

## Nodal Protocol Revision Request

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|--------------------|--|-------------------|---|
| <b>NPRR Number</b> |  | <b>NPRR Title</b> | <b>Emergency Response Service (ERS) Weather Sensitive Loads</b> |
| <b>Date Posted</b> |  |                   |   |

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|---|--|
| <b>Requested Resolution</b><br><small>(Normal or Urgent, and justification for Urgent status)</small> | Normal   |
| <b>Nodal Protocol Section(s) Requiring Revision</b><br><small>(Include Section No. and Title)</small> | <ul style="list-style-type: none"> <li>2.1 Definitions</li> <li>3.14.3.5 ERS Weather-Sensitive Loads (NEW)</li> <li>6.6.11.1 Emergency Response Service Capacity Payments</li> <li>6.6.11.2 Emergency Response Service Capacity Charge</li> <li>8.1.3.1.5 Performance Criteria for ERS Weather-Sensitive Loads (NEW)</li> <li>8.1.3.1.5.1 Baseline Assignments for ERS Weather-Sensitive Loads (NEW)</li> <li>8.1.3.1.5.2 Event Performance Criteria for ERS Weather Sensitive Loads (NEW)</li> <li>8.1.3.1.5.3 Testing of ERS Weather Sensitive Loads (NEW)</li> <li>8.1.3.1.5.4 Performance Criteria for ERS Weather Sensitive Loads (NEW)</li> <li>8.1.3.1.5.5 ERS Weather Sensitive Load Payments</li> <li>8.1.3.3.1 Performance Criteria for Qualified Scheduling Entities Representing Emergency Response Service Resources</li> </ul>   |
| <b>Market Guide Section Requiring Revision</b><br><small>(If applicable)</small>                      |  |
| <b>Revision Description</b>   | <p>This NPRR establishes rules for participation in ERS by Loads with demand response capability that is highly sensitive to weather conditions. It creates a new category of ERS Resource — Weather Sensitive ERS Load — and provides for their participation in ERS under the following conditions:</p> <ul style="list-style-type: none"> <li>• ERS Weather Sensitive Loads would be eligible to participate as ERS <u>Weather Sensitive Loads</u> only during ERS Time Periods that correlate to peak weather conditions (e.g., Business Hours 2 and Business Hours 3 during the June-September Standard Contract Term).</li> <li>• QSEs representing ERS <u>Weather Sensitive Loads</u> would be compensated for those Resources based solely on their performance during deployment events and during unannounced testing.</li> <li>• Because ERCOT expects this category of Resource to consist primarily of aggregations of small customer Loads which may be subject to growth and/or churn, QSEs representing ERS <u>Weather Sensitive Loads</u> would be allowed to adjust the population of their aggregations on a monthly basis during an</li> </ul> |

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|  | <p>ERS Standard Contract Term.<br/>The NPRR establishes a structure of <del>financial penalties</del> <u>payment reductions</u> for QSEs to protect against <del>overly-stated-aggressive</del> offers <u>or projected program growth</u> <del>during the procurement process</del>.</p> <ul style="list-style-type: none"> <li>ERS Weather Sensitive Loads would be subject to a maximum of eight deployment events of up to three hours per event during an ERS Contract Period. In addition, ERS Weather Sensitive Loads are subject to up to eight ERCOT-administered unannounced tests per ERS Standard Contract Term.</li> </ul> <p>ERCOT is requesting that this NPRR be approved on a normal timeline, with Board approval in March 2013 and an effective date of June 1, 2013, the first day of the June through September 2013 ERS Standard Contract Term. Allowing the NPRR language to be gray-boxed in the Protocols through April and May would provide ERS providers with certainty around market rules as they recruit participation for the summer contract term.</p> |
| <b>Reason for Revision</b>                                       | <p>ERS is procured for four-month Contract Terms and requires participating Loads to meet availability and performance requirements for a fixed capacity obligation for the entire term. This has limited the ability of weather-sensitive Loads to offer their full potential and/or to meet event or test performance requirements during periods of mild weather. Consequently, ERS in its five-year history has attracted very little participation from weather-sensitive Loads.</p> <p>Peak demand in ERCOT, both in summer and winter, is driven by weather-sensitive Load, primarily residential and small commercial air conditioning in the summer and electric heat in winter. This NPRR is expected to make ERS more accessible for HVAC-driven Loads, in turn enhancing grid reliability by attracting more emergency demand response capacity to ERS.</p>  |
| <b>Credit Implications</b><br>(Yes or No, and summary of impact) |  |

### Business Case

**Business Case instructions: To allow for comprehensive NPRR consideration, please fill out the Business Case section below and provide as much detailed information as possible. Wherever possible, please include reasons, explanations, and cost benefit calculation pertaining to the NPRR. Insert additional rows as needed.**

|                      |   |  |
|----------------------|---|--|
| <b>Business Case</b> | 1 | Describe qualitative benefits <ul style="list-style-type: none"> <li>Examples: regulatory requirement, data transparency enhancement, etc.</li> </ul>  |
|                      | 2 | Explain in detail possible benefit calculations to support quantifiable benefits <ul style="list-style-type: none"> <li>Example: change is expected to save 50 market participants 25 hours/week at \$65/hour</li> </ul> |

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|  | 3 | <i>Comment on impacts to market segments</i> <ul style="list-style-type: none"> <li>• <i>Example: potential positive impact to consumer segment in the form of lower energy prices</i></li> </ul> |
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| Sponsor               |   |
|-----------------------|---|
| <b>Name</b>           | Paul Wattles, Carl Raish  |
| <b>E-mail Address</b> | <a href="mailto:pwattles@ercot.com">pwattles@ercot.com</a> ; <a href="mailto:craish@ercot.com">craish@ercot.com</a> |
| <b>Company</b>        | ERCOT   |
| <b>Phone Number</b>   | 512-248-6578; 512-248-3912  |
| <b>Cell Number</b>    | 512-740-7050  |
| <b>Market Segment</b> | n/a   |

| Market Rules Staff Contact |  |
|----------------------------|--|
| <b>Name</b>                |  |
| <b>E-Mail Address</b>      |  |
| <b>Phone Number</b>        |  |

### Proposed Protocol Language Revision

#### 2.1 DEFINITIONS

##### Emergency Response Service (ERS) Weather Sensitive Load

A type of ERS Load determined by ERCOT to have demand response capability that is influenced significantly by weather conditions.

##### 3.14.3.5 ERS Weather-Sensitive Loads

(1) ERCOT may procure ERS from ERS Weather Sensitive Loads under the provisions in this subsection. Unless specifically addressed in this subsection, ERS Weather Sensitive Loads are subject to the same market rules applicable to other ERS Resources.

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- (2) In order to qualify as an ERS Weather Sensitive Load, an ERS Load must meet one of the following criteria:
  - (a) The ERS Load must consist exclusively of residential sites; or
  - (b) The ERS Load must consist exclusively of non-residential sites and must be designated by ERCOT as weather-sensitive.
- (3) ERCOT shall develop a process for determining whether an ERS Load qualifies as weather-sensitive and shall post a document describing the process on the ERCOT web site.
- (4) An ERS Weather Sensitive Load is eligible to participate as a Weather Sensitive Load during ERS Time Periods and ERS Contract Periods designated by ERCOT in the ERS Request for Proposal.
- (6) An ERS Weather Sensitive Load may participate in other non-overlapping ERS Time Periods as a non-Weather Sensitive Load under applicable ERS market rules. All sites that are part of an aggregation participating as both Weather Sensitive and non-Weather Sensitive Loads must participate.
- (7) An ERS Weather Sensitive Load must be capable of meeting its event performance obligations in response to an ERCOT Dispatch Instruction to its QSE. ERCOT shall dispatch ERS Weather Sensitive Loads as part of the dispatch of other committed ERS Resources.
- (8) The minimum capacity offer for an ERS Weather Sensitive Load is one-half (0.5) MW.
- (9) A QSE may ~~adjust~~ modify the population of an aggregated ERS Weather Sensitive Load once per month during an ERS ~~Contract Period~~ Standard Contract Term via a process defined by ERCOT. Such adjustments shall be effective on the first day of each month following the first month.

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(a) During an ERS ~~Standard Contract Term~~ ~~Contract Term~~, a QSE may increase the number of sites in an aggregated ERS Weather Sensitive Load by no more than the greater of the following:

(i) 100 percent of its initial size; or

(ii) Two times the QSE's projection of the maximum number of sites in the aggregation during any one month of the ERS ~~Standard Contract Term~~ ~~Contract Term~~, divided by the capacity offered for the aggregation.

~~or 2 MW, whichever is greater.~~ (b) Any sites added to an ERS Weather Sensitive Load are subject to the same requirements for historical meter data as the other sites in the aggregation, as described in Section 8.1.3.1.5.1 (1).

(10) A QSE may base the ERS Offer for an aggregated ERS Weather Sensitive Load on the amount of demand response capability it anticipates the ERS Weather Sensitive Load would have during the month with the highest numbers of sites and during normalized peak weather conditions as established by ERCOT for the ERS ~~Standard Contract Term~~ ~~Contract Term~~ maximum (e.g., during peak weather conditions, during the month it expects its ERS Weather Sensitive Load to be at its largest size, or both). As part of the Offer, the QSE shall provide ERCOT with its projection for the maximum number of sites in the aggregation during any one month of the ERS ~~Standard Contract Term~~ ~~Contract Term~~.

(a) Over-estimation by the QSE of the ~~final~~ size of an aggregation or of the average demand response capability for the members of the aggregation may subject the QSE to ~~reduced payment~~ ~~reduced payment for the ERS Weather Sensitive Load penalties~~, as described in Section 8.1.3.1.5.2.

(11) An ERS Weather Sensitive Load shall be subject to a maximum number of deployment events equal to two times the number of months of obligation in an ERS ~~Contract Term~~ ~~Period~~. The duration of the Sustained Response Period for each deployment event shall be a maximum of three hours.

(12) ~~An ERS ~~Contract Period~~ ~~for an ERS Weather Sensitive Load is equal to an ERS ~~Standard Contract Term~~ ~~Contract Term~~.~~ ERS Weather Sensitive Loads ~~are not subject to the~~ are eligible for the same renewal opt-in provisions that apply to other ERS Resources.~~

### 6.6.11 Emergency Response Service Capacity

#### 6.6.11.1 Emergency Response Service Capacity Payments

ERCOT shall pay, for each Emergency Response Service (ERS) Contract Period, the QSEs representing ERS Resources as follows:

$$\mathbf{ERSPAMT}_{qcw(tp)} = \mathbf{COMPAMT}_{qcw(tp)} + \mathbf{SPAMT}_{qcw(tp)}$$

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$$\text{ERSPAMTQSETOT}_{qcw} = \sum_{tp} \text{ERSPAMT}_{qcw(tp)}$$

$$\text{ERSPAMTTOT}_{cw(tp)} = \sum_q \text{ERSPAMT}_{qcw(tp)}$$

Where:

$$\text{COMPAMT}_{qcw(tp)} = -1 * \sum_w \sum_{e=1}^{co} \frac{\text{OFFERPRICE}_{qcw(tp)} * \text{COMPDELMW}_{qcw(tp)}}{\text{TPH}(tp)}$$

Field Code Changed

$$\text{SPAMT}_{qcw(tp)} = -1 * \sum_w \left( \text{Min}(\text{SPCUL}_{qcw(tp)}, \sum_{e=1}^s \text{COMPAVGPRICE}_{cw(tp)} * \text{SPDELMW}_{qcw(tp)} * \text{TPH}_{we(tp)}) \right)$$

Field Code Changed

$$\text{COMPAVGPRICE}_{cw(tp)} = \frac{\sum_{q=1}^n \sum_{e=1}^{co} (\text{OFFERPRICE}_{qcw(tp)} * \text{COMPDELMW}_{qcw(tp)})}{\text{COMPDELMWTOT}_{cw(tp)}}$$

$$\text{COMPDELMWTOT}_{cw(tp)} = \sum_{q=1}^n \sum_{e=1}^{co} \text{COMPDELMW}_{qcw(tp)}$$

$$\text{COMPDELMW}_{qcw(tp)} = \text{COMPOFFERMW}_{qcw(tp)} * (\text{ERSAFWT}_{qcw} * \text{Min}(\text{ERSAFCOMB}_{qrw}, 1) + (1 - \text{ERSAFWT}_{qcw}) * \text{Min}(\text{ERSEPF}_{qrw}, 1))$$

$$\text{SPDELMW}_{qcw(tp)} = \text{SPOFFERMW}_{qcw(tp)} * (\text{ERSAFWT}_{qcw} * \text{Min}(\text{ERSAFCOMB}_{qrw}, 1) + (1 - \text{ERSAFWT}_{qcw}) * \text{Min}(\text{ERSEPF}_{qrw}, 1))$$

The ERS Self-Provision Capacity Upper Limit for each self-providing QSE shall be calculated by ERCOT using a two-pass process. The first pass will consist of simultaneously solving for all QSEs' ERS Self-Provision Capacity Upper Limits with the constraint that each QSE's ERS Self-Provision Capacity Upper Limit will equal its LRS multiplied by the total ERS capacity awarded for competitive offers, plus the sum of all QSEs' ERS Self-Provision Capacity Upper Limits. The second pass will repeat the solution of the equations with a QSE's delivered self-provided MW capacity (adjusted for availability and/or event performance) substituted for the ERS Self-Provision Capacity Upper Limit if the delivered MW capacity is less than the first pass calculation of the ERS Self-Provision Capacity Upper Limit.

Pass 1:

For QSE 1:

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$$\text{SPCUL}_{1c_w(tp)} = \text{ERSLRS}_{1c_w(tp)} * (\text{COMPDELMWTOT}_{c_w(tp)} + \text{SPCUL}_{1c_w(tp)} + \text{SPCUL}_{2c_w(tp)} + \dots + \text{SPCUL}_{nc_w(tp)})$$

For QSE 2:

$$\text{SPCUL}_{2c_w(tp)} = \text{ERSLRS}_{2c_w(tp)} * (\text{COMPDELMWTOT}_{c_w(tp)} + \text{SPCUL}_{1c_w(tp)} + \text{SPCUL}_{2c_w(tp)} + \dots + \text{SPCUL}_{nc_w(tp)})$$

...

For QSE n:

$$\text{SPCUL}_{nc_w(tp)} = \text{ERSLRS}_{nc_w(tp)} * (\text{COMPDELMWTOT}_{c_w(tp)} + \text{SPCUL}_{1c_w(tp)} + \text{SPCUL}_{2c_w(tp)} + \dots + \text{SPCUL}_{nc_w(tp)})$$

Pass 2:

For QSE 1:

$$\begin{aligned} \text{SPCUL}_{1c_w(tp)} &= \text{ERSLRS}_{1c_w(tp)} * (\text{COMPDELMWTOT}_{c_w(tp)} + \\ &\text{Min}(\text{SPDELMW}_{1c_w(tp)}, \text{SPCUL}_{1c_w(tp)}) + \\ &\text{Min}(\text{SPDELMW}_{2c_w(tp)}, \text{SPCUL}_{2c_w(tp)}) \\ &+ \dots + \text{Min}(\text{SPDELMW}_{nc_w(tp)}, \text{SPCUL}_{nc_w(tp)}) \end{aligned}$$

For QSE 2:

$$\begin{aligned} \text{SPCUL}_{2c_w(tp)} &= \text{ERSLRS}_{2c_w(tp)} * (\text{COMPDELMWTOT}_{c_w(tp)} + \\ &\text{Min}(\text{SPDELMW}_{1c_w(tp)}, \text{SPCUL}_{1c_w(tp)}) + \\ &\text{Min}(\text{SPDELMW}_{2c_w(tp)}, \text{SPCUL}_{2c_w(tp)}) \\ &+ \dots + \text{Min}(\text{SPDELMW}_{nc_w(tp)}, \text{SPCUL}_{nc_w(tp)}) \end{aligned}$$

...

For QSE n:

$$\begin{aligned} \text{SPCUL}_{nc_w(tp)} &= \text{ERSLRS}_{nc_w(tp)} * (\text{COMPDELMWTOT}_{c_w(tp)} + \\ &\text{Min}(\text{SPDELMW}_{1c_w(tp)}, \text{SPCUL}_{1c_w(tp)}) + \\ &\text{Min}(\text{SPDELMW}_{2c_w(tp)}, \text{SPCUL}_{2c_w(tp)}) \\ &+ \dots + \text{Min}(\text{SPDELMW}_{nc_w(tp)}, \text{SPCUL}_{nc_w(tp)}) \end{aligned}$$

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The above variables are defined as follows:

| Variable                        | Unit           | Description   |
|---------------------------------|----------------|---|
| q                               | None           | A QSE.  |
| c                               | None           | ERS Contract Period.  |
| r                               | None           | ERS Standard Contract Term.   |
| tp                              | None           | Hours in an ERS Time Period.  |
| e                               | None           | An ERS Resource procured from a QSE for an ERS Contract Period.   |
| co                              | None           | The number of competitive ERS Resources procured from a QSE for an ERS Contract Period.   |
| s                               | None           | The number of self-provided ERS Resources procured from a QSE for an ERS Contract Period.   |
| n                               | None           | The number of QSEs for an ERS Contract Period.  |
| <u>w</u>                        | <u>None</u>    | <u>Weather Sensitive / Non-Weather Sensitive</u>  |
| ERSPAMT <sub>qcw(tp)</sub>      | \$             | ERS Payment Amount per QSE per ERS Contract Period per ERS Time Period—ERS total payment to QSE q for ERS Contract Period c, <u>weather-sensitive or non-weather-sensitive ERS w</u> and ERS Time Period tp.  |
| COMPAMT <sub>qcw(tp)</sub>      | \$             | Competitive Amount per QSE per ERS Contract Period per ERS Time Period—ERS total payment to QSE q for <u>all</u> competitively procured ERS Resources delivered for ERS Contract Period c, <u>weather-sensitive or non-weather-sensitive ERS w</u> and ERS Time Period tp.                                      |
| SPAMT <sub>qcw(tp)</sub>        | \$             | Self-Procured Amount per QSE per ERS Contract Period per ERS Time Period—ERS total payment to the QSE for its self-provided ERS Resources for <u>ERS Contract Period c, weather-sensitive or non-weather-sensitive ERS w</u> and ERS Time Period <u>tp</u> .  |
| ERSPAMTQSETOT <sub>qcw</sub>    | \$             | ERS Payment QSE Total per QSE per ERS Contract Period—The total ERS total payments to QSE q for ERS Contract Period c, <u>weather-sensitive or non-weather-sensitive ERS w</u> .  |
| ERSPAMTTOT <sub>cw(tp)</sub>    | \$             | ERS Payment Amount Total per ERS Contract Period per ERS Time Period—Total of all ERS payments for ERS Contract Period c, <u>weather-sensitive or non-weather-sensitive ERS w</u> and ERS Time Period tp.   |
| OFFERPRICE <sub>qcw(e,tp)</sub> | \$/MW per hour | Offer Price per QSE per ERS Contract Period per ERS Resource per ERS Time Period—Contracted offer price for <u>ERS Contract Period c, weather-sensitive or non-weather-sensitive ERS w,</u> competitively procured ERS Resource e, <u>for ERS Contract Period e</u> and ERS Time Period tp.                     |
| COMPDELMW <sub>qcw(e,tp)</sub>  | MW             | Competitive Delivered MW per QSE per ERS Contract Period per ERS Resource per ERS Time Period—ERS capacity delivered by the QSE q <u>for ERS Contract Period c, for a weather sensitive or non-weather-sensitive ERS w,</u> competitive ERS Resource e <u>for ERS Contract Period e</u> and ERS Time Period tp. |

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| TPH <sub>cw(e)(tp)</sub>       | Hours              | Hours in ERS Time Period <i>tp</i> for <del>any</del> <u>weather sensitive or non-weather-sensitive ERS w and</u> ERS Resource <i>e</i> .<br>For ERS Resources <i>e</i> whose obligation is not exhausted in an ERS Contract Period <i>c</i> , <u>weather sensitive or non-weather-sensitive ERS w</u> , the number of hours in that ERS Time Period <i>tp</i> in that ERS Contract Period <i>c</i> .<br>For <u>weather sensitive or non-weather-sensitive ERS w and</u> ERS Resources <i>e</i> whose obligation is exhausted in an ERS Contract Period <i>c</i> , the number of hours in that ERS Time Period <i>tp</i> from the beginning of the ERS Contract Period <i>c</i> to the end of the ERS Standard Contract Term. |
| COMPAVGPRICE <sub>cw(tp)</sub> | \$ per MW per hour | <i>Competitive Average Price per ERS Contract Period per ERS Time Period</i> —Weighted average price of competitive capacity delivered for ERS Contract Period <i>c</i> , <u>weather sensitive or non-weather-sensitive ERS w</u> and ERS Time Period <i>tp</i> .   |
| SPDELMW <sub>qcw(tp)</sub>     | MW                 | <i>Self-Provided Delivered MW per QSE per ERS Contract Period per ERS Time Period</i> —Total ERS capacity self-provided by QSE <i>q</i> for ERS Contract Period <i>c</i> , <u>weather sensitive or non-weather-sensitive ERS w</u> and ERS Time Period <i>tp</i> .  |
| COMPDELMWTOT <sub>cw(tp)</sub> | MW                 | <i>Competitive Delivered MW Total per ERS Contract Period per ERS Time Period</i> —Total ERS competitive capacity delivered by all QSEs for <u>ERS Contract Period c, weather sensitive or non-weather-sensitive ERS w, and</u> ERS Time Period <i>tp</i> .   |
| COMPOFFERMW <sub>qcw(tp)</sub> | MW                 | <i>Competitive Offered MW Total per QSE per ERS Contract Period per ERS Resource per ERS Time Period</i> —ERS capacity offered by QSE <i>q</i> for <u>ERS Contract Period c, weather sensitive or non-weather-sensitive ERS w, a</u> competitive ERS Resource <i>e</i> <del>for ERS Contract Period c</del> and ERS Time Period <i>tp</i> .   |
| ERSAFWT <sub>qcw</sub>         | None               | <i>Availability Settlement weighting factor per QSE per ERS Contract Period</i> —The weighting factor for QSE <i>q</i> for ERS Contract Period <i>c</i> , <u>weather sensitive or non-weather-sensitive ERS w</u> to apply for Settlement as calculated pursuant to Section 8.1.3.1.3.3.  |
| ERSAFCOMB <sub>qrw</sub>       | None               | <i>Time- and Capacity-Weighted ERS Availability Factor per QSE per ERS Standard Contract Term</i> —The availability factor for QSE <i>q</i> for ERS Standard Contract Term <i>r</i> , <u>and weather sensitive or non-weather-sensitive ERS w</u> as calculated pursuant to Section 8.1.3.3.1, Performance Criteria for Qualified Scheduling Entities Representing Emergency Response Service Resources.  |
| ERSEPF <sub>qrw</sub>          | None               | <i>ERS Event Performance Factor per QSE per ERS Standard Contract Term</i> —Event performance factor for QSE <i>q</i> in ERS Standard Contract Term <i>r</i> <u>and weather sensitive or non-weather-sensitive ERS w</u> as calculated pursuant to Section 8.1.3.3.1.   |
| SPCUL <sub>qcw(tp)</sub>       | MW                 | <i>Self-Provision Capacity Upper Limit per QSE per ERS Contract Period per ERS Time Period</i> —The ERS Self-Provision Capacity Upper Limit calculated by ERCOT for <del>each a</del> self-providing QSE <u>for ERS Contract Period c, weather sensitive or non-weather-sensitive ERS w and ERS Time Period tp</u> by simultaneously solving for all QSEs' obligations with the constraint that each QSE's ERS Self-Provision Capacity Upper Limit does not exceed its obligation.  |

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| SPOFFERMW <sub>qcw(tp)</sub> | MW   | Self-Provision Offer MW per QSE per ERS Contract Period per ERS Resource per ERS Time Period—ERS capacity offered as self-provision by QSE <i>q</i> for <u>ERS Contract Period <i>c</i>, weather sensitive or non-weather-sensitive ERS <i>w</i>, and ERS Resource <i>e</i> for ERS Contract Period <i>e</i></u> and ERS Time Period <i>tp</i> .  |
| ERSLRS <sub>qcw(tp)</sub>    | None | ERS Load Ratio Share per QSE per ERS Contract Period per ERS Time Period—ERS LRS for QSE <i>q</i> for ERS Contract Period <i>c</i> , <u>weather sensitive or non-weather-sensitive ERS <i>w</i></u> and ERS Time Period <i>tp</i> , calculated starting with the first hour of the ERS Contract Period and ending with the earlier of the last hour of the ERS Contract Period or the hour containing the recall instruction in an ERS deployment event that results in the exhaustion of a QSE portfolio's ERS obligation. |

### 6.6.11.2 Emergency Response Service Capacity Charge

- (1) ERCOT shall allocate costs for an ERS Contract Period based on the LRS of each QSE during each ERS Time Period in an ERS Contract Period. A QSE's LRS for an ERS Time Period shall be the QSE's total Load for the ERS Time Period divided by the total ERCOT Load in the ERS Time Period. For the first Settlement of the ERS Contract Period as described in paragraph (1) of Section 9.14.5, Settlement of Emergency Response Service, LRS will be calculated using the latest Settlement Load for each Operating Day in the ERS Contract Period. For the resettlement of the ERS Contract Period as described in paragraph (2) of Section 9.14.5, the LRS will be calculated using the true-up Load for each Operating Day in the ERS Contract Period.
- (2) ERCOT shall calculate each QSE's ERS capacity charge as follows:

$$LAERSAMT_{qcw(tp)} = ERSLRS_{qcw(tp)} * ERSPAMTTOT_{cw(tp)}$$

$$LAERSAMTQSETOT_{qcw} = \sum_{tp} LAERSAMT_{qcw(tp)}$$

The above variables are defined as follows:

| Variable                     | Unit        | Description  |
|------------------------------|-------------|--|
| <i>q</i>                     | None        | A QSE.   |
| <i>c</i>                     | None        | ERS Contract Period.   |
| <i>tp</i>                    | None        | An ERS Time Period.  |
| <u><i>w</i></u>              | <u>None</u> | <u>Weather Sensitive /Non-Weather Sensitive</u>  |
| ERSPAMTTOT <sub>cw(tp)</sub> | \$          | ERS Payment Amount Total per ERS Contract Period per ERS Time Period—Total of all ERS payments for ERS Contract Period <i>c</i> , <u>weather sensitive or non-weather-sensitive ERS <i>w</i></u> and ERS Time Period <i>tp</i> . |

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| ERSLRS <sub>qcw(tp)</sub>     | None | ERS Load Ratio Share per QSE per ERS Contract Period per ERS Time Period—ERS LRS for QSE $q$ for ERS Contract Period $c$ , <u>weather sensitive or non-weather-sensitive ERS <math>w</math></u> and ERS Time Period $tp$ , calculated starting with the first hour of the ERS Contract Period and ending with the earlier of the last hour of the ERS Contract Period or the hour containing the recall instruction in an ERS deployment event that results in the exhaustion of a QSE portfolio's ERS obligation. |
| LAERSAMT <sub>qcw(tp)</sub>   | \$   | Load-Allocated ERS Amount per QSE per ERS Contract Period per ERS Time Period—ERS charge for QSE $q$ for ERS Contract Period $c$ , <u>weather sensitive or non-weather-sensitive ERS <math>w</math></u> and ERS Time Period $tp$ .   |
| LAERSAMTQSETOT <sub>qcw</sub> | \$   | Load-Allocated ERS Amount QSE Total per QSE per ERS Contract Period—The total ERS charge for QSE $q$ , <del>for</del> ERS Contract Period $c$ <u>and weather sensitive or non-weather-sensitive ERS <math>w</math></u> .   |

### 8.1.3.1.5 Performance Criteria for ERS Weather-Sensitive Loads

(1) ERS Weather Sensitive Loads are subject to event performance, test performance, and availability requirements as described in this subsection. Unless specifically addressed in this subsection, ERS Weather Sensitive Loads are subject to the same performance criteria that apply to other ERS Resources.

#### 8.1.3.1.5.1 Baseline Assignments for ERS Weather-Sensitive Loads

- (1) ERCOT shall assign an ERS Weather Sensitive Load to either the Regression Baseline performance evaluation methodology or the Control Group Baseline performance evaluation methodology. Both methodologies are described in the document entitled "Default Baseline Methodologies" posted to the ERCOT website.
- (a) At least nine months of interval data for all sites within an ERS Weather Sensitive Load are required for the load to be eligible for the Regression Baseline evaluation methodology. If one or more sites lack sufficient interval data, the ERS Weather Sensitive Load will either be evaluated using the Control Group Baseline performance evaluation methodology or will be disqualified from participation as an ERS Weather Sensitive Load.
  - (b) Sites in an ERS Weather Sensitive Load assigned to the Control Group Baseline are required to have fully functional interval metering as of the beginning in place at the start of a Standard Contract Term, but are not required to have historical meter data prior to that time.
  - (c) If ERCOT determines that the ERS Weather Sensitive Load may be assigned to either baseline methodology, the QSE may select its preferred option.

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(ed) If the ERS Weather Sensitive Load consists of non-residential sites, the ERS Load must qualify for the Regression Baseline.

(2) For an ERS Weather Sensitive Load assigned to the Regression Baseline, for purposes of testing and deployment event dispatch ERCOT will assign each site in the ERS Weather Sensitive Load to one of two numbered groups. Upon the request of a QSE or determination by ERCOT that assignment to two groups would result in test results that would inaccurately represent performance for the entire Load, ERCOT shall assign all sites within an ERS Weather Sensitive Load on a Regression Baseline to a single group.

(a) Group designations are subject to change if the QSE adjusts the population of the ERS Weather Sensitive Load during the ERS Standard Contract Term, as described in Section 3.14.3.5 (9).

(3) For an ERS Weather Sensitive Load assigned to the Control Group Baseline, for purposes of testing and deployment event dispatch ERCOT will divide the aggregation into multiple randomly assigned numbered groups, one or more of which will be designated as the control group(s) at time of dispatch. ERCOT will strive to minimize control group size while preserving the ability to achieve accurate demand response measurement and verification.

(a) The number of groups, group size and group designations are subject to change if the QSE adjusts the population of the ERS Weather Sensitive Load during the ERS Standard Contract Term, as described in Section 3.14.3.5 (9).

~~(b) Sites in an ERS Weather Sensitive Load assigned to the Control Group Baseline are not required to have historical meter data.~~

### 8.1.3.1.5.2 Event Performance Criteria for ERS Weather Sensitive Loads

(1) For an ERS deployment event, ERCOT shall calculate ERS interval performance factors (EIPFs) and an ERS event performance factor (ERSEPF) for an ERS Weather Sensitive Load consistent with the provisions of Section 8.1.3.1.4 (2)(b)(i).

(a) None of the other provisions in Section 8.1.3.1.4 (2) are applicable to ERS Weather Sensitive Loads.

(2) Regardless of the number of enrolled sites in the ERS Weather Sensitive Load at the time of an event or test, the contracted capacity value (OFFERMW) used will be the value submitted by the QSE in its offer.

(3) For a deployment event or test with two or more full intervals in the Sustained Response Period, if an ERS Weather Sensitive Load achieves an interval performance factor (EIPF) for the first full interval of the Sustained Response Period that is less than 75 percent of the average EIPF for the remaining full intervals of the Sustained Response Period, the event performance factor for that event or test shall be reduced by 25 percent.

~~(3) ERCOT shall compute an ERS Weather Sensitive Load's Contract Period event~~

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~~performance factor by calculating the time-weighted average of all test performance factors and all event performance factors, each capped at one.~~

### 8.1.3.1.5.3 Testing of ERS Weather Sensitive Loads

- (1) ERCOT shall conduct unannounced testing of each ERS Weather Sensitive Load at least once but no more than twice per month during an ERS Standard Contract Term, unless testing has been superseded by deployment events as described in subparagraph (4) below.
  - (a) For no more than two of the tests of an ERS Weather Sensitive Load in an ERS Standard Contract Term, the Sustained Response Period of the test will have a duration of at least one hour.
  - (b) The remaining tests will be conducted according to normal ERCOT ERS testing procedures.
  - (c) At the time of dispatch during a test, ERCOT will not advise the QSE of the test duration.
  - (d) ERCOT may conduct a test during any of an ERS Weather Sensitive Load's obligated hours. However, tests will generally be targeted toward periods of peak weather conditions.
  - (e) For an ERS Weather Sensitive Load assigned to the Regression Baseline, tests will be conducted by group. ERCOT's dispatch instruction shall ~~contain the designation of~~ identify the group being tested.
  - (e) For an ERS Weather Sensitive Load assigned to the Control Group Baseline, tests will target one or more of the designated groups. ERCOT's dispatch instruction shall ~~contain the designation of~~ identify the group(s) being tested.
    - (ii) Non-tested groups will serve as the control group.
    - (iii) Selection of groups to be tested will be random and will cycle through the groups within the ERS Weather Sensitive Load.
- (2) ERCOT shall calculate a Test Performance Factor for each test of an ERS Weather Sensitive Load, using the event performance methodology described in Section 8.1.3.1.5.2, ~~except that the MW obligations shall be prorated based on the number of sites actually deployed~~ dispatched during the test.;
- (3) The QSE is responsible for managing group assignments and for deploying only the group(s) ~~designated for~~ dispatched by ERCOT during a test.
- (4) ~~When possible, ERCOT will~~may reduce the number of tests administered by the number

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of deployment events during the ERS Standard Contract Term. However, a test shall not reduce an ERS Weather Sensitive Load's deployment event obligation as described in Section 3.14.3.5 (11).

### 8.1.3.1.5.4 Performance Availability Criteria for ERS Weather Sensitive Loads

- (1) The availability factor methodologies described in Section 8.1.3.1.3 are not applicable to ERS Weather Sensitive Loads. An ERS Weather Sensitive Load's availability factor for an ERS Contract Term Period shall always be set to 1.

### 8.1.3.1.5.5 ERS Weather Sensitive Load Payments and Penalties

- (1) An ERS Weather Sensitive Load's Contract Period event performance factor shall be the basis for the QSE's payment for that ERS Weather Sensitive Load. ERCOT shall compute an ERS Weather Sensitive Load's Contract Period event performance factor by calculating the time-weighted average of all test performance factors and all event performance factors, each capped at one.
- (2) Notwithstanding the aforementioned, ERCOT shall reduce a QSE's payment for an ERS Weather Sensitive Load as follows:
- (a) If the maximum actual number of sites in the ERS Weather Sensitive Load during any month in the ERS Standard Contract Term is less than 90 percent of the maximum number of sites projected by the QSE at the time of Offer submission, as described in Section 3.14.3.5 (10), the Contract Period event performance factor shall be squared.
- (b) If the average demand reduction value per site within the ERS Weather Sensitive Load for all tests and deployment events during the ERS Contract Term Period is less than 90 percent of the value calculated by ERCOT based on the QSE's Offer at the time of submission, the Contract Period event performance factor shall be squared. ERCOT shall adjust the results of each test and deployment event to normalized peak weather conditions before making this calculation.
- (c) If ERCOT determines that the total demand response value provided by the ERS Weather Sensitive Load, as adjusted for normalized peak weather conditions, is equal to or greater than 90 percent of its contracted capacity value (OFFERMW), the squaring provision described in (a) or (b) above shall be waived.
- (d) If the provisions of both (a) and (b) above require the event performance factor to be squared, and (c) does not apply, the Contract Period event performance factor for the ERS Weather Sensitive Load shall be cubed.
- (e) If an ERS Weather Sensitive Load's ~~has its~~ obligation is exhausted during a

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Contract Period, the provisions of (a), (b) and (d) above shall not be applied.

- (3) For purposes of calculating the QSE's payment for an ERS Weather Sensitive Load for an ERS Contract Period, ERCOT shall calculate the following:
- (a) ERCOT shall compute the QSE's portfolio-level ERS Weather Sensitive Load demand reduction value by summing the product of each of the QSE's Weather Sensitive Load's Contract Period event performance factor and its contracted capacity value (OFFERMW).
  - (b) ERCOT shall then compute the QSE's portfolio-level ERS Weather Sensitive Load event performance factor as the average of the Contract Period event performance factors, weighted according to demand reduction value as calculated in (a) above.

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### 8.1.3.3.1 Performance Criteria for Qualified Scheduling Entities Representing Emergency Response Service Resources

- (1) A QSE's ERS performance will be evaluated based on its portfolio's performance during ERS deployment events and on the overall availability of its portfolio in an ERS Standard Contract Term, as follows:
- (a) Availability criteria for a QSE's portfolio of non-Weather Sensitive ERS Resources:
    - (i) ERCOT shall calculate a non-Weather Sensitive ERS portfolio-level availability factor (~~ERSAF<sub>qe</sub>~~) for each QSE's non-Weather Sensitive ERS portfolio for each ERS Time Period in an ERS Contract Period using the methodologies defined in Section 8.1.3.1.3, Availability Criteria for Emergency Response Service Resources, except that the availability factor for each ERS Time Period will be allowed to exceed 1.0. ERCOT shall then calculate a single time- and capacity-weighted availability factor for the QSE's non-Weather Sensitive ERS portfolio for the ERS Contract Period using the methodologies defined in Section 8.1.3.1.3. ERCOT shall then calculate a single time- and capacity-weighted availability factor (~~ERSAF<sub>COMB</sub><sub>qe</sub>~~) for the QSE's non-Weather Sensitive ERS portfolio for the ERS Standard Contract Term, capped at 1.0.
    - (ii) For an ERS Standard Contract Term with a single ERS Contract Period, the QSE's non-Weather Sensitive ERS portfolio-level availability factor for the ERS Standard Contract Term shall be the non-Weather Sensitive ERS portfolio-level availability factor for the ERS Contract Period. For an ERS Standard Contract Term with multiple ERS Contract Periods, ERCOT shall compute a QSE non-Weather Sensitive ERS portfolio-level availability factor for the ERS Standard Contract Term by averaging the QSE's non-Weather Sensitive ERS availability factors across ERS

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Contract Periods and ERS Time Periods, weighted according to time and capacity obligations.

- (iii) The QSE's non-Weather Sensitive ERS portfolio-level availability factor for the ERS Standard Contract Term will determine both the availability component of the non-Weather Sensitive ERS payment to the QSE and whether the QSE has met its non-Weather Sensitive ERS availability requirements. If the QSE's non-Weather Sensitive ERS portfolio-level availability factor for the ERS Standard Contract Term equals or exceeds 0.95, the QSE shall be deemed to have met its non-Weather Sensitive ERS availability requirements for the ERS Standard Contract Term; otherwise, the QSE shall be deemed to have failed to meet this requirement. If the QSE's non-Weather Sensitive ERS portfolio-level availability factor for the ERS Standard Contract Term is less than 1.0, the QSE's non-Weather Sensitive ERS capacity payment shall be reduced according to the formulas in Section 6.6.11.1, Emergency Response Service Capacity Payments.

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(b) Availability criteria for a QSE's portfolio of Weather Sensitive ERS Resources::

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- (i) The availability factor for a QSE's portfolio of ERS Weather Sensitive Loads for an ERS Standard Contract Term shall always be set to 1.

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(c) Event Performance for a QSE's portfolio of non-Weather Sensitive ERS Resources:

- (i) QSEs representing non-Weather Sensitive ERS Resources must meet performance standards specified in Section 8.1.3.1.4, Event Performance Criteria for Emergency Response Service Resources, as applied on a portfolio-level basis. ERCOT's calculation of a QSE's non-Weather Sensitive ERS portfolio performance shall weight each non-Weather Sensitive ERS Resource according to its committed share of the QSE's non-Weather Sensitive ERS portfolio capacity measured in MW. ERCOT shall determine a QSE's portfolio level event performance by calculating a QSE level event performance factor (ERSEPF<sub>qt</sub>). For purposes of evaluating the non-Weather Sensitive ERS Loads in the QSE's non-Weather Sensitive ERS portfolio, ERCOT shall establish a baseline representing their portfolio's estimated Load in the absence of the ERS deployment event. For purposes of evaluating ERS Generators, ERCOT shall compute portfolio-level injection of energy to the ERCOT System. Using this data, ERCOT shall calculate a QSE-level non-Weather Sensitive event performance factor for each ERS deployment event based on the methodologies defined in Section 8.1.3.1.4. ERCOT shall then calculate a single-QSE non-Weather Sensitive ERS portfolio-level event

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performance factor ( $ERSEPF_{q,t}$ ) for ~~the QSE's non-Weather Sensitive ERS Resources for~~ the ERS Standard Contract Term, ~~capped at 1.0~~. For an ERS Standard Contract Term with no ERS deployment events, ~~the this non-Weather Sensitive ERS Resource~~ QSE portfolio-level event performance factor for the ERS Standard Contract Term shall be set at 1.0.

- (ii) For an ERS Standard Contract Term with a single ERS deployment event in which non-Weather Sensitive ERS Resources were deployed, the QSE's portfolio-level non-Weather Sensitive event performance factor for the ERS Standard Contract Term shall be the QSE's portfolio-level non-Weather Sensitive event performance factor for the event. For an ERS Standard Contract Term with multiple ERS deployment events in which non-Weather Sensitive ERS Resources were deployed, ERCOT shall compute the QSE's portfolio-level non-Weather Sensitive event performance factor for the ERS Standard Contract Term by averaging the QSE's portfolio-level non-Weather Sensitive event performance factors for all of the deployment events, weighted according to the duration of the events and capacity obligations by interval.

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- ~~(iii)~~ (iii) The QSE's non-Weather Sensitive ERS portfolio-level event performance factor for an ERS Standard Contract Term will determine both the event performance component of the non-Weather Sensitive ERS payment to the QSE and whether the QSE has met its non-Weather Sensitive ERS event performance requirements. If a QSE's non-Weather Sensitive ERS portfolio-level Event Performance Factor for an ERS Standard Contract Term is greater than or equal to 0.95, the QSE will be deemed to have met its non-Weather Sensitive ERS event performance requirements for the ERS Standard Contract Term; otherwise, the QSE shall be deemed to have failed to meet this requirement. If a QSE's non-Weather Sensitive ERS portfolio achieves an event performance factor of less than 1.0 for the Standard Contract Term, the QSE's non-Weather Sensitive ERS capacity payment shall be reduced according to the formulas in Section 6.6.11.1. For purposes of calculating a QSE non-Weather Sensitive ERS portfolio-level event performance factor, any ERS Resources that were not subject to dispatch during the event shall be treated as having met their obligation.

### (d) Event Performance for a QSE's portfolio of Weather Sensitive ERS Resources:

- ~~(i)~~ (i) A QSE is subject to a reduction in its payment as provided by Any ERCOT-administered penalties related to event performance by a QSE's portfolio of Weather Sensitive ERS Loads shall be limited to the financial penalties described in Section 8.1.3.1.5.5, ERS Weather Sensitive Load Payments and Penalties.

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- (e) ~~Ten-minute~~ Timely Deployment for a QSE's non-Weather Sensitive ERS portfolio: Within ~~ten~~ the prescribed ramp period (in minutes) of ERCOT's issuance of a VDI to deploy its non-Weather Sensitive ERS Resources, a QSE shall ensure that the non-Weather Sensitive ERS Resources in its portfolio deploy in accordance with their respective obligations. For each ERS deployment event, ERCOT shall assess each QSE's compliance with this requirement by calculating a capacity-weighted QSE non-Weather Sensitive ERS portfolio-level interval performance factor for the first full interval of the Sustained Response Period, using the methodologies defined in Section 8.1.3.1.4. If that interval performance factor is equal to or greater than 0.95 the QSE shall be deemed to have met the ten-minute deployment requirement for its non-Weather Sensitive ERS portfolio; otherwise, the QSE shall be deemed to have failed to meet this requirement.
- (f) Timely Deployment for a QSE's Weather Sensitive ERS portfolio: A QSE must any penalties related to untimely deployment of a QSE's Weather Sensitive ERS portfolio shall be limited to the financial penalties meet the deployment requirements described in Section 8.1.3.1.5.5, ERS Weather Sensitive Load Payments and Penalties.
- (2) A QSE violates It is a violation of these Protocols by a QSE for if its portfolio of non-Weather Sensitive Loads to fails any of the performance criteria in items (1)(a), (1)(c) or (1)(e) above. It is a violation of these Protocols by a QSE also violates these Protocols if more than 25 percent of its average awarded MW capacity, weighted by ERS Time Period, is subject to the payment reduction provided by Section 8.1.3.1.5.5(2)(d) for any two Standard Contract Terms in any two-year period more than 25 percent of Weather Sensitive ERS Loads in its portfolio are subject to the cubing provision described in Section 8.1.3.1.5.5 (2)(d) for three consecutive Standard Contract Terms. S, and such violations may be subject to an administrative penalties by the PUCT. Such administrative penalty which and would potentially be in addition to suspension by ERCOT of the QSE pursuant to Section 8.1.3.3, Suspension of Qualification of Emergency Response Service Resources and/or their Qualified Scheduling Entities.
- (3) Failure by a QSE portfolio to meet its ERS event performance or availability requirements shall not be cause for revocation of the QSE's Ancillary Services qualification.