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NPRR Number	329	NPRR Title	Security Classification Changes for Extracts/Reports
Revision Description		This Nodal Protocol Revision Request (NPRR) changes the security classification to public for extracts/reports that are currently classified in the Nodal Protocols as secure; and suspends the posting of State Estimator Load Reports that reveal individual load data.	

Proposed Protocol Language Revision

3.2.2 Demand Forecasts

(1) Monthly, ERCOT shall develop the weekly peak hour Demand forecast for the ERCOT Region and for the Forecast Zones based on the 36-Month Load Forecast as described in Section 3.12, Load Forecasting, for the following 36 months, starting with the second week. During the development of this forecast, ERCOT may consult with Qualified Scheduling Entities (QSEs), Transmission Service Providers (TSPs), and other Market Participants that may have knowledge of potential Load growth.

(2) ERCOT may, at its discretion, publish on the MIS Secure Area, additional peak Demand analyses for periods beyond 36 months.

(3) ERCOT shall develop and publish hourly on the MIS ~~Secure~~ Public Area peak Demand forecasts by Forecast Zone for each hour of the next seven days using the Seven-Day Load Forecast as described in Section 3.12.

(4) For purposes of Demand forecasting, ERCOT may choose to use the same forecast as that used for the Load forecast.

(5) ERCOT shall publish procedures describing the forecasting process on the MIS Public Area.

3.2.3 System Adequacy Reports

(1) ERCOT shall publish system adequacy reports to assess the adequacy of Resources and Transmission Facilities to meet the projected Demand. ERCOT shall provide reports on a system-wide basis and by Forecast Zone, where applicable.

(2) ERCOT shall generate and post a "Medium-Term System Adequacy Report" on the MIS Secure Area. ERCOT shall update the report monthly using the latest aggregate Generation Resource capacity and Load Resource capacity. The data will be provided for

each week, starting with the second week, of a rolling 36-month period. The Medium-Term System Adequacy Report will provide:

(a) Generation Resource capacity at the time of forecasted weekly peak Demand;

(b) Load Resource capacity at the time of the forecasted weekly peak Demand;

(c) Weekly peak forecast Demand described in Section 3.2.2, Demand Forecasts;

(d) Calculated system reserve, highlighting any deficiency hours, that excludes Load Resource capacity;

(e) Calculated system reserve, highlighting any deficiency hours, that includes Load Resource capacity shown as a reduction in forecast Demand;

(f) Ancillary Service requirements; and

(g) Transmission constraints that have a high probability of being binding in the Security-Constrained Economic Dispatch (SCED) or Day-Ahead Market (DAM) given the forecasted system conditions for each week excluding the effects of any transmission or Resource Outages.

(3) ERCOT shall generate and post a "Short-Term System Adequacy Report" on the MIS ~~Secure~~ Public Area. ERCOT shall update this report hourly following updates to the Seven-Day Load Forecast and on detection of a change to Resource Status that changes the availability of a Resource. The Short-Term System Adequacy Report will provide:

(a) For Generation Resources, the available On-Line Resource capacity for each hour, using the COP for the first seven days;

(b) For Load Resources, the available capacity for each hour using the COP;

(c) Forecast Demand for each hour described in Section 3.2.2;

(d) Ancillary Service requirements for the Operating Day and subsequent days; and

(e) Transmission constraints that have a high probability of being binding in SCED or DAM given the forecasted system conditions for each week including the effects of any transmission or Resource Outages. The binding constraints may not be updated every hour.

3.12 Load Forecasting

ERCOT shall produce and use Load forecasts to serve operations and planning objectives.

(a) ERCOT shall update and post hourly on the Market Information System (MIS) ~~Secure~~ Public Area a "Seven-Day Load Forecast" as described in Section ~~1~~3.12.1, Seven-Day Load Forecast, that provides forecasted hourly Load over the next 168 hours for each of the Weather Zones and for each of the Forecast Zones.

(b) ERCOT shall develop and post monthly on the MIS Secure Area a "36-Month Load Forecast" that provides a daily minimum and maximum Load forecast for the next 36-months for the ERCOT Region, for each of the Weather Zones, and for each of the Forecast Zones. The 36-Month Load Forecast is used in the Outage coordination process and for Resource adequacy reporting.

4.2.2 Wind-Powered Generation Resource Production Potential

(1) ERCOT shall produce and update hourly a Short-Term Wind Power Forecast (STWPF) that provides a rolling 48-hour hourly forecast of wind production potential for each Wind-powered Generation Resource (WGR). ERCOT shall produce and update an hourly Total ERCOT Wind Power Forecast (TEWPF) providing a probability distribution of the hourly production potential from all wind-power in ERCOT for each of the next 48 hours. Each Generation Entity that owns a WGR shall install and telemeter to ERCOT the site-specific meteorological information that ERCOT determines is necessary to produce the STWPF and TEWPF forecasts. ERCOT shall establish procedures specifying the accuracy requirements of WGR meteorological information telemetry.

(2) ERCOT shall use the probabilistic TEWPF and select the forecast that the actual total ERCOT WGR production is expected to exceed 50% of the time (50% probability of exceedance forecast). To produce the STWPF, ERCOT will allocate the TEWPF 50% probability of exceedance forecast to each WGR such that the sum of the individual STWPF forecasts equal the TEWPF forecast. The updated STWPF forecasts for each hour for each WGR are to be used as input into each Reliability Unit Commitment (RUC) process as per Section 5, Transmission Security Analysis and Reliability Unit Commitment .

(3) ERCOT shall produce the Wind-powered Generation Resource Production Potential (WGRPP) forecasts using the information provided by WGR owners including WGR availability, meteorological information, and Supervisory Control and Data Acquisition (SCADA).

(4) Each hour, ERCOT shall provide, through the Messaging System, the STWPF forecasts for each WGR to the QSE that represents that WGR and shall post each STWPF forecast on the MIS Certified Area.

(5) Each hour, ERCOT shall post the STWPF 50% probability of exceedance forecast on the MIS ~~Secure~~ Public Area. ERCOT shall retain the STWPF for each hour.

(6) ERCOT shall post to the MIS Public Area on a regional basis a rolling 48 hour actual wind power production and the forecasted amounts from the STWPF and the TEWPF.

4.2.3 Posting Secure Forecasted ERCOT System Conditions

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

(a) The Redacted Network Operations Model that includes known transmission line and other Transmission Facilities outages in the Common Information Model (CIM) format for the minimum Load hour and the peak Load hour, and the companion version of Network Operations Model (unredacted) will be posted to the MIS Certified Area for Transmission Service Providers (TSPs);

(b) Differences between the posted 0600 Redacted Network Operations Model and the previous day's Redacted Network Operations Model;

~~(c) Weather assumptions used by ERCOT to forecast ERCOT System conditions and used in the Dynamic Rating Processor;~~

(cd) Any weather-related changes to the transmission contingency list;

~~(e) ERCOT System, Weather Zone, and Load Zone Load forecasts for the next seven days, by hour, and a message on update indicating any changes to the forecasts by means of the Messaging System;~~

~~(f) Load forecast distribution factors from which Market Participants can calculate Load at the Electrical Bus level by hour for the next seven days;~~

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

(eh) Distribution Loss Factors (DLFs) and forecasted ERCOT-wide Transmission Loss Factors (TLFs), as described in Section 13.3, Distribution Losses, and Section 13.2, Transmission Losses, for each Settlement Interval of the Operating Day.; ~~(i) A current list of all Settlement Points that may be used for market processes and transactions;~~

~~(j) A mapping of Settlement Points to Electrical Buses in the Network Operations Model; and~~

~~(k) A list of transmission constraints that have a high probability of binding in the Security-Constrained Economic Dispatch (SCED) or DAM.~~

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4.2.3.1 Posting Public Forecasted ERCOT System Conditions

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

(a) Weather assumptions used by ERCOT to forecast ERCOT System conditions and used in the Dynamic Rating Processor;

(b) ERCOT System, Weather Zone, and Load Zone Load forecasts for the next seven days, by hour, and a message on update indicating any changes to the forecasts by means of the Messaging System;

(c) A current list of all Settlement Points that may be used for market processes and transactions;

(d) A mapping of Settlement Points to Electrical Buses in the Network Operations Model;

(e) A list of transmission constraints that have a high probability of binding in the Security-Constrained Economic Dispatch (SCED) or DAM; and

(f) Load forecast distribution factors from which Market Participants can calculate Load at the Electrical Bus level by hour for the next seven days.

5.3 ERCOT Security Sequence Responsibilities

(1) ERCOT shall start the Day-Ahead Reliability Unit Commitment (DRUC) process at 1430 in the Day Ahead.

(2) For each DRUC, ERCOT shall use a snapshot of Resource commitments taken at 1430 in the Day-Ahead to settle Reliability Unit Commitment (RUC) charges. For each Hourly Reliability Unit Commitment (HRUC), ERCOT shall use a snapshot of Resource commitments from each Qualified Scheduling Entities' (QSE's) most recently submitted Current Operating Plan (COP) before HRUC execution to settle RUC charges.

(3) For each RUC process, ERCOT shall:

(a) Execute the Security Sequence described in Section 5.5, Security Sequence, Including RUC, including:

(i) Validating Three-Part Supply Offers, defined in Section 4.4.9.1, Three-Part Supply Offers; and

(ii) Reviewing the Resource commitment recommendations made by the RUC algorithm; and

(b) Post to the Market Information System (MIS) Secure Area, ~~the following information related to the RUC:~~

~~(i) All active and binding transmission constraints (contingency and overloaded element pair information where available) used as inputs to RUC; and~~

~~(ii)~~ a~~A~~ll Resources that were committed or decommitted by the RUC process; ~~and~~

(c) Post to the MIS Public Area, all active and binding transmission constraints (contingency and overloaded element pair information where available) used as inputs to the RUC; and

(d~~c~~) Issue Dispatch Instructions to notify each QSE of its Resource commitments or decommittments.

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(4) ERCOT shall provide each QSE with the information necessary to pre-validate their data for DRUC and HRUC including:

(a) Publishing validation rules for offers, bids, and trades; and

(b) Posting any software documentation and code that is not Protected Information to the MIS Secure Area within five Business Days of receipt by ERCOT.

6.3.2 Activities for Real-Time Operations

(1) Activities for Real-Time operations begin at the end of the Adjustment Period and conclude at the close of the Operating Hour.

(2) The following table summarizes the timeline for the Operating Period and the activities of QSEs and ERCOT during Real-Time operations where "T" represents any instant within the Operating Hour. The table is intended to be only a general guide and not controlling language, and any conflict between this table and another section of the Protocols is controlled by the other section:

Operating Period	QSE Activities	ERCOT Activities
During the first hour of the Operating Period		Execute the Hour-Ahead Sequence, including HRUC, beginning with the second hour of the Operating Period Review and communicate HRUC commitments

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Operating Period	QSE Activities	ERCOT Activities
		Snapshot the Scheduled Power Consumption for Controllable Load Resources
Before the start of each SCED run	Update Output Schedules for DSRs	Validate Output Schedules for DSRs Execute Real-Time Sequence
SCED run		Execute SCED
During the Operating Hour	Telemeter the Ancillary Service Resource Responsibility for each Resource Acknowledge receipt of Dispatch Instructions Comply with Dispatch Instruction Review Resource Status to assure current state of the Resources is properly telemetered Update COP with actual Resource Status and limits and Ancillary Service Schedules Communicate Resource Forced Outages to ERCOT Communicate to ERCOT Resource changes to Ancillary Service Resource Responsibility via telemetry in the time window beginning 30 seconds prior to the five-minute clock interval and ending ten seconds prior to that five-minute clock interval	Communicate all Base Points, Dispatch Instructions and LMPs for energy and Ancillary Services using Inter-Control Center Communications Protocol (ICCP) or Verbal Dispatch Instructions (VDIs) Monitor Resource Status and identify discrepancies between COP and telemetered Resource Status Restart Real-Time Sequence on major change of Resource or Transmission Element Status Monitor ERCOT total system capacity providing Ancillary Services Validate COP information Monitor ERCOT control performance Distribute by ICCP, and post to the MIS Public Area, the LMPs created by each SCED process for each Resource Node. These prices shall be posted immediately subsequent to deployment of Base Points from SCED with the time stamp the prices are effective Post Hub LMP, Load Zone LMP, and LMPs for each Electrical Bus via the MIS Public Area. These prices shall be posted immediately subsequent to deployment of Base Points from SCED with the time stamp the prices are effective Post each hour on the MIS ~~Secure~~ Public Area SCED Shadow Prices and active binding transmission constraints by Transmission Element name (contingency

Operating Period	QSE Activities	ERCOT Activities
		/overloaded element pairs) Post the Settlement Point Prices for each Settlement Point immediately following the end of each Settlement Interval Post parameters as required by Section 6.4.8, Ancillary Services Capacity During the Adjustment Period and in Real-Time, to the MIS Secure Area

(3) At the beginning of each hour, ERCOT shall post on the MIS ~~Secure~~ Public Area the following information:

(a) Changes in ERCOT System conditions that could affect the security and dynamic transmission limits of the ERCOT System, including:

(i) Changes or expected changes, in the status of Transmission Facilities as recorded in the Outage Scheduler for the remaining hours of the current Operating Day and all hours of the next Operating Day; and

(ii) Any conditions such as adverse weather conditions as determined from the ERCOT-designated weather service;

(b) Updated system-wide Load forecasts;

(c) The quantities of Reliability Must-Run (RMR) Services deployed by ERCOT for each previous hour of the current Operating Day;

(d) Total ERCOT System Demand, from Real-Time operations, integrated over each Settlement Interval; and

(e) Updated Electrical Bus Load distribution factors and other information necessary to forecast Electrical Bus Loads for each hour of the current Operating Day and all hours of the next Operating Day.

6.5.7.1.13 Data Inputs and Outputs for the Real-Time Sequence and SCED

(1) Inputs: The following information must be provided as inputs to the Real-Time Sequence and SCED. ERCOT may require additional information as required, including:

(a) Real-Time data from TSPs including status indication for each point if that data element is stale for more than 20 seconds;

(i) Transmission Electrical Bus voltages;

(ii) MW and MVAr pairs for all transmission lines, transformers, and reactors;

(iii) Actual breaker and switch status for all modeled devices; and

(iv) Tap position for auto-transformers;

(b) State Estimator results (MW and MVAr pairs and calculated MVA) for all modeled Transmission Elements;

(c) Transmission Element ratings from TSPs;

(i) Data from the Network Operations Model:

(A) Transmission lines – Normal, Emergency, and 15-Minute Ratings (MVA); and

(B) Transformers and Auto-transformers – Normal, Emergency, and 15-Minute Ratings (MVA) and tap position limits;

(ii) Data from QSEs:

(A) Generator step-up transformers tap position;

(B) Resource HSL (from telemetry); and

(C) Resource LSL (from telemetry); and

(d) Real-Time weather, from WGRs, and where available from TSPs or other sources. ERCOT may elect to obtain other sources of weather data and may utilize such information to calculate the dynamic limit of any Transmission Element.

(2) ERCOT shall validate the inputs of the Resource Limit Calculator as follows:

(a) The calculated SURAMP and SDRAMP are each greater than or equal to zero; and

(b) Other provision specified under Section 3.18, Resource Limits in Providing Ancillary Service.

(3) Outputs for ERCOT Operator information and possible action include:

(a) Operator notification of any change in status of any breaker or switch;

(b) Lists of all breakers and switches not in their normal position;

(c) Operator notification of all Transmission Element overloads detected from telemetered or State-Estimated data;

(d) Operator notification of all Transmission Element security violations; and

(e) Operator summary displays:

(i) Transmission system status changes;

(ii) Overloads;

(iii) System security violations; and

(iv) Base Points.

(4) Every hour, ERCOT shall post on the MIS Secure Area the following information:

(a) Status of all breakers and switches used in the NSA except breakers and switches connecting Resources to the ERCOT Transmission Grid;~~(b)Individual transmission Load on Electrical Buses, sum of the Load on each Electrical Bus in each Load Zone, and total Load on Electrical Buses in the ERCOT System, the sum of ERCOT generation, and flow on the DC Ties, all from the State Estimator;~~

(b~~c~~) All binding transmission constraints and the contingency or overloaded element pairs that caused such constraint; and

~~(d) All Shadow Prices on binding transmission constraints;~~

~~(e) The 15-minute average of Loads on the Electrical Buses from State Estimator results; and~~

(c~~f~~) Shift Factors by Resource Node.

(5) Sixty days after the applicable Operating Day, ERCOT shall post on the MIS Secure Area, the following information:

(a) Hourly transmission line flows and voltages from the State Estimator, excluding transmission line flows and voltages for Private Use Networks; and

(b) Hourly transformer flows, voltages and tap positions from the State Estimator, excluding transformer flows, voltages, and tap positions for Private Use Networks.

(6) Notwithstanding paragraph (5) above, ERCOT, in its sole discretion, shall release relevant State Estimator data less than 60 days after the Operating Day if it determines the release is necessary to provide complete and timely explanation and analysis of unexpected market operations and results or system events including, but not limited to, pricing anomalies, recurring transmission congestion, and system disturbances. ERCOT's release of data under this paragraph shall be limited to intervals associated with the unexpected market or system event as determined by ERCOT. The data release shall be made available simultaneously to all Market Participants.

(7) Notwithstanding paragraph (5) above, ERCOT shall develop and post a redacted version of the State Estimator data, as soon as reasonably practicable after collection of the data, so long as a redacted version excludes information (including, but not limited to, voltages, transmission flows and transformer flows) from which resource-specific output levels or offer curves could continually and systematically be derived.

(8) Every hour, ERCOT shall post on the MIS Public Area, the sum of ERCOT generation, and flow on the DC Ties, all from the State Estimator.

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6.5.9.2 Failure of the SCED Process

(1) When the SCED process is not able to reach a solution, ERCOT shall declare an Emergency Condition.

(2) For intervals that the SCED process fails to reach a solution, then the LMPs for the interval for which no solution was reached are equal to the LMPs in the most recently solved interval. For Settlement Intervals that the Real-Time Settlement Point Prices are identified as erroneous and ERCOT sets the SCED intervals as failed in accordance with paragraph (3)(b) of Section 6.3, Adjustment Period and Real-Time Operations Timeline, then the LMPs for the failed SCED intervals are equal to the LMPs in the most recently solved SCED interval that is not set as failed. ERCOT shall notify the market of the failure ~~using the Messaging System and~~ by posting on the MIS ~~Secure~~ Public Area.

(3) Once ERCOT declares an Emergency Condition for a SCED process failure, ERCOT may use any of the following measures:

(a) ERCOT may direct the SCED process to relax the active transmission constraints and/or the HASLs and LASLs for specific Resources and resume calculation of LMPs by reducing the Ancillary Service Schedules for the affected Resource, if sufficient supply exists to manage total system needs. LMPs calculated for the affected interval must be used for Settlement;

(b) ERCOT may issue Emergency Base Points for Resources;

(c) ERCOT may manually issue Emergency Base Points for a Resource and must communicate the Resource name, MW output requested, and start time and duration of the Dispatch Instruction to the QSE representing the Resource;

(d) ERCOT may issue an instruction to hold the previous interval; and

(e) A QF, a hydro-powered Resource, or a nuclear-powered Resource may be instructed by ERCOT to operate below its LSL only after all other Resource options have been exhausted.

(4) The Emergency Condition continues until the SCED process can reach a solution without using the measures in paragraph (3) above.

6.5.9.3.3 Watch

(1) A Watch is the third of four possible levels of communication issued by ERCOT in anticipation of a possible Emergency Condition.

(2) ERCOT shall issue a Watch when ERCOT determines that:

(a) Conditions have developed such that additional Ancillary Services are needed in the current Operating Period;

(b) There are insufficient Ancillary Services or Energy Offers. in the DAM or in a Supplemental Ancillary Services Market (SASM);

(c) Market-based congestion management techniques embedded in SCED as specified in these Protocols will not be adequate to resolve transmission security violations; or

(d) Forced Outages or other abnormal operating conditions have occurred, or may occur that require operations with active transmission security violations.

(3) With the issuance of a Watch pursuant to paragraph (2)(a) above, ERCOT may exercise its authority to immediately procure the following services from existing offers:

(a) Regulation Services;

(b) RRS services; and

(c) Non-Spinning Reserve Services.

(4) If the actions in paragraph (3) above do not relieve the insufficiency described in paragraph (2)(a) above, then ERCOT may issue Dispatch Instructions to Resources

certified to provide the insufficient service, even though there is not an existing Ancillary Service Offer for that Resource.

(5) If ERCOT issues a Watch because insufficient Ancillary Service Offers were received in the DAM, and if the Watch does not result in sufficient offer and the DAM is executed with insufficient offers, then ERCOT shall acquire the insufficient amount of Ancillary Services in the Day-Ahead Reliability Unit Commitment (DRUC) and shall issue Dispatch Instructions to the QSEs for Resources that were RUC-committed to provide Ancillary Services, informing them of the requirement that the Resources be prepared to provide those Ancillary Services.

(6) If ERCOT issues a Watch because insufficient Ancillary Service Offers were received in a SASM, and if the Watch does not result in sufficient offer and the SASM is executed with insufficient offers, then ERCOT shall acquire the insufficient amount of Ancillary Services in the next Hourly Reliability Unit Commitment (HRUC) and shall issue Dispatch Instructions to the QSEs for Resources that were RUC-committed to provide Ancillary Services, informing them of the requirement that the Resources be prepared to provide those Ancillary Services.

(7) ERCOT shall post the Watch message electronically to the MIS ~~Secure~~ Public Area and shall provide verbal notice to all TSPs and QSEs via the Hotline. Corrective actions identified by ERCOT must be communicated through Dispatch Instructions to all TSPs, DSPs and QSEs required to implement the corrective action. Each QSE shall immediately notify the Market Participants that it represents of the Watch. To minimize the effects on the ERCOT System, each TSP or DSP shall identify and prepare to implement actions, including restoration of transmission lines as appropriate and preparing for Load shedding. ERCOT may instruct TSPs or DSPs to reconfigure ERCOT System elements as necessary to improve the reliability of the ERCOT System. On notice of a Watch, each QSE, TSP, and DSP shall prepare for an emergency in case conditions worsen. ERCOT may require information from QSEs representing Resources regarding the Resources' fuel capabilities. Requests for this type of information shall be for a time period of no more than seven days from the date of the request. The specific information that may be requested shall be defined in the Operating Guides. QSEs representing Resources shall provide the requested information in a timely manner, as defined by ERCOT at the time of the request.

9.17.1 Billing Determinant Data Elements

(1) ERCOT shall calculate and provide to Market Participants on the MIS ~~Secure~~ Public Area the following data elements annually to be used by TSPs and DSPs as billing determinants for transmission access service. This data must be provided by December first of each year. This calculation must be made under the requirements of the PUCT.

The data that is used to perform these calculations must come from the same systems used to calculate Settlement-billing determinants used by ERCOT.

(a) The 4-Coincident Peak (4-CP) for each DSP, as applicable;

(b) The ERCOT average 4-CP;

(c) The average 4-CP for each DSP, as applicable, coincident to the ERCOT average 4-CP;

(2) Average 4-CP is defined as "the average Settlement Interval coincidental MW peak occurring during the months of June, July, August, and September."

(3) Settlement Interval MW coincidental peak is defined as "the highest monthly 15-minute MW peak for the entire ERCOT Transmission Grid as captured by the ERCOT Settlement system."