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| NPRR Number | [1249](https://www.ercot.com/mktrules/issues/NPRR1249) | NPRR Title | Publication of Shift Factors for All Active Transmission Constraints in the RTM |
| Date of Decision | | December 3, 2024 | |
| Action | | Recommended Approval | |
| Timeline | | Normal | |
| Estimated Impacts | | Cost/Budgetary: Between $25k and $45k  Project Duration: 3 to 5 months | |
| Proposed Effective Date | | Upon system implementation | |
| Priority and Rank Assigned | | Priority – 2026; Rank – 4740 | |
| Nodal Protocol Sections Requiring Revision | | 6.5.7.1.13, Data Inputs and Outputs for the Real-Time Sequence and SCED | |
| Related Documents Requiring Revision/Related Revision Requests | | None | |
| Revision Description | | This Nodal Protocol Revision Request (NPRR) requires ERCOT to publish Shift Factors for all active transmission constraints in the Real-Time Market (RTM), not just the binding transmission constraints. | |
| Reason for Revision | | [Strategic Plan](https://www.ercot.com/files/docs/2023/08/25/ERCOT-Strategic-Plan-2024-2028.pdf) Objective 1 – Be an industry leader for grid reliability and resilience  [Strategic Plan](https://www.ercot.com/files/docs/2023/08/25/ERCOT-Strategic-Plan-2024-2028.pdf) Objective 2 - Enhance the ERCOT region’s economic competitiveness with respect to trends in wholesale power rates and retail electricity prices to consumers  [Strategic Plan](https://www.ercot.com/files/docs/2023/08/25/ERCOT-Strategic-Plan-2024-2028.pdf) Objective 3 - Advance ERCOT, Inc. as an independent leading industry expert and an employer of choice by fostering innovation, investing in our people, and emphasizing the importance of our mission  General system and/or process improvement(s)  Regulatory requirements  ERCOT Board/PUCT Directive  *(please select ONLY ONE – if more than one apply, please select the ONE that is most relevant)* | |
| Justification of Reason for Revision and Market Impacts | | Currently, ERCOT calculates Shift Factors for all transmission constraints that are active in the RTM but only publishes Shift Factors for transmission constraints that are binding. The Shift Factors for all active transmission constraints are needed to shadow the Constraint Competitiveness Test (CCT) and the proposed Energy Storage Resource (ESR) mitigation strategy. Enabling Market Participants to shadow all aspects of the market clearing results in a more transparent and efficient market. | |
| PRS Decision | | On 9/12/24, PRS voted unanimously to recommend approval of NPRR1249. All Market Segments participated in the vote.  On 10/17/24, PRS voted unanimously to endorse and forward to TAC the 9/12/24 PRS Report and 10/15/24 Impact Analysis for NPRR1249 with a recommended priority of 2026 and rank of 4740. All Market Segments participated in the vote. | |
| Summary of PRS Discussion | | On 9/12/24, the sponsor reviewed NPRR1249.  On 10/17/24, participants reviewed the 10/15/24 Impact Analysis. | |
| TAC Decision | | On 10/30/24, TAC voted unanimously to recommend approval of NPRR1249 as recommended by PRS in the 10/17/24 PRS Report. All Market Segments participated in the vote. | |
| Summary of TAC Discussion | | On 10/30/24, there was no additional discussion beyond TAC review of the items below. | |
| TAC Review/Justification of Recommendation | | Revision Request ties to Reason for Revision as explained in Justification  Impact Analysis reviewed and impacts are justified as explained in Justification  Opinions were reviewed and discussed – with the exception of the IMM Opinion which was not available for TAC review.  Comments were reviewed and discussed (if applicable)  Other: (explain) | |
| Board Decision | | On 12/3/24, the ERCOT Board voted unanimously to recommend approval of NPRR1249 as recommended by TAC in the 10/30/24 TAC Report. | |

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| **Opinions** | |
| Credit Review | ERCOT Credit Staff and the Credit Finance Sub Group (CFSG) have reviewed NPRR1249 and do not believe that it requires changes to credit monitoring activity or the calculation of liability. |
| Independent Market Monitor Opinion | The IMM has no opinion on NPRR1249. |
| ERCOT Opinion | ERCOT supports approval of NPRR1249. |
| ERCOT Market Impact Statement | ERCOT Staff has reviewed NPRR1249 and believes that with the publication of Shift Factors for all active transmission constraints,  it provides a positive market impact by improving transparency and efficiency by enabling Market Participants to shadow all aspects of the market clearing results. |

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| Market Segment | Not applicable |

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| **Comments Received** | |
| Comment Author | **Comment Summary** |
| None |  |

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| **Market Rules Notes** |

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

* NPRR1239, Access to Market Information
  + Section 6.5.7.1.13
* NPRR1246, Energy Storage Resource Terminology Alignment for the Single-Model Era
  + Section 6.5.7.1.13
* NPRR1226, Demand Response Monitor
  + Section 6.5.7.1.13

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| Proposed Protocol Language Revision |

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;

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| [NPRR857: Replace paragraph (a) above with the following upon system implementation and satisfying the following conditions: (1) Southern Cross provides ERCOT with funds to cover the entire estimated cost of the project; and (2) Southern Cross has signed an interconnection agreement with a TSP and the TSP gives ERCOT written notice that Southern Cross has provided it with: (a) Notice to proceed with the construction of the interconnection; and (b) The financial security required to fund the interconnection facilities:]  (a) Real-Time data from TSPs and DCTOs 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;

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| [NPRR857: Replace paragraph (c) above with the following upon system implementation and satisfying the following conditions: (1) Southern Cross provides ERCOT with funds to cover the entire estimated cost of the project; and (2) Southern Cross has signed an interconnection agreement with a TSP and the TSP gives ERCOT written notice that Southern Cross has provided it with: (a) Notice to proceed with the construction of the interconnection; and (b) The financial security required to fund the interconnection facilities:]  (c) Transmission Element ratings from TSPs and DCTOs; |

(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 Wind-powered Generation Resources (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.

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| [NPRR857: Replace paragraph (d) above with the following upon system implementation and satisfying the following conditions: (1) Southern Cross provides ERCOT with funds to cover the entire estimated cost of the project; and (2) Southern Cross has signed an interconnection agreement with a TSP and the TSP gives ERCOT written notice that Southern Cross has provided it with: (a) Notice to proceed with the construction of the interconnection; and (b) The financial security required to fund the interconnection facilities:]  (d) Real-Time weather, from Wind-powered Generation Resources (WGRs), and where available from TSPs, DCTOs, 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.

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| [NPRR1010: Delete paragraph (2) above upon system implementation of the Real-Time Co-Optimization (RTC) project and renumber accordingly.] |

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

(c) Shift Factors for all active transmission constraints, including Private Use Network Settlement Points, by Resource Node, Hub, Load Zone, and DC Tie.

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

(8) After every SCED run, ERCOT shall post to the ERCOT website the sum of the HDL and the sum of the LDL for all Generation Resources On-Line and Dispatched by SCED.

(9) Sixty days after the applicable Operating Day, ERCOT shall post to the ERCOT website the summary LDL and HDL report from paragraph (8) above and include instances of manual overrides of HDL or LDL, including the name of the Generation Resource and the type of override.

(10) No sooner than sixty days after the applicable Operating Day, ERCOT shall provide to the appropriate Technical Advisory Committee (TAC) subcommittee instances of manual overrides of HDL or LDL, including the name of the Generation Resource, the reason for the override, and, as applicable, the cost as calculated in Section 6.6.3.6, Real-Time High Dispatch Limit Override Energy Payment.

(11) After every SCED run, ERCOT shall post to the MIS Certified Area, for any QSE, instances of a manual override of the HDL or LDL for a Generation Resource, including the original and overridden HDL or LDL.