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| NPRR Number | 327 | NPRR Title | State Estimator Data Redaction Methodology |
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| Date | |  | |
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| Submitter’s Information | | | |
| Name | | On Behalf of WMS | |
| E-mail Address | |  | |
| Company | |  | |
| Phone Number | |  | |
| Cell Number | |  | |
| Market Segment | |  | |

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| Comments |

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| Overall Market Benefit |  |
| Overall Market Impact |  |
| Consumer Impact |  |

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| Revised Proposed Protocol Language |

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3.20 Methodology for Redacting State Estimator Output for Real-Time Publication

1. This methodology shall be used to develop a redacted version of State Estimator data for publication that excludes information (including but not limited to, voltages, transmission flows and transformer flows) from which resource-specific output levels or offer curves could not continually and systematically be derived.
2. The appropriate TAC subcommittee shall be assigned to develop a list of state estimator elements to be redacted using the methodology and reviewed for approval at the scheduled February, May, August, and November TAC meetings.
3. ERCOT shall develop a publish list of State Estimator data from the approved redacted list for use in publication as described in Section 6.5.7.1.13.
4. DSP and TSPs will have access to all State Estimator Data real-time and the data will not be subject to the redaction methodology as described in Section 3.20.1, Methodology of Quarterly Redaction of State Estimator Data.

3.20.1 Methodology of Quarterly Redaction of State Estimator Data

1. This method introduces at least two transmission flow unknowns at, or near, every generation plant and Load station, as identified in Section 3.20.2 (Redacted Load), electrical connection.
2. The power flow from the following transmission elements shall be redacted:
   1. generator step up transformers, and
   2. radial lines serving generating plants, and
   3. transformers serving Redacted Load, and
   4. radial lines serving Redacted Load.
3. The power flow from the transmission elements determined using one of the following methods shall be redacted:
   1. a transmission branch path that provides connection from the plant generation bus or Redacted Load to another plant generation bus or Redacted Load where the same owner exists on both ends, or
   2. a transmission branch path that provides connection from at least three independently owned generation plants or Redacted Load to a common bus, or
   3. a transmission branch path that provides connection from plant generation bus to substation load whose summer peak value is equal to 25% of generation plant capability or
   4. a transmission branch path that provides connection from Redacted Load to substation load whose summer peak value is equal to 25% of Redacted Load.
4. From this redact list, ERCOT shall develop a publish list for use in publication of state estimator data as described in Section 6.5.7.1.13.

3.20.2 Methodology of Identification of Redacted Load

1.) This methodology will provide load information utilizing the following criteria

* 1. Individual Load on Electrical Buses for station codes that has greater than ten ESI\_IDs in DSP or TSP competitive areas
  2. NOIE load would be redacted until the NOIEs informs ERCOT of the Substation or Electrical Buses that need to be redacted due to Protected Information and updated on an annual basis.

2.) ERCOT shall post on the MIS Secure Area every five minutes

(a) Individual Load on Electrical Buses, utilizing the methodology described in 3.20.2 (1), sum of the Load in each Load Zone, and total Load on Electrical Buses in the ERCOT System from the State Estimator.

6.5.7.1.13 Data Inputs and Outputs for the Real-Time Sequence and SCED(NOTE: this section will need to be cleaned up with the approved NPRR 329)

(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 (GSU) 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;

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

(d) All Shadow Prices on binding transmission constraints;

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

(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 post a redacted version of the State Estimator data (Options: every five minutes, 12 hours, 24 hours or 48 hours), with a validation check if State Estimator does not solveto the MIS Secure Area. ERCOT shall only disclose State Estimator data for elements in the publish list as described in Section 3.20. If Market Participant determines that publishing an element of the State Estimator data, as described in Section 3.20, allows systematic and continually derivation of resource-specific output levels and resource status, the Market Participant may request ERCOT remove the element from the publish list. ERCOT will analyze the element and determine if the Market Participant has a valid request. If ERCOT validates the request, ERCOT will have x hours to remove the element or turn off the report and in as soon as practicable, ERCOT shall continue to post the State Estimator Data . The removed element will be reviewed according to Section 3.20.1.

WMS Items for Discussion:

* Is this a existing working group or task force or new one (NDSWG, QMWG, State Estimator)

Do the members need to sign a CA