Resource* —The average electricity cost used to charge the ESR *r* represented by QSE *q* applicable to the energy discharge for the 15-minute Settlement Interval *i* within the Operating Day.
AHR $_{q, r, i}$	MMBtu / MWh	*Average Heat Rate per Resource* – The verifiable average heat rate for the Resource *r* represented by QSE *q*, for operating levels between LSL and High Sustained Limit (HSL), for the 15-minute Settlement Interval *i*. Where for a Combined Cycle Train, the Resource *r* is a Combined Cycle Generation Resource within the Combined Cycle Train.
PAHR $_{q, r, i}$	MMBtu / MWh	*Proxy Average Heat Rate* – The proxy average heat rate for the Resource *r*, represented by QSE *q*, for the 15-minute Settlement Interval *i*. Where for a Combined Cycle Train, the Resource *r* is a Combined Cycle Generation Resource within the Combined Cycle Train.
RTMG $_{q, r, i}$	MWh	*Real-Time Metered Generation per QSE per Resource by Settlement Interval by hour*—The Real-Time energy from Resource *r* represented by QSE *q*, for the 15-minute Settlement Interval *i*. Where for a Combined Cycle Train, the Resource r is the Combined Cycle Train. For Resources that are granted a dispute under Section 9.14.7, Disputes for RUC Make-Whole Payment for Fuel Costs, the Real-Time energy represents the energy produced for operations above LSL.
MEP $_{q, r, i}$	MWh	*Marginal Energy Production per QSE per Resource by Settlement Interval* — The calculated marginal generation of Resource *r* represented by QSE *q* in Real-Time for the 15-minute Settlement Interval *i*. Where for a Combined Cycle Train, the Resource *r* is a Combined Cycle Generation Resource within the Combined Cycle Train.
q	None	A QSE.
r	None	A Generation Resource or ESR.
i	None	A 15-minute Settlement Interval within the Operating Day during an LCAP Effective Period.
rc	None	A Resource category

(2)   The total compensation to each QSE for operating losses during an LCAP Effective Period for the 15-minute Settlement Interval is calculated as follows:

$$\text{OPLPAMTQSETOT}_{q} \quad = \quad \sum_{r} \text{OPLPAMT}_{q, r, i}$$

The above variables are defined as follows:

Variable	Unit	Definition
OPLPAMTQSETOT $_q$	$	*Total Operating Losses Payment Amount per QSE* – The total operating losses payment to the QSE q, for all Resources, for the 15-minute Settlement Interval within the Operating Day.
OPLPAMT $_{q, r, i}$	$	*Operating Losses Payment Amount* – The operating losses payment to the QSE q, for Resource r, for the 15-minute Settlement Interval i within the Operating Day. Where for a Combined Cycle Train, the Resource r is the Combined Cycle Train.
q	none	A QSE.
r	none	A Generation Resource or ESR.
i	none	A 15-minute Settlement Interval within the Operating Day during an LCAP Effective Period.

6.8.3 *Charges for Operating Losses During an LCAP Effective Period*

(1)   All QSEs that were capacity-short in a Settlement Interval for which actual marginal costs above the LCAP are recovered will be charged for that shortage, as described in Section 6.8.3.1, Charges for Capacity Shortfalls During an LCAP Effective Period. If revenues from the charges under Section 6.8.3.1 are not enough to cover all actual marginal costs above the LCAP for a Settlement Interval, then the difference will be uplifted to all QSEs on a Load Ratio Share (LRS) basis, as described in 6.8.3.2, Uplift Charges for an LCAP Effective Period.

6.8.3.1   Charges for Capacity Shortfalls During an LCAP Effective Period

(1)   The dollar amount charged to each QSE due to capacity shortfalls for any Settlement Intervals in an LCAP Effective Period is calculated as follows:

$$\text{LCAPCSAMT}_{i, q} \quad = (-1) * \text{Max} [(\text{LCAPSFRS}_{i, q} * \text{OPLPAMTTOT}_{i}),$$
$$(((1/4) * \text{LCAPSF}_{i, q}) * \text{OPLPAMTTOT}_{i} / \text{OPLCAPTOT}_{i}]$$

Where:

$$\text{OPLPAMTTOT}_{i} \quad = \sum_{q} \text{OPLPAMTQSETOT}_{i, q}$$

$$\text{OPLCAPTOT}_{i} \quad = \sum_{q} \sum_{r} \text{RTMG}_{q, r, i}$$

The above variables are defined as follows:

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Variable	Unit	Definition
LCAPCSAMT $_{i,q}$	$	*LCAP Capacity-Short Amount*—The charge to a QSE q, due to capacity shortfall for an LCAP Effective Period, for the 15-minute Settlement Interval i.
OPLPAMTQSETOT $_{i,q}$	$	*Total Operating Losses Payment Amount per QSE* – The total operating losses payment to the QSE q, for all Resources, for the 15-minute settlement interval i within the Operating Day.
OPLPAMTTOT $_i$	$	*Total Operating Losses Payment Amount* – The sum of Operating Losses Payments to all QSEs, for the 15-minute Settlement Interval i.
LCAPSFRS $_{i,q}$	none	*LCAP Effective Period Shortfall Ratio Share*—The ratio of the QSE q's capacity shortfall to the sum of all QSEs' capacity shortfalls for an LCAP Effective Period for the 15-minute Settlement Interval i. See Section 6.8.3.1.1, Capacity Shortfall Ratio Share for an LCAP Effective Period.
LCAPSF $_{i,q}$	MW	*LCAP Shortfall*—The QSE q's capacity shortfall for an LCAP Effective Period for the 15-minute Settlement Interval i. See formula in 6.8.3.1.1, Capacity Shortfall Ratio Share for an LCAP Effective Period.
OPLCAPTOT $_i$	MWh	*Operating Loss Capacity Total*—The sum of the Real-Time Metered Generation (RTMG) of all Resources compensated for an LCAP Effective Period for the 15-minute Settlement Interval i.
RTMG $_{q,r,i}$	MWh	*Real-Time Metered Generation per QSE per Resource by Settlement Interval by hour*—The Real-Time energy from Resource r represented by QSE q, for the 15-minute Settlement Interval i. Where for a Combined Cycle Train, the Resource r is the Combined Cycle Train. For Resources that are granted a dispute under Section 9.14.7, Disputes for RUC Make-Whole Payment for Fuel Costs, the Real-Time energy represents the energy produced for operations above LSL.
i	none	A 15-minute Settlement Interval.
q	none	A QSE.
r	none	A Generation Resource or ESR that is compensated during an LCAP Effective Period for the hour that includes the Settlement Interval i.

6.8.3.1.1   Capacity Shortfall Ratio Share for an LCAP Effective Period

(1)   For Combined Cycle Generation Resources, if more than one Combined Cycle Generation Resource is shown On-Line in its COP for the same Settlement hour, then the provisions of paragraph (6)(a) of Section 3.9.1, Current Operating Plan (COP) Criteria, apply in the determination of the On-Line Combined Cycle Generation Resource for that Settlement hour.

(2)   The capacity shortfall ratio share of a specific QSE for an LCAP Effective Period is calculated, for a 15-minute Settlement Interval, as follows:

LCAPSFRS $_{i,q}$ =   LCAPSF $_{i,q}$ / LCAPSFTOT $_i$

Where:

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$$LCAPSFTOT_i = \sum_q LCAPSF_{i,q}$$

(3) The LCAP Shortfall in MW for a QSE for the 15-minute Settlement Interval is:

$$LCAPSF_{i,q} = Max\ (0, ((\sum_p RTAML_{q,p,i})*4) - LCAPCAP_{q,i})$$

(4) The amount of capacity that a QSE had in Real-Time for a 15-minute Settlement Interval, excluding capacity from IRRs, is:

$$LCAPCAP_{i,q} = \sum_r LCAPHASLADJ_{q,r,h} + (RUCCPADJ_{q,h} - RUCCSADJ_{q,h}) + (\sum_p DAEP_{q,p,h} - \sum_p DAES_{q,p,h}) + (\sum_p RTQQEPADJ_{q,p,i} - \sum_p RTQQESADJ_{q,p,i}) + \sum_p DCIMPADJ_{q,p,i}$$

The above variables are defined as follows:

Variable	Unit	Definition
LCAPSFRS $_{i,q}$	none	*LCAP Effective Period Shortfall Ratio Share*—The ratio of the QSE q's capacity shortfall to the sum of all QSEs' capacity shortfalls for an LCAP Effective Period for the 15-minute Settlement Interval i.
LCAPSF $_{i,q}$	MW	*LCAP Shortfall*—The QSE q's capacity shortfall for an LCAP Effective Period for the 15-minute Settlement Interval i.
LCAPSFTOT $_i$	MW	*LCAP Shortfall Total*—The sum of all QSEs' capacity shortfalls, for an LCAP Effective Period for a 15-minute Settlement Interval i.
LCAPCAP $_{q,i}$	MW	*LCAP Capacity at Adjustment Period*—The QSE q's Adjustment Period calculated capacity for the 15-minute Settlement Interval i.
RTAML $_{q,p,i}$	MWh	*Real-Time Adjusted Metered Load*—The QSE q's Adjusted Metered Load (AML) at the Settlement Point p for the 15-minute Settlement Interval i.
DCIMPADJ $_{q,p,i}$	MW	*DC Tie Import per QSE per Settlement Point*—The approved aggregated DC Tie Schedule submitted by QSE q as an importer into the ERCOT System through DC Tie p according to the Adjustment Period snapshot, for the 15-minute Settlement Interval i.
LCAPHASLADJ $_{q,r,h}$	MW	*LCAP Effective Period High Ancillary Services Limit at Adjustment Period*—The HASL of Resource r, represented by the QSE q, according to the Adjustment Period COP and Trades snapshot, for the hour h that includes the 15-minute Settlement Interval. Where for a Combined Cycle Train, the Resource r is a Combined Cycle Generation Resource within the Combined Cycle Train.
RUCCPADJ $_{q,h}$	MW	*RUC Capacity Purchase at Adjustment Period*—The QSE q's capacity purchase, according to the Adjustment Period Snapshot for the hour h that includes the 15-minute Settlement Interval.
RUCCSADJ $_{q,h}$	MW	*RUC Capacity Sale at Adjustment Period*—The QSE q's capacity sale, according to the Adjustment Period Snapshot for the hour h that includes the 15-minute Settlement Interval.

Variable	Unit	Definition
DAEP $_{q,p,h}$	MW	*Day-Ahead Energy Purchase*—The QSE q's energy purchased in the DAM at the Settlement Point p for the hour h that includes the 15-minute Settlement Interval.
DAES $_{q,p,h}$	MW	*Day-Ahead Energy Sale*—The QSE q's energy sold in the DAM at the Settlement Point p for the hour h that includes the 15-minute Settlement Interval.
RTQQEPADJ $_{q,p,i}$	MW	*QSE-to-QSE Energy Purchase by QSE by point*—The QSE q's Energy Trades in which the QSE is the buyer at the delivery Settlement Point p for the 15-minute Settlement Interval i, according to the Adjustment Period snapshot.
RTQQESADJ $_{q,p,i}$	MW	*QSE-to-QSE Energy Sale by QSE by point*—The QSE q's Energy Trades in which the QSE is the seller at the delivery Settlement Point p for the 15-minute Settlement Interval i, according to the Adjustment Period snapshot.
q	none	A QSE.
p	none	A Settlement Point.
r	none	A Generation Resource that is QSE-committed or planning to operate as a Quick Start Generation Resource (QSGR) for the Settlement Interval as shown by the Resource Status of OFFQS in the Adjustment Period snapshot; or a Switchable Generation Resource (SWGR) released by a non-ERCOT Control Area Operator (CAO) to operate in the ERCOT Control Area due to an ERCOT RUC instruction for an actual or anticipated EEA condition. If the Settlement Interval is a RUCAC-Interval, r represents the Combined Cycle Generation Resource that was QSE-committed at the time the RUCAC was issued.
i	none	A 15-minute Settlement Interval.
h	none	The hour that includes the Settlement Interval i.

6.8.3.2 Uplift Charges for an LCAP Effective Period

(1) If the revenues from the charges under Section 6.8.3.1, Charges for Capacity Shortfalls During an LCAP Effective Period, are not enough to cover all LCAP Effective Period payments, for a 15-minute Settlement Interval, then the difference will be uplifted to all QSEs on a Load Ratio Share basis as an LCAP Effective Period Uplift Charge, calculated as follows:

$$\text{LALCAPAMT}_{q,i} = (-1) * [\text{OPLPAMTTOT}_i + \text{LCAPCSAMTTOT}_i] * \text{LRS}_{q,i}$$

Where:

$$\text{OPLPAMTTOT}_i = \sum_q \text{OPLPAMTQSETOT}_{i,q}$$

$$\text{LCAPCSAMTTOT}_i = \sum_q \text{LCAPCSAMT}_{i,q}$$

The above variables are defined as follows:

Variable	Unit	Definition
LALCAPAMT $_{q, i}$	$	*Load Allocated LCAP Effective Period Uplift Charge*—The amount owed from the QSE q, based on Load Ratio Share, for the 15-minute Settlement Interval i.
OPLPAMTQSETOT $_{i, q}$	$	*Total Operating Losses Payment Amount per QSE* – The total operating losses payment to the QSE q, for all Resources, for the 15-minute Settlement Interval i within the Operating Day.
OPLPAMTTOT $_{i}$	$	*Total Operating Losses Payment Amount* –The sum of Operating Losses Payments to all QSEs, for the 15-minute Settlement Interval i.
LCAPCSAMTTOT $_{i}$	$	*LCAP Capacity-Short Amount Total*—The total of all charges to all QSEs q, due to capacity shortfall for an LCAP Effective Period, for the 15-minute Settlement Interval i.
LCAPCSAMT $_{i, q}$	$	*LCAP Capacity-Short Amount*—The charge to QSE q, due to capacity shortfall for an LCAP Effective Period, for the 15-minute Settlement Interval i.
LRS $_{q, i}$	none	*Load Ratio Share*—The ratio of Adjusted Metered Load to the total ERCOT Adjusted Metered Load for the 15-minute Settlement Interval. See Section 6.6.2, Load Ratio Share, item (2).
i	none	A 15-minute Settlement Interval.
q	none	A QSE.

6.8.4 *Miscellaneous Invoice for Payments and Charges for an LCAP Effective Period*

(1)   ERCOT shall issue one-time miscellaneous Invoices using the most recent available Settlement data at the time the Invoices were issued.

(2)   ERCOT shall issue miscellaneous Invoices to QSEs for payment of operating losses during an LCAP Effective Period, as described in Section 6.8.2, Recovery of Operating Losses During an LCAP Effective Period.

(3)   ERCOT shall issue miscellaneous Invoices and allocate costs to the impacted QSEs as described in Section 6.8.3, Charges for Operating Losses During an LCAP Effective Period.

(4)   ERCOT shall issue a Market Notice in conjunction with the issuance of miscellaneous Invoices for payments or charges for an LCAP Effective Period.

Revised ERCOT Impact Analysis Report

NPRR Number	1086	NPRR Title	Recovery, Charges, and Settlement for Operating Losses During an LCAP Effective Period
Impact Analysis Date		July 27, 2021	
Estimated Cost/Budgetary Impact		Between $10k and $20k, which will be absorbed by the Operations & Maintenance (O&M) budgets of affected department.	
Estimated Time Requirements		No project required. This Nodal Protocol Revision Request (NPRR) can take effect upon Public Utility Commission of Texas (PUCT) approval. Passport Schedule Risk Assessment: No Risk to Schedule	
ERCOT Staffing Impacts (across all areas)		Implementation Labor: 100% ERCOT; 0% Vendor Ongoing Requirements: No impacts to ERCOT staffing.	
ERCOT Computer System Impacts		The following ERCOT systems would be impacted: • Data Management & Analytic Systems 100%	
ERCOT Business Function Impacts		ERCOT will update its business processes to implement this NPRR.	
Grid Operations & Practices Impacts		No impacts to ERCOT grid operations and practices.	

Evaluation of Interim Solutions or Alternatives for a More Efficient Implementation
None.

Comments
ERCOT is working to programmatically align systems with the Protocols and the PUCT order amending 16 Tex. Admin. Code (TAC) § 25.505 in Project No. 51871, Review of the Scarcity Pricing Mechanism, as approved at the June 24, 2021, Open Meeting, which became effective on July 14, 2021.

NPRR Comments

NPRR Number	1086	NPRR Title	Recovery, Charges, and Settlement for Operating Losses During an LCAP Effective Period

Date	July 15, 2021

Submitter's Information	
Name	Public Utility Commission of Texas (PUCT) Staff
E-mail Address	marketanalysis@puc.texas.gov
Company	PUCT
Phone Number	512-936-7371
Cell Number	
Market Segment	Not applicable

Comments

PUCT Staff submits these comments to express support of Nodal Protocol Revision Request (NPRR) 1086 with Urgent status to align the Protocols with the recent amendments to 16 Tex. Admin. Code (TAC) § 25.505 under Project No. 51871, *Review of the ERCOT Scarcity Pricing Mechanism.*

The amendments to 16 TAC § 25.505 modify the value of the Low System-Wide Offer Cap (LCAP) by eliminating the provision that ties the value of the LCAP to the natural gas price index and replacing it with a provision that ensures Resource Entities are able to recover their actual marginal costs when the LCAP is in effect. While the rule is prescriptive in the changes it made to the scarcity pricing mechanism, the Commission determined that ERCOT was best positioned to evaluate certain implementation matters through the Protocol revision process including potential cost recovery methods and reimbursement methodologies. Staff committed to work with ERCOT to design the needed NPRRs and has remained engaged throughout the development of NPRR1086.

Staff believes NPRR1086 effectively implements the 16 TAC § 25.505 amendments with regards to the LCAP Effective Period. Staff supports the use of an LCAP capacity short allocation as the cost recovery mechanism for any operating losses when the LCAP is in effect and believes the process appropriately encourages Market Participants to hedge their Loads. With regard to the reimbursement for Resources with marginal costs in excess of the LCAP or Real-Time energy prices, Staff believes the process outlined in NPRR1086 strikes an appropriate balance in allowing an Entity time to submit actual marginal costs through existing Settlement processes and ERCOT's ability to properly evaluate the costs.

As noted by ERCOT, 16 TAC § 25.505 became effective on July 14, 2021. ERCOT's request for Urgent status is needed to conform the Protocols with 16 TAC § 25.505 as

expeditiously as possible and provide clarity to the market regarding its implementation. Staff appreciates consideration of these comments.

Revised Cover Page Language

None

Revised Proposed Protocol Language

None

NPRR Comments

NPRR Number	1086	NPRR Title	Recovery, Charges, and Settlement for Operating Losses During an LCAP Effective Period

Date	July 22, 2021

Submitter's Information	
Name	Dave Maggio / Austin Rosel / Public Utility Commission of Texas (PUCT) Staff / Carrie Bivens
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Cell Number	
Market Segment	Not applicable

Comments

ERCOT, PUCT Staff, and the IMM ("Joint Commenters"), submit these comments to Nodal Protocol Revision Request (NPRR) 1086 to ensure that the Protocols unambiguously comport with the rules of the Public Utility Commission of Texas (PUCT). As discussed at the July 21, 2021 PRS meeting, subsection (g)(7) of P.U.C. SUBST. R. 25.505, Reporting Requirements and the Scarcity Pricing Mechanism in the Electric Reliability Council of Texas Power Region, authorizes ERCOT to reimburse Resource Entities only for their "actual marginal costs" in excess of the higher of the Low System-Wide Offer Cap (LCAP) or the Real-Time Settlement Point Price (RTSPP). The PRS Report for this NPRR removes language that would ensure this limitation is also reflected in the Protocols that describe this cost-recovery mechanism. Specifically, the PRS Report:

- Removes the word "variable" in describing the costs that may be approved for reimbursement, and replaces this with "reasonable, verifiable" (paragraph (3) of Section 6.8.1, Determination of Operating Losses During an LCAP Effective Period); and

- Removes the requirement for the Qualified Scheduling Entity (QSE) to attest that fixed costs were not included in the calculation of the weighted average fuel price (paragraph (1)(c) of Section 6.8.1).

Joint Commenters are concerned that these changes introduce ambiguity about the costs that may be reimbursed. ERCOT is obligated to follow the PUC's rule irrespective of the Protocols, and so ERCOT will only be able to approve a Resource Entity's "actual marginal costs" even if the Protocols may be read to suggest otherwise. To avoid any

potential confusion about what costs are recoverable, Joint Commenters urge the Technical Advisory Committee (TAC) to remove the two changes described above and reinstate the language proposed in ERCOT's 7/20/21 comments, as reflected in the revised Protocol language below.

Revised Cover Page Language

None

Revised Proposed Protocol Language

2.1 DEFINITIONS

High Ancillary Service Limit (HASL)

A dynamically calculated MW upper limit on a Resource to reserve the part of the Resource's capacity committed for Ancillary Service, calculated as described in Section 6.5.7.2, Resource Limit Calculator. HASL is also included in Section 5.7.4.1.1, Capacity Shortfall Ratio Share, Section 6.8.3.1.1, Capacity Shortfall Ratio Share for an LCAP Effective Period, and in the Reliability Unit Commitment (RUC) optimization but is not adjusted for Non-Frequency Responsive Capacity (NFRC) as in Section 6.5.7.2.

Low System-Wide Offer Cap (LCAP) Effective Period

The period in which the System-Wide Offer Cap (SWCAP) is set to the LCAP.

4.4.11 System-Wide Offer Caps

(1)   The SWCAP shall be determined in accordance with the Public Utility Commission of Texas (PUCT) Substantive Rules. The methodology for determining the SWCAP is as follows:

    (a)   The Low System-Wide Offer Cap (LCAP) is set at $2,000 per MWh for energy and $2,000 per MW per hour for Ancillary Services.

    (b)   At the beginning of each year, the SWCAP shall be set equal to the High System-Wide Offer Cap (HCAP) and maintained at this level as long as the Peaker Net Margin (PNM) during a year is less than or equal to the PNM threshold per MW-year. If the PNM exceeds the PNM threshold per MW-year during a year, on the next Operating Day, the SWCAP shall be reset to the LCAP for the remainder of that year.

    (c)   ERCOT shall set the PNM threshold at three times the cost of new entry of new generation plants.

The above parameters are defined as follows.

Parameter	Unit	Current Value*
HCAP	$/MWh	9,000
PNM threshold	$/MW-year	315,000
* The current value for the parameters referenced in this table above will be recommended by TAC and approved by the ERCOT Board. ERCOT shall update parameter values on the first day of the month following ERCOT Board approval unless otherwise directed by the ERCOT Board. ERCOT shall provide a Market Notice prior to implementation of a revised parameter value.		

(2)   Any offers that exceed the current SWCAP shall be rejected by ERCOT.

[NPRR1008: Replace Section 4.4.11 above with the following upon system implementation of the Real-Time Co-Optimization (RTC) project:]

4.4.11   Day-Ahead and Real-Time System-Wide Offer Caps

(1)   The DASWCAP and RTSWCAP shall be determined in accordance with the Public Utility Commission of Texas (PUCT) Substantive Rules. The methodology for determining the DASWCAP and RTSWCAP is as follows:

> (a)   The Low System-Wide Offer Cap (LCAP) is set at $2,000 per MWh for energy and $2,000 per MW per hour for Ancillary Services.

> (b)   At the beginning of each year, the DASWCAP and RTSWCAP shall be set equal to the respective High System-Wide Offer Cap (HCAP) and maintained at this level as long as the Peaker Net Margin (PNM) during a year is less than or equal to the PNM threshold per MW-year. Additionally, the Value of Lost Load (VOLL) used to determine the ASDCs for DAM and RTM shall be set to the HCAP for DAM. If the PNM exceeds the PNM threshold per MW-year the DASWCAP and the VOLL used to determine the ASDCs for DAM and RTM shall be reset per the schedule in Section 4.4.11.1, Scarcity Pricing Mechanism.

> (c)   ERCOT shall set the PNM threshold at three times the cost of new entry of new generation plants.

The above parameters are defined as follows:

Parameter	Unit	Current Value*
HCAP – DAM (DASWCAP)	$/MWh	9,000
HCAP – RTM (RTSWCAP)	$/MWh	2,000
PNM threshold	$/MW-year	315,000

> * The current value for the parameters referenced in this table above will be recommended by TAC and approved by the ERCOT Board. ERCOT shall update parameter values on the first day of the month following ERCOT Board approval unless otherwise directed by the ERCOT Board. ERCOT shall provide a Market Notice prior to implementation of a revised parameter value.

(2) Any offers that exceed the current respective SWCAP shall be rejected by ERCOT.

6.8 Settlement for Operating Losses During an LCAP Effective Period

6.8.1 Determination of Operating Losses During an LCAP Effective Period

(1) In order for a Qualified Scheduling Entity (QSE) that represents a Generation Resource or Energy Storage Resource (ESR) to recover actual marginal costs for operating losses during a Low System-Wide Offer Cap (LCAP) Effective Period, and incurred as calculated in Section 6.8.2, Recovery of Operating Losses During an LCAP Effective Period, the QSE shall timely submit a Settlement and billing dispute for each affected Operating Day, consistent with the dispute process described in Section 9.14, Settlement and Billing Dispute Process. The QSE shall also submit, through the Settlement and billing dispute process, and within 60 days of the issuance of a Real-Time Market (RTM) Initial Statement for an Operating Day, the following information:

    (a) For a Generation Resource:

        (i) All fuel purchases used to determine the weighted average fuel price included in the calculation of the actual marginal operating fuel cost component, for the Generation Resource, for the 15-minute Settlement Interval within the Operating Day.

    (b) For an ESR:

        (i) The actual variable O&M rate incurred during the LCAP Effective Period in lieu of the Standard Operations and Maintenance Cost (STOM) defined in Section 6.8.2, Recovery of Operating Losses During an LCAP Effective Period; and

        (ii) The average electricity cost incurred to charge the ESR for the amount of discharge during the LCAP Effective Period.

    (c) An attestation signed by an officer or executive with authority to bind the QSE stating that the information contained in the Settlement and billing dispute is accurate and that fixed costs (fees, penalties, and similar non-gas costs) were not included in the calculation of the weighted average fuel price.

(2) The calculation of operating losses under Section 6.8.2 applies only when the Real-Time Settlement Point Price for the Resource is equal to or exceeds the LCAP or when the

Resource's Energy Offer Curve is at the LCAP and the Resource receives a Dispatch Instruction or a Base Point above its Low Sustained Limit (LSL).

(3)   Fuel prices may include all variable costs associated with the purchase, transportation, and storage of fuel.

(4)   ERCOT will consider the documentation provided by the QSE in order to determine the weighted average fuel price for a Generation Resource or the average fuel cost for an ESR during an LCAP Effective Period.

(5)   For purposes of determining operating losses during an LCAP Effective Period, ERCOT may request additional information, documentation, or clarification from the QSE. A QSE shall respond to any such request within ten Business Days.

6.8.2 Recovery of Operating Losses During an LCAP Effective Period

(1)   ERCOT shall calculate the recovery of operating losses during an LCAP Effective Period with the actual marginal costs that exceed LCAP revenues in accordance with this Section.

(2)   The actual marginal cost (AMC) and marginal energy production (MEP) used to calculate operating losses (OPL) for a Combined Cycle Train are the AMC and MEP that correspond to the Combined Cycle Generation Resource, within a Combined Cycle Train, that operates in Real-Time for the 15-minute Settlement Interval.

(3)   Payment for operating losses during an LCAP Effective Period is calculated as follows:

$$OPLPAMT_{q,r,i} = (-1) * (OPL_{q,r,i} + ADJOPL_{q,r,i})$$

Where,

For the Generation Resource:

$$OPL_{q,r,i} = Max(0, (AMC_{q,r,i} - Max(LCAP, RTSPP_{p,i})) * Min(RTMG_{q,r,i}, MEP_{q,r,i}))$$

If ERCOT approved verifiable costs for the Generation Resource:

$$AMC_{q,r,i} = AHR_{q,r,i} * WAFP_{q,r,i} + ROM_{q,r}$$

$$MEP_{q,r,i} = AMF_{q,r,i} / AHR_{q,r,i}$$

Otherwise,

$$AMC_{q,r,i} = PAHR_{q,r,i} * WAFP_{q,r,i} + STOM_{rc}$$

$$\text{MEP}_{q, r, i} \quad = \quad \text{AMF}_{q, r, i} / \text{PAHR}_{q, r, i}$$

For ESRs:

$$\text{OPL}_{q, r, i} \quad = \quad \text{Max}(0, (\text{AMC}_{q, r, i} - \text{Max}(\text{LCAP}, \text{RTSPP}_{p, i})) * \text{RTMG}_{q, r, i})$$

Where,

$$\text{AMC}_{q, r, i} \quad = \quad \text{AFC}_{q, r, i} + \text{STOM}_{rc}$$

The above variables are defined as follows:

Variable	Unit	Definition
$\text{OPLPAMT}_{q, r, i}$	$	*Operating Losses Payment Amount* – The operating losses payment to the QSE q, for Resource r, for the 15-minute Settlement Interval i within the Operating Day. Where for a Combined Cycle Train, the Resource r is the Combined Cycle Train.
$\text{OPL}_{q, r, i}$	$	*Operating Losses* – The operating losses for Resource r, represented by QSE q, for the 15-minute Settlement Interval i within the Operating Day. Where for a Combined Cycle Train, the Resource r is the Combined Cycle Train.
$\text{ADJOPL}_{q, r, i}$	$	*Operating Losses Adjustment* – The adjustment to the operating losses for Resource r, represented by QSE q, for the 15-minute Settlement Interval i within the Operating Day. Where for a Combined Cycle Train, the Resource r is the Combined Cycle Train.
$\text{WAFP}_{q, r, i}$	$/MMBtu	*Weighted Average Fuel Price*—The volume-weighted average price of fuel submitted to ERCOT for the LCAP Effective Period for a specific Resource r, represented by QSE q, and specific 15-minute Settlement Interval i within the Operating Day. Where for a Combined Cycle Train, the Resource r is a Combined Cycle Generation Resource within the Combined Cycle Train.
$\text{AMC}_{q, r, i}$	$/MWh	*Actual Marginal Cost* – The actual marginal costs for Resource r represented by QSE q for the 15-minute Settlement Interval i within the Operating Day. Where for a Combined Cycle Train, the Resource r is a Combined Cycle Generation Resource within the Combined Cycle Train.
LCAP	$/MWh	*Low System Wide Offer Cap* – The value set per paragraph (1) of Section 4.4.11, System-Wide Offer Caps.
$\text{ROM}_{q, r}$	$/MWh	*Raw Verifiable Operations and Maintenance Cost Above LSL* – The raw verifiable O&M cost for the Resource r represented by QSE q for operations above Low Sustained Limit (LSL). Where for a Combined Cycle Train, the Resource r is a Combined Cycle Generation Resource within the Combined Cycle Train.
$\text{AMF}_{q, r, i}$	MMBtu	*Actual Marginal Fuel per QSE per Resource* - The actual marginal purchased and delivered fuel for the Resource r represented by QSE q for the 15-minute Settlement Interval i within the Operating Day. The AMF represents only the fuel used to calculate the weighted average fuel price, WAFP. Where for a Combined Cycle Train, the Resource r is a Combined Cycle Generation Resource within the Combined Cycle Train. For Resources that are granted a dispute under Section 9.14.7, Disputes for RUC Make-Whole Payment for Fuel Costs, the actual marginal purchased and delivered fuel shall include only fuel for operations above LSL.

Variable	Unit	Definition
STOM $_{rc}$	$/MWh	*Standard Operations and Maintenance Cost* – The standard O&M cost for the Resource category *rc* for operations above LSL, as described in paragraph (6)(c) of Section 5.6.1, Verifiable Costs. For an ESR, STOM shall be set at $0.3/MWh. *[NPRR1086: Replace the definition above with the following upon system implementation of NPRR1029:]* *Standard Operations and Maintenance Cost* – The standard O&M cost for the Resource category *rc* for operations above LSL, shall be set to the minimum energy variable O&M costs, as described in paragraph (6)(c) of Section 5.6.1, Verifiable Costs. For an ESR, STOM shall be set at $0.3/MWh and for a DC-Coupled Resource, the value shall be set at $4.40/MWh.
RTSPP $_{p, i}$	$/MWh	*Real-Time Settlement Point Price* - The Real-Time Settlement Point Price at the Settlement Point *p,* for the 15-minute Settlement Interval *i*.
AFC $_{q, r, i}$	$/MWh	*Average Fuel Cost per Resource* —The average electricity cost used to charge the ESR *r* represented by QSE *q* applicable to the energy discharge for the 15-minute Settlement Interval *i* within the Operating Day.
AHR $_{q, r, i}$	MMBtu / MWh	*Average Heat Rate per Resource* – The verifiable average heat rate for the Resource *r* represented by QSE *q*, for operating levels between LSL and High Sustained Limit (HSL), for the 15-minute Settlement Interval *i*. Where for a Combined Cycle Train, the Resource *r* is a Combined Cycle Generation Resource within the Combined Cycle Train.
PAHR $_{q, r, i}$	MMBtu / MWh	*Proxy Average Heat Rate* – The proxy average heat rate for the Resource *r*, represented by QSE *q*, for the 15-minute Settlement Interval *i*. Where for a Combined Cycle Train, the Resource *r* is a Combined Cycle Generation Resource within the Combined Cycle Train.
RTMG $_{q, r, i}$	MWh	*Real-Time Metered Generation per QSE per Resource by Settlement Interval by hour*—The Real-Time energy from Resource *r* represented by QSE *q*, for the 15-minute Settlement Interval *i*. Where for a Combined Cycle Train, the Resource r is the Combined Cycle Train. For Resources that are granted a dispute under Section 9.14.7, Disputes for RUC Make-Whole Payment for Fuel Costs, the Real-Time energy represents the energy produced for operations above LSL.
MEP $_{q, r, i}$	MWh	*Marginal Energy Production per QSE per Resource by Settlement Interval* — The calculated marginal generation of Resource *r* represented by QSE *q* in Real-Time for the 15-minute Settlement Interval *i*. Where for a Combined Cycle Train, the Resource *r* is a Combined Cycle Generation Resource within the Combined Cycle Train.
q	None	A QSE.
r	None	A Generation Resource or ESR.
i	None	A 15-minute Settlement Interval within the Operating Day during an LCAP Effective Period.
rc	None	A Resource category

(2)   The total compensation to each QSE for operating losses during an LCAP Effective Period for the 15-minute Settlement Interval is calculated as follows:

$$\text{OPLPAMTQSETOT}_{q} \quad = \quad \sum_{r} \text{OPLPAMT}_{q,r,i}$$

The above variables are defined as follows:

Variable	Unit	Definition
OPLPAMTQSETOT $_q$	$	*Total Operating Losses Payment Amount per QSE* – The total operating losses payment to the QSE q, for all Resources, for the 15-minute Settlement Interval within the Operating Day.
OPLPAMT $_{q,r,i}$	$	*Operating Losses Payment Amount* – The operating losses payment to the QSE q, for Resource r, for the 15-minute Settlement Interval i within the Operating Day. Where for a Combined Cycle Train, the Resource r is the Combined Cycle Train.
q	none	A QSE.
r	none	A Generation Resource or ESR.
i	none	A 15-minute Settlement Interval within the Operating Day during an LCAP Effective Period.

6.8.3 *Charges for Operating Losses During an LCAP Effective Period*

(1) All QSEs that were capacity-short in a Settlement Interval for which actual marginal costs above the LCAP are recovered will be charged for that shortage, as described in Section 6.8.3.1, Charges for Capacity Shortfalls During an LCAP Effective Period. If revenues from the charges under Section 6.8.3.1 are not enough to cover all actual marginal costs above the LCAP for a Settlement Interval, then the difference will be uplifted to all QSEs on a Load Ratio Share (LRS) basis, as described in 6.8.3.2, Uplift Charges for an LCAP Effective Period.

6.8.3.1 Charges for Capacity Shortfalls During an LCAP Effective Period

(1) The dollar amount charged to each QSE due to capacity shortfalls for any Settlement Intervals in an LCAP Effective Period is calculated as follows:

$$\text{LCAPCSAMT}_{i,q} = (-1) * \text{Max} [(\text{LCAPSFRS}_{i,q} * \text{OPLPAMTTOT}_{i}), (((1/4) * 0.1 * \text{LCAPSF}_{i,q}) * \text{OPLPAMTTOT}_{i} / \text{OPLCAPTOT}_{i})]$$

Where:

$$\text{OPLPAMTTOT}_{i} = \sum_{q} \text{OPLPAMTQSETOT}_{i,q}$$

$$\text{OPLCAPTOT}_{i} = \sum_{q} \sum_{r} \text{RTMG}_{q,r,i}$$

The above variables are defined as follows:

Variable	Unit	Definition
LCAPCSAMT $_{i, q}$	$	*LCAP Capacity-Short Amount*—The charge to a QSE q, due to capacity shortfall for an LCAP Effective Period, for the 15-minute Settlement Interval i.
OPLPAMTQSETOT $_{i, q}$	$	*Total Operating Losses Payment Amount per QSE* – The total operating losses payment to the QSE q, for all Resources, for the 15-minute settlement interval i within the Operating Day.
OPLPAMTTOT $_{i}$	$	*Total Operating Losses Payment Amount* – The sum of Operating Losses Payments to all QSEs, for the 15-minute Settlement Interval i.
LCAPSFRS $_{i, q}$	none	*LCAP Effective Period Shortfall Ratio Share*—The ratio of the QSE q's capacity shortfall to the sum of all QSEs' capacity shortfalls for an LCAP Effective Period for the 15-minute Settlement Interval i. See Section 6.8.3.1.1, Capacity Shortfall Ratio Share for an LCAP Effective Period.
LCAPSF $_{i, q}$	MW	*LCAP Shortfall*—The QSE q's capacity shortfall for an LCAP Effective Period for the 15-minute Settlement Interval i. See formula in 6.8.3.1.1, Capacity Shortfall Ratio Share for an LCAP Effective Period.
OPLCAPTOT $_{i}$	MWh	*Operating Loss Capacity Total*—The sum of the Real-Time Metered Generation (RTMG) of all Resources compensated for an LCAP Effective Period for the 15-minute Settlement Interval i.
RTMG $_{q, r, i}$	MWh	*Real-Time Metered Generation per QSE per Resource by Settlement Interval by hour*—The Real-Time energy from Resource r represented by QSE q, for the 15-minute Settlement Interval i. Where for a Combined Cycle Train, the Resource r is the Combined Cycle Train. For Resources that are granted a dispute under Section 9.14.7, Disputes for RUC Make-Whole Payment for Fuel Costs, the Real-Time energy represents the energy produced for operations above LSL.
i	none	A 15-minute Settlement Interval.
q	none	A QSE.
r	none	A Generation Resource or ESR that is compensated during an LCAP Effective Period for the hour that includes the Settlement Interval i .

6.8.3.1.1   *Capacity Shortfall Ratio Share for an LCAP Effective Period*

(1) For Combined Cycle Generation Resources, if more than one Combined Cycle Generation Resource is shown On-Line in its COP for the same Settlement hour, then the provisions of paragraph (6)(a) of Section 3.9.1, Current Operating Plan (COP) Criteria, apply in the determination of the On-Line Combined Cycle Generation Resource for that Settlement hour.

(2) The capacity shortfall ratio share of a specific QSE for an LCAP Effective Period is calculated, for a 15-minute Settlement Interval, as follows:

$$\text{LCAPSFRS}_{i, q} = \text{LCAPSF}_{i, q} / \text{LCAPSFTOT}_{i}$$

Where:

$$\text{LCAPSFTOT}_{i} = \sum_{q} \text{LCAPSF}_{i,q}$$

(3) The LCAP Shortfall in MW for a QSE for the 15-minute Settlement Interval is:

$$\text{LCAPSF}_{i,q} = \text{Max}\left(0, \left(\left(\sum_{p} \text{RTAML}_{q,p,i}\right)*4\right) - \text{LCAPCAP}_{q,i}\right)$$

(4) The amount of capacity that a QSE had in Real-Time for a 15-minute Settlement Interval, excluding capacity from IRRs, is:

$$\text{LCAPCAP}_{i,q} = \sum_{r} \text{LCAPHASLADJ}_{q,r,h} + (\text{RUCCPADJ}_{q,h} - \text{RUCCSADJ}_{q,h}) + \left(\sum_{p} \text{DAEP}_{q,p,h} - \sum_{p} \text{DAES}_{q,p,h}\right) + \left(\sum_{p} \text{RTQQEPADJ}_{q,p,i} - \sum_{p} \text{RTQQESADJ}_{q,p,i}\right) + \sum_{p} \text{DCIMPADJ}_{q,p,i}$$

The above variables are defined as follows:

Variable	Unit	Definition
LCAPSFRS $_{i,q}$	none	*LCAP Effective Period Shortfall Ratio Share*—The ratio of the QSE q's capacity shortfall to the sum of all QSEs' capacity shortfalls for an LCAP Effective Period for the 15-minute Settlement Interval i.
LCAPSF $_{i,q}$	MW	*LCAP Shortfall*—The QSE q's capacity shortfall for an LCAP Effective Period for the 15-minute Settlement Interval i.
LCAPSFTOT $_{i}$	MW	*LCAP Shortfall Total*—The sum of all QSEs' capacity shortfalls, for an LCAP Effective Period for a 15-minute Settlement Interval i.
LCAPCAP $_{q,i}$	MW	*LCAP Capacity at Adjustment Period*—The QSE q's Adjustment Period calculated capacity for the 15-minute Settlement Interval i.
RTAML $_{q,p,i}$	MWh	*Real-Time Adjusted Metered Load*—The QSE q's Adjusted Metered Load (AML) at the Settlement Point p for the 15-minute Settlement Interval i.
DCIMPADJ $_{q,p,i}$	MW	*DC Tie Import per QSE per Settlement Point*—The approved aggregated DC Tie Schedule submitted by QSE q as an importer into the ERCOT System through DC Tie p according to the Adjustment Period snapshot, for the 15-minute Settlement Interval i.
LCAPHASLADJ $_{q,r,h}$	MW	*LCAP Effective Period High Ancillary Services Limit at Adjustment Period*—The HASL of Resource r, represented by the QSE q, according to the Adjustment Period COP and Trades snapshot, for the hour h that includes the 15-minute Settlement Interval. Where for a Combined Cycle Train, the Resource r is a Combined Cycle Generation Resource within the Combined Cycle Train.
RUCCPADJ $_{q,h}$	MW	*RUC Capacity Purchase at Adjustment Period*—The QSE q's capacity purchase, according to the Adjustment Period Snapshot for the hour h that includes the 15-minute Settlement Interval.
RUCCSADJ $_{q,h}$	MW	*RUC Capacity Sale at Adjustment Period*—The QSE q's capacity sale, according to the Adjustment Period Snapshot for the hour h that includes the 15-minute Settlement Interval.

Variable	Unit	Definition
DAEP $_{q,p,h}$	MW	*Day-Ahead Energy Purchase*—The QSE q's energy purchased in the DAM at the Settlement Point p for the hour h that includes the 15-minute Settlement Interval.
DAES $_{q,p,h}$	MW	*Day-Ahead Energy Sale*—The QSE q's energy sold in the DAM at the Settlement Point p for the hour h that includes the 15-minute Settlement Interval.
RTQQEPADJ $_{q,p,i}$	MW	*QSE-to-QSE Energy Purchase by QSE by point*—The QSE q's Energy Trades in which the QSE is the buyer at the delivery Settlement Point p for the 15-minute Settlement Interval i, according to the Adjustment Period snapshot.
RTQQESADJ $_{q,p,i}$	MW	*QSE-to-QSE Energy Sale by QSE by point*—The QSE q's Energy Trades in which the QSE is the seller at the delivery Settlement Point p for the 15-minute Settlement Interval i, according to the Adjustment Period snapshot.
q	none	A QSE.
p	none	A Settlement Point.
r	none	A Generation Resource that is QSE-committed or planning to operate as a Quick Start Generation Resource (QSGR) for the Settlement Interval as shown by the Resource Status of OFFQS in the Adjustment Period snapshot; or a Switchable Generation Resource (SWGR) released by a non-ERCOT Control Area Operator (CAO) to operate in the ERCOT Control Area due to an ERCOT RUC instruction for an actual or anticipated EEA condition. If the Settlement Interval is a RUCAC-Interval, r represents the Combined Cycle Generation Resource that was QSE-committed at the time the RUCAC was issued.
i	none	A 15-minute Settlement Interval.
h	none	The hour that includes the Settlement Interval i.

6.8.3.2   Uplift Charges for an LCAP Effective Period

(1)   If the revenues from the charges under Section 6.8.3.1, Charges for Capacity Shortfalls During an LCAP Effective Period, are not enough to cover all LCAP Effective Period payments, for a 15-minute Settlement Interval, then the difference will be uplifted to all QSEs on a Load Ratio Share basis as an LCAP Effective Period Uplift Charge, calculated as follows:

$$\text{LALCAPAMT}_{q,i} = (-1) * [\text{OPLPAMTTOT}_i + \text{LCAPCSAMTTOT}_i] * \text{LRS}_{q,i}$$

Where:

$$\text{OPLPAMTTOT}_i = \sum_q \text{OPLPAMTQSETOT}_{i,q}$$

$$\text{LCAPCSAMTTOT}_i = \sum_q \text{LCAPCSAMT}_{i,q}$$

The above variables are defined as follows:

Variable	Unit	Definition
LALCAPAMT $_{q,i}$	$	*Load Allocated LCAP Effective Period Uplift Charge*—The amount owed from the QSE q, based on Load Ratio Share, for the 15-minute Settlement Interval i.
OPLPAMTQSETOT $_{i,q}$	$	*Total Operating Losses Payment Amount per QSE* – The total operating losses payment to the QSE q, for all Resources, for the 15-minute Settlement Interval i within the Operating Day.
OPLPAMTTOT $_{i}$	$	*Total Operating Losses Payment Amount* –The sum of Operating Losses Payments to all QSEs, for the 15-minute Settlement Interval i.
LCAPCSAMTTOT $_{i}$	$	*LCAP Capacity-Short Amount Total*—The total of all charges to all QSEs q, due to capacity shortfall for an LCAP Effective Period, for the 15-minute Settlement Interval i.
LCAPCSAMT $_{i,q}$	$	*LCAP Capacity-Short Amount*—The charge to QSE q, due to capacity shortfall for an LCAP Effective Period, for the 15-minute Settlement Interval i.
LRS $_{q,i}$	none	*Load Ratio Share*—The ratio of Adjusted Metered Load to the total ERCOT Adjusted Metered Load for the 15-minute Settlement Interval. See Section 6.6.2, Load Ratio Share, item (2).
i	none	A 15-minute Settlement Interval.
q	none	A QSE.

6.8.4 *Miscellaneous Invoice for Payments and Charges for an LCAP Effective Period*

(1)   ERCOT shall issue one-time miscellaneous Invoices using the most recent available Settlement data at the time the Invoices were issued.

(2)   ERCOT shall issue miscellaneous Invoices to QSEs for payment of operating losses during an LCAP Effective Period, as described in Section 6.8.2, Recovery of Operating Losses During an LCAP Effective Period.

(3)   ERCOT shall issue miscellaneous Invoices and allocate costs to the impacted QSEs as described in Section 6.8.3, Charges for Operating Losses During an LCAP Effective Period.

(4)   ERCOT shall issue a Market Notice in conjunction with the issuance of miscellaneous Invoices for payments or charges for an LCAP Effective Period.

Board Report

NOGRR Number	210	NOGRR Title	Related to NPRR1005, Clarify Definition of Point of Interconnection (POI) and Add Definition Point of Interconnection Bus (POIB)
Date of Decision			August 10, 2021
Action			Recommended Approval
Timeline			Normal
Proposed Effective Date			Upon system implementation of Nodal Protocol Revision Request (NPRR) 1005, Clarify Definition of Point of Interconnection (POI) and Add Definition Point of Interconnection Bus (POIB)
Priority and Rank Assigned			Not Applicable
Nodal Operating Guide Sections Requiring Revision			2.2.5, Automatic Voltage Regulators 2.2.10, Generation Resource Response Time Requirements 2.3, Ancillary Services 2.7.3.2, ERCOT Responsibilities 2.7.3.3, TO/TSP Responsibilities 2.7.3.4, QSE Responsibilities 2.9.1, Additional Voltage Ride-Through Requirements for Intermittent Renewable Resources 3.3.2.1, Corrected Unit Reactive Limits (CURL) 3.3.2.2, Reactive Testing Requirements Section 8, Attachment C: Turbine Governor Speed Tests Section 8, Attachment D: Seasonal Unit Net Real Power Capability Verification
Related Documents Requiring Revision/Related Revision Requests			NPRR1005 Resource Registration Glossary Revision Request (RRGRR) 025, Related to NPRR1005, Clarify Definition of Point of Interconnection (POI) and Add Definition Point of Interconnection Bus (POIB)
Revision Description			This Nodal Operating Guide Revision Request (NOGRR) clarifies language by use of NPRR1005-revised defined term Point of Interconnection (POI) and new NPRR1005-proposed defined term Point of Interconnection Bus (POIB).
Reason for Revision			[X] Addresses current operational issues. [ ] Meets Strategic goals (tied to the ERCOT Strategic Plan or directed by the ERCOT Board). [X] Market efficiencies or enhancements