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| NPRR Number | [1283](https://www.ercot.com/mktrules/issues/NPRR1283) | NPRR Title | Modification of SSR Mitigation Timeline |
| Date of Decision | | August 27, 2025 | |
| Action | | Recommended Approval | |
| Timeline | | Normal | |
| Estimated Impacts | | Cost/Budgetary: None  Project Duration: No project required | |
| Proposed Effective Date | | January 1, 2026 | |
| Priority and Rank Assigned | | Not applicable | |
| Nodal Protocol Sections Requiring Revision | | 3.22.1.2, Generation Resource or Energy Storage Resource Interconnection Assessment  3.22.1.3, Transmission Project Assessment  3.22.1.4, Annual SSR Review  16.5, Registration of a Resource Entity | |
| Related Documents Requiring Revision/Related Revision Requests | | None | |
| Revision Description | | This Nodal Protocol Revision Request (NPRR) changes the current requirement that any required SSR studies be complete and mitigation be in place prior to Initial Synchronization of a new Generation Resource, Energy Storage Resource (ESR), or Settlement Only Generator (SOG). Based on recognition that SSFR can be a risk upon energization, this NPRR requires that these steps now be completed prior to Initial Energization to ensure that SSFR risk has been evaluated and mitigated. | |
| 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 | | ERCOT has identified SSFR as an emerging and growing risk. Since this type of SSO is an interaction between a transformer and a series capacitor, the risk exists even if the new generator is not connected to the ERCOT System.  ERCOT has experienced real-time SSR events, including two SSFR events in 2023. One of the SSFR events occurred while the site was in the first stage of commissioning.  The current Protocol language does not require the SSR study and mitigation to be complete until Initial Synchronization, creating the possibility that ERCOT would allow Initial Energization of a generator susceptible to SSFR before the risk has been assessed. This NPRR updates the Protocols to require that the SSR study be completed and any mitigation be in place prior to Initial Energization to protect against the SSFR risk.  ERCOT is requesting Urgent status for this NPRR due to existing projects in the Generation Interconnection and Modification (GIM) process that are known to be at risk for SSFR. Some of these projects are nearing commissioning, which is driving the urgent need for updated rules. | |
| PRS Decision | | On 5/14/25, PRS voted unanimously to table NPRR1283 and refer the issue to ROS. All Market Segments participated in the vote.  On 7/16/25, PRS voted unanimously to recommend approval of NPRR1283 as submitted. All Market Segments participated in the vote.  On 8/13/25, PRS voted unanimously to endorse and forward to TAC the 7/16/25 PRS Report and 4/29/25 Impact Analysis for NPRR1283 with a recommended effective date of January 1, 2026. All Market Segments participated in the vote. | |
| Summary of PRS Discussion | | On 5/14/25, the sponsor provided an overview of NPRR1283 and the request for Urgent status. Participants discussed the potential negative impacts of NPRR1283 on projects currently in the interconnection process and requested additional review by ROS of the appropriate timeline for identifying and addressing SSFR in the planning process within the Protocols and Planning Guide.  On 7/16/25, PRS noted the ROS endorsement of NPRR1283 with a proposed effective date of January 1, 2026.  On 8/13/25, PRS reviewed the 4/29/25 Impact Analysis and again noted the ROS-proposed effective date of January 1, 2026. | |
| **TAC Decision** | | On 8/27/25, TAC voted unanimously to recommend approval of NPRR1283 as recommended by PRS in the 8/13/25 PRS Report as revised by TAC. All Market Segments participated in the vote. | |
| **Summary of TAC Discussion** | | On 8/27/25, in addition to TAC review of the items below, participants reviewed desktop edits to carry down NPRR1283’s revisions into a grey-box for NPRR1234. | |
| **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  Comments were reviewed and discussed (if applicable)  Other: (explain) | |

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| **Opinions** | |
| **Credit Review** | ERCOT Credit Staff and the Credit Finance Sub Group (CFSG) have reviewed NPRR1283 and do not believe that it requires changes to credit monitoring activity or the calculation of liability. |
| **Independent Market Monitor Opinion** | IMM has no opinion on NPRR1283. |
| **ERCOT Opinion** | ERCOT supports approval of NPRR1283. |
| **ERCOT Market Impact Statement** | ERCOT Staff has reviewed NPRR1283 and believes the market impact for NPRR1283 shifts the requirement for SSR studies and any required mitigation to earlier in the interconnection process to help address the growing risk of SSFR. |

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| Sponsor | |
| Name | Agee Springer |
| E-mail Address | [agee.springer@ercot.com](mailto:agee.springer@ercot.com) |
| Company | ERCOT |
| Phone Number | 512-248-4508 |
| Cell Number |  |
| Market Segment | Not applicable |

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| **Market Rules Staff Contact** | |
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| **Comments Received** | |
| **Comment Author** | **Comment Summary** |
| ROS 060625 | Requested PRS continue to table NPRR1283 for further review by the Planning Working Group (PLWG) |
| Joint Commenters 070925 | Requested NPRR1283 take effect on January 1, 2026 to prevent delays to late-stage projects |
| ROS 071425 | Endorsed NPRR1283 as submitted with an effective date of January 1, 2026 |

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| Market Rules Notes |

Please note the baseline Protocol language in the following sections(s) has been updated to reflect the incorporation of the following NPRR(s) into the Protocols:

* NPRR1234, Interconnection Requirements for Large Loads and Modeling Standards for Loads 25 MW or Greater (incorporated 6/1/25)
  + Section 3.22.1.2
  + Section 3.22.1.3
  + Section 3.22.1.4
  + Section 16.5

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

* NPRR1265, Unregistered Distributed Generator
  + Section 16.5

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| Proposed Protocol Language Revision |

3.22.1.2 Generation Resource or Energy Storage Resource Interconnection Assessment

(1) In the security screening study for a Generation Resource Interconnection or Change Request, ERCOT will perform a topology-check and determine if the Generation Resource or Energy Storage Resource (ESR) will become radial to a series capacitor(s) in the event of fewer than 14 concurrent transmission Outages.

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| ***[NPRR1234 and NPRR1246: Replace applicable portions of paragraph (1) above with the following upon system implementation of NPRR1234; or upon system implementation of the Real-Time Co-Optimization (RTC) project for NPRR1246:]***  (1) In the security screening study for a Generation Interconnection or Modification (GIM), ERCOT will perform a topology-check and determine if the Generation Resource or Energy Storage Resource (ESR) will become radial to one or more series capacitors in the event of fewer than 14 concurrent transmission Outages. |

(2) If ERCOT identifies that a Generation Resource or ESR will become radial to a series capacitor(s) in the event of fewer than 14 concurrent transmission Outages, the interconnecting TSP shall perform an SSR study including frequency scan assessment and/or detailed SSR assessment for the Interconnecting Entity (IE) in accordance with Section 3.22.2, Subsynchronous Resonance Vulnerability Assessment Criteria, to determine SSR vulnerability. The SSR study shall determine which system configurations create vulnerability to SSR. Alternatively, if the IE can demonstrate to ERCOT’s and the interconnecting TSP’s satisfaction that the Generation Resource or ESR is not vulnerable to SSR, then the interconnecting TSP is not required to perform the SSR study. If an SSR study is conducted, the interconnecting TSP shall submit it to ERCOT upon completion and shall include any SSR Mitigation plan developed by the IE that has been reviewed by the TSP.

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| ***[NPRR1234: Replace paragraph (2) above with the following upon system implementation:]***  (2) If ERCOT identifies that a Generation Resource or ESR will become radial to one or more series capacitors in the event of fewer than 14 concurrent transmission Outages, the interconnecting TSP shall perform an SSR study including frequency scan assessment and/or detailed SSR assessment for the Interconnecting Entity (IE) in accordance with Section 3.22.2, Subsynchronous Oscillation Vulnerability Assessment Criteria, to determine SSR vulnerability. The SSR study shall determine which system configurations create vulnerability to SSR. Alternatively, if the IE can demonstrate to ERCOT’s and the interconnecting TSP’s satisfaction that the Generation Resource or ESR is not vulnerable to SSR, then the interconnecting TSP is not required to perform the SSR study. If an SSR study is conducted, the interconnecting TSP shall submit it to ERCOT upon completion and shall include any SSO Mitigation plan developed by the IE that has been reviewed by the TSP. |

(3) If the SSR study performed in accordance with paragraph (2) above indicates that the Generation Resource or ESR is vulnerable to SSR in the event of six or fewer concurrent transmission Outages, the IE shall develop an SSR Mitigation plan, provide it to the interconnecting TSP for review and inclusion in the TSP’s SSR study report to be approved by ERCOT, and implement the SSR Mitigation prior to Initial Energization.

(a) If the SSR study performed in accordance with paragraph (2) above indicates that the Generation Resource or ESR is vulnerable to SSR in the event of four concurrent transmission Outages, the IE may install SSR Protection in lieu of SSR Mitigation, as required by paragraph (3) above, if:

(i) The Generation Resource or ESR satisfied Planning Guide Section 6.9, Addition of Proposed Generation to the Planning Models, between August 12, 2013 and March 20, 2015;

(ii) The SSR Protection is approved by ERCOT; and

(iii) The Generation Resource or ESR installs the ERCOT-approved SSR Protection prior to Initial Energization.

(b) For any Generation Resource or ESR that satisfied Planning Guide Section 6.9 before September 1, 2020, if the SSR study performed in accordance with paragraph (2) above indicates that the Generation Resource or ESR is vulnerable to SSR in the event of five or six concurrent transmission Outages, the IE may elect not to develop or implement an SSR Mitigation plan, in which case ERCOT shall implement SSR monitoring in accordance with Section 3.22.3, Subsynchronous Resonance Monitoring. The IE shall provide ERCOT written Notice of any such election before the Generation Resource or ESR achieves Initial Energization, and the Generation Resource or ESR shall not be permitted to proceed to Initial Energization until ERCOT has implemented SSR monitoring.

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| ***[NPRR1234: Replace paragraph (3) above with the following upon system implementation:]***  (3) If the SSR study performed in accordance with paragraph (2) above indicates that the Generation Resource or ESR is vulnerable to SSR in the event of six or fewer concurrent transmission Outages, the IE shall develop an SSO Mitigation plan, provide it to the interconnecting TSP for review and inclusion in the TSP’s SSR study report to be approved by ERCOT, and implement the SSO Mitigation prior to Initial Energization.  (a) If the SSR study performed in accordance with paragraph (2) above indicates that the Generation Resource or ESR is vulnerable to SSR in the event of four concurrent transmission Outages, the IE may install SSO Protection in lieu of SSO Mitigation, as required by paragraph (3) above, if:  (i) The Generation Resource or ESR satisfied Planning Guide Section 6.9, Addition of Proposed Generation to the Planning Models, between August 12, 2013 and March 20, 2015;  (ii) The SSO Protection is approved by ERCOT; and  (iii) The Generation Resource or ESR installs the ERCOT-approved SSO Protection prior to Initial Energization.  (b) For any Generation Resource or ESR that satisfied Planning Guide Section 6.9 before September 1, 2020, if the SSR study performed in accordance with paragraph (2) above indicates that the Generation Resource or ESR is vulnerable to SSR in the event of five or six concurrent transmission Outages, the IE may elect not to develop or implement an SSO Mitigation plan, in which case ERCOT shall implement SSR monitoring in accordance with Section 3.22.3, Subsynchronous Resonance Monitoring. The IE shall provide ERCOT written Notice of any such election before the Generation Resource or ESR achieves Initial Energization, and the Generation Resource or ESR shall not be permitted to proceed to Initial Energization until ERCOT has implemented SSR monitoring. |

(4) ERCOT shall respond with its comments or approval of an SSR study report, which should include any required SSR Mitigation plan, within 30 days of receipt. ERCOT comments should be addressed as soon as practicable by the TSP, and any action taken in response to ERCOT’s comments on an SSR study report shall be subject to further ERCOT review and approval. Upon approval of the SSR study report, ERCOT shall notify the interconnecting TSP, and the interconnecting TSP shall provide the approved SSR study report to the IE.

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| ***[NPRR1234: Replace paragraph (4) above with the following upon system implementation:]***  (4) ERCOT shall respond with its comments or approval of an SSR study report, which should include any required SSO Mitigation plan, within 30 days of receipt. ERCOT comments should be addressed as soon as practicable by the TSP, and any action taken in response to ERCOT’s comments on an SSR study report shall be subject to further ERCOT review and approval. Upon approval of the SSR study report, ERCOT shall notify the interconnecting TSP, and the interconnecting TSP shall provide the approved SSR study report to the IE. |

3.22.1.3 Transmission Project Assessment

(1) For any proposed Transmission Facilities connecting to or operating at 345 kV, the TSP shall perform an SSR vulnerability assessment, including a topology-check and/or frequency scan assessment in accordance with Section 3.22.2, Subsynchronous Resonance Vulnerability Assessment Criteria. The TSP shall include a summary of the results of this assessment in the project submission to the Regional Planning Group (RPG) pursuant to Section 3.11.4, Regional Planning Group Project Review Process. For Tier 4 projects that include Transmission Facilities connecting to or operating at 345 kV, the TSP shall provide the SSR assessment for ERCOT’s review. For the purposes of this Section, a Generation Resource is considered an existing Generation Resource if it satisfies Planning Guide Section 6.9 at the time the Transmission Facilities are proposed.

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| ***[NPRR1234 and NPRR1246: Replace applicable portions of paragraph (1) above with the following upon system implementation for NPRR1234; or upon system implementation of the Real-Time Co-Optimization (RTC) project for NPRR1246:]***  (1) For any proposed Transmission Facilities connecting to or operating at 345 kV, the TSP shall perform an SSO vulnerability assessment, including a topology-check and/or frequency scan assessment in accordance with Section 3.22.2, Subsynchronous Oscillation Vulnerability Assessment Criteria. The TSP shall include a summary of the results of this assessment in the project submission to the Regional Planning Group (RPG) pursuant to Section 3.11.4, Regional Planning Group Project Review Process. For Tier 4 projects that include Transmission Facilities connecting to or operating at 345 kV, the TSP shall provide the SSO assessment for ERCOT’s review. For the purposes of this Section, a Generation Resource or ESR is considered an existing Generation Resource or ESR if it satisfies Planning Guide Section 6.9, Addition of Proposed Generation to the Planning Models, at the time the Transmission Facilities are proposed. |

(2) If while performing the independent review of a transmission project, ERCOT determines that the transmission project may cause an existing Generation Resource or a Generation Resource satisfying Planning Guide Section 6.9 at the time the transmission project is proposed to become vulnerable to SSR, ERCOT shall perform an SSR vulnerability assessment, including topology-check and frequency scan in accordance with Section 3.22.2 if such an assessment was not included in the project submission. ERCOT shall include a summary of the results of this assessment in the independent review.

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| ***[NPRR1234 and NPRR1246: Replace applicable portions of paragraph (2) above with the following upon system implementation for NPRR1234; or upon system implementation of the Real-Time Co-Optimization (RTC) project for NPRR1246:]***  (2) If while performing the independent review of a transmission project, ERCOT determines that the transmission project may cause an existing Generation Resource or ESR or a Generation Resource or ESR satisfying Planning Guide Section 6.9, an existing Large Load, or a Large Load satisfying Planning Guide Sections 9.4, LLIS Report and Follow-up, and 9.5, Interconnection Agreements and Responsibilities, at the time the transmission project is proposed to become vulnerable to SSO, ERCOT shall perform an SSO vulnerability assessment, including topology-check and frequency scan in accordance with Section 3.22.2 if such an assessment was not included in the project submission. ERCOT shall include a summary of the results of this assessment in the independent review. |

(3) If the frequency scan assessment in paragraphs (1) or (2) above indicates potential SSR vulnerability in accordance with Section 3.22.2, the TSP(s) that owns the affected series capacitor(s), in coordination with the TSP proposing the Transmission Facilities, shall perform a detailed SSR assessment to confirm or refute the SSR vulnerability.

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| ***[NPRR1234: Replace paragraph (3) above with the following upon system implementation:]***  (3) If the frequency scan assessment in paragraphs (1) or (2) above indicates potential SSO vulnerability in accordance with Section 3.22.2, the TSP(s) that owns the affected series capacitor(s), in coordination with the TSP proposing the Transmission Facilities, shall perform a detailed SSO assessment to confirm or refute the SSO vulnerability. |

(4) Past SSR assessments may be used to determine the SSR vulnerability of a Generation Resource if ERCOT, in consultation with the affected TSPs, determines the results of the past SSR assessments are still valid.

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| ***[NPRR1234 and NPRR1246: Replace applicable portions of paragraph (4) above with the following upon system implementation for NPRR1234; or upon system implementation of the Real-Time Co-Optimization (RTC) project for NPRR1246:]***  (4) Past SSO assessments may be used to determine the SSO vulnerability of a Generation Resource, ESR, or a Large Load if ERCOT, in consultation with the affected TSPs, determines the results of the past SSO assessments are still valid. |

(5) If the SSR study confirms a Generation Resource is vulnerable to SSR in the event of four or less concurrent transmission Outages, the TSP that owns the affected series capacitor(s) shall coordinate with ERCOT, the affected Resource Entity, and affected TSPs to develop and implement SSR Mitigation on the ERCOT transmission system. The SSR Mitigation shall be developed prior to RPG acceptance, if required, and implemented prior to the latter of the energization of the transmission project or the Initial Energization of the Generation Resource.

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| ***[NPRR1234 and NPRR1246: Replace applicable portions of paragraph (5) above with the following upon system implementation for NPRR1234; or upon system implementation of the Real-Time Co-Optimization (RTC) project for NPRR1246:]***  (5) If the SSR study confirms a Generation Resource or ESR is vulnerable to SSR in the event of four or fewer concurrent transmission Outages, the TSP that owns the affected series capacitor(s) shall coordinate with ERCOT, the affected Resource Entity, and affected TSPs to develop and implement SSO Mitigation on the ERCOT transmission system. The SSO Mitigation shall be developed prior to RPG acceptance, if required, and implemented prior to the latter of the energization of the transmission project or the Initial Energization of the Generation Resource or ESR. |

(6) If the SSR study confirms a Generation Resource is vulnerable to SSR in the event of five or six concurrent transmission Outages, ERCOT shall implement SSR monitoring in accordance with Section 3.22.3, Subsynchronous Resonance Monitoring, prior to the latter of the energization of the transmission project or the Initial Energization of the Generation Resource.

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| ***[NPRR1246: Replace paragraph (5) above with the following upon system implementation of the Real-Time Co-Optimization (RTC) project:]***  (6) If the SSR study confirms a Generation Resource or ESR is vulnerable to SSR in the event of five or six concurrent transmission Outages, ERCOT shall implement SSR monitoring in accordance with Section 3.22.3, Subsynchronous Resonance Monitoring, prior to the latter of the energization of the transmission project or the Initial Energization of the Generation Resource or ESR. |

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| ***[NPRR1234: Insert paragraphs (7) and (8) below upon system implementation and renumber accordingly:]***  (7) If the SSO study confirms a Large Load is vulnerable to SSO in the event of six or fewer concurrent transmission Outages, the TSP that owns the affected series capacitor(s) shall coordinate with ERCOT, the affected Interconnecting Large Load Entity (ILLE), and affected TSPs to develop and implement SSO Mitigation on the ERCOT transmission system. The SSO Mitigation shall be developed prior to RPG acceptance, if required, and implemented prior to the latter of the energization of the transmission project or the Initial Energization of the Large Load.  (8) If the SSO study confirms one or more transformers associated with the Large Load is vulnerable to Subsynchronous Ferroresonance (SSFR) in the event of one or more conditions listed below, the TSP that owns the affected series capacitor(s) shall coordinate with ERCOT, the affected ILLE, and affected TSPs to develop and implement SSO Mitigation on the ERCOT transmission system. The SSO Mitigation shall be developed prior to RPG acceptance, if required, and implemented prior to the latter of the energization of the transmission project or the Initial Energization of the Large Load.  (a) One single element outage;  (b) One common tower outage;  (c) Two single element outages;  (d) Two common tower outages; or  (e) One single element outage and one common tower outage. |

(7) The Resource Entity shall provide sufficient model data to ERCOT within 60 days of receipt of the data request. ERCOT, at its sole discretion, may extend the response deadline.

3.22.1.4 Annual SSR Review

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| ***[NPRR1234: Replace Section 3.22.1.4 above with the following upon system implementation:]***  **3.22.1.5 Annual SSO Review** |

(1) ERCOT shall perform an SSR review annually. The annual review shall include the following elements:

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| ***[NPRR1234: Replace paragraph (1) above with the following upon system implementation:]***  (1) ERCOT shall perform an SSO review annually. The annual review shall include the following elements: |

(a) The annual review shall include a topology-check applying the system network topology that is consistent with a year 3 Steady State Working Group (SSWG) base case developed in accordance with Planning Guide Section 6.1, Steady-State Model Development. ERCOT shall post the SSR annual topology-check report to the Market Information System (MIS) Secure Area by May 31 of each year.

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| ***[NPRR1234: Replace paragraph (a) above with the following upon system implementation:]***  (a) The annual review shall include a topology check applying the system network topology that is consistent with a year 3 Steady State Working Group (SSWG) base case developed in accordance with Planning Guide Section 6.1, Steady-State Model Development. ERCOT shall post the SSO annual topology check report to the Market Information System (MIS) Secure Area by May 31 of each year. |

(b) If ERCOT identifies that a Generation Resource will become radial to series capacitors(s) in the event of less than 14 concurrent transmission Outages, ERCOT shall perform a frequency scan assessment in accordance with Section 3.22.2, Subsynchronous Resonance Vulnerability Assessment Criteria. ERCOT shall prepare a report to summarize the results of the frequency scan assessment and provide it to the Resource Entity and the affected TSP.

(i) If the frequency scan assessment described in paragraph (b) above shows the Generation Resource has potential SSR vulnerability in the event of six or fewer concurrent transmission Outages, the TSP(s) that owns the affected series capacitor compensated Transmission Element in coordination with the interconnecting TSP shall perform a detailed SSR assessment to confirm or refute the SSR vulnerability.

(ii) Past SSR assessments may be used to determine the SSR vulnerability of a Generation Resource if ERCOT, in consultation with the affected TSPs, determines the results of the past SSR assessments are still valid.

(iii) If the SSR study confirms the Generation Resource is vulnerable to SSR in the event of four or less concurrent transmission Outages, the TSP that owns the affected series capacitor compensated Transmission Element shall coordinate with ERCOT, the affected Resource Entity, and affected TSPs to develop and install SSR Mitigation on the ERCOT transmission system. The SSR Mitigation shall be developed, if required, and implemented prior to the latter of the energization of the transmission project or the Initial Energization of the Generation Resource.

(iv) If the SSR study confirms the Generation Resource is vulnerable to SSR in the event of five or six concurrent transmission Outages, ERCOT shall implement SSR monitoring in accordance with Section 3.22.3, Subsynchronous Resonance Monitoring, prior to the latter of energization of the transmission project or the Initial Energization of the Generation Resource.

(v) The Resource Entity shall provide sufficient model data to ERCOT within 60 days of receipt of the data request. ERCOT, in its sole discretion, may extend the response deadline.

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| ***[NPRR1234 and NPRR1246: Replace applicable portions of paragraph (b) above with the following upon system implementation for NPRR1234; or upon system implementation of the Real-Time Co-Optimization (RTC) project for NPRR1246:]***  (b) If ERCOT identifies that a Generation Resource or ESR will become radial to series capacitors(s) in the event of 14 or fewer concurrent transmission Outages, ERCOT shall perform a frequency scan assessment in accordance with Section 3.22.2, Subsynchronous Resonance Vulnerability Assessment Criteria. ERCOT shall prepare a report to summarize the results of the frequency scan assessment and provide it to the Resource Entity and the affected TSP.  (i) If the frequency scan assessment described in paragraph (b) above shows the Generation Resource or ESR has potential SSR vulnerability in the event of six or fewer concurrent transmission Outages, the TSP(s) that owns the affected series capacitor compensated Transmission Element in coordination with the interconnecting TSP shall perform a detailed SSR assessment to confirm or refute the SSR vulnerability.  (ii) Past SSR assessments may be used to determine the SSR vulnerability of a Generation Resource or ESR if ERCOT, in consultation with the affected TSPs, determines the results of the past SSR assessments are still valid.  (iii) If the SSR study confirms the Generation Resource or ESR is vulnerable to SSR in the event of four or fewer concurrent transmission Outages, the TSP that owns the affected series capacitor compensated Transmission Element shall coordinate with ERCOT, the affected Resource Entity, and affected TSPs to develop and install SSO Mitigation on the ERCOT transmission system. The SSO Mitigation shall be developed, if required, and implemented prior to the latter of the energization of the transmission project or the Initial Energization of the Generation Resource or ESR.  (iv) If the SSR study confirms the Generation Resource or ESR is vulnerable to SSR in the event of five or six concurrent transmission Outages, ERCOT shall implement SSR monitoring in accordance with Section 3.22.3, Subsynchronous Resonance Monitoring, prior to the latter of energization of the transmission project or the Initial Energization of the Generation Resource or ESR.  (v) The Resource Entity shall provide sufficient model data to ERCOT within 60 days of receipt of the data request. ERCOT, in its sole discretion, may extend the response deadline. |

16.5 Registration of a Resource Entity

(1) A Resource Entity owns or controls a Generation Resource, Energy Storage Resource (ESR), Settlement Only Generator (SOG), or Load Resource connected to the ERCOT System. Each Resource Entity operating in the ERCOT Region must register with ERCOT. To become registered as a Resource Entity, an Entity must execute a Standard Form Market Participant Agreement (using the form in Section 22, Attachment A, Standard Form Market Participant Agreement), designate Resource Entity Authorized Representatives, contacts, and a User Security Administrator (USA) (per the Application for Registration as a Resource Entity), and demonstrate to ERCOT’s reasonable satisfaction that it is capable of performing the functions of a Resource Entity under these Protocols. The Resource Entity shall provide Resource Registration data pursuant to Planning Guide Section 6.8.2, Resource Registration Process, for each Resource or SOG through ERCOT registration, except for Distributed Generation (DG) with an installed capacity equal to or lower than the DG registration threshold that has chosen not to register with ERCOT. A Resource Entity may submit a proposal to register the aggregation of generators, with the exception of Intermittent Renewable Resources (IRRs) pursuant to paragraph (13) of Section 3.10.7.2, Modeling of Resources and Transmission Loads, as an Aggregate Generation Resource (AGR) which ERCOT may grant at its sole discretion. A Resource Entity may submit a proposal to register a SOG consisting of an Energy Storage System (ESS) or a combination of ESS and non-ESS generation. The Resource Entity must identify all components of the SOG as part of the Resource Registration process.

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| ***[NPRR995: Replace paragraph (1) above with the following upon system implementation:]***  (1) A Resource Entity owns or controls a Generation Resource, Energy Storage Resource (ESR), Settlement Only Generator (SOG), Settlement Only Energy Storage System (SOESS), or Load Resource connected to the ERCOT System. Each Resource Entity operating in the ERCOT Region must register with ERCOT. To become registered as a Resource Entity, an Entity must execute a Standard Form Market Participant Agreement (using the form in Section 22, Attachment A, Standard Form Market Participant Agreement), designate Resource Entity Authorized Representatives, contacts, and a User Security Administrator (USA) (per the Application for Registration as a Resource Entity), and demonstrate to ERCOT’s reasonable satisfaction that it is capable of performing the functions of a Resource Entity under these Protocols. The Resource Entity shall provide Resource Registration data pursuant to Planning Guide Section 6.8.2, Resource Registration Process, for each Resource, SOG, or SOESS through ERCOT registration, except for Distributed Generation (DG) with an installed capacity equal to or lower than the DG registration threshold that has chosen not to register with ERCOT. A Resource Entity may submit a proposal to register the aggregation of generators, with the exception of Intermittent Renewable Resources (IRRs) pursuant to paragraph (13) of Section 3.10.7.2, Modeling of Resources and Transmission Loads, as an Aggregate Generation Resource (AGR) which ERCOT may grant at its sole discretion. If a Resource Entity intends to register one or more Energy Storage Systems (ESSs) and one or more non-ESS generators as SOGs at the same site, the Resource Entity must provide an affidavit attesting to the amount of ESS and non-ESS capacity at the site as a condition for registration. |

(2) Prior to commissioning, Resources Entities will regularly update the data necessary for modeling. These updates will reflect the best available information at the time submitted.

(3) Once ERCOT has received a new or amended Standard Generation Interconnection Agreement (SGIA) or a letter from a duly authorized official from the Municipally Owned Utility (MOU) or Electric Cooperative (EC) and has determined that the proposed Generation Resource, ESR, or SOG meets the requirements of Planning Guide Section 6.9, Addition of Proposed Generation to the Planning Models, ERCOT shall review the description of the proposed Generation Resource, ESR, or SOG in Exhibit “C” (or similar exhibit) to the SGIA and the data submitted pursuant to Planning Guide Section 6.8.2 to assess whether the Generation Resource, ESR, or SOG, as proposed, would violate any operational standards established in the Protocols, Planning Guide, Nodal Operating Guides, and Other Binding Documents. ERCOT must provide its determination to the Transmission Service Provider (TSP) and the owner of the proposed Generation Resource, ESR, or SOG within 90 days of the date the Generation Resource, ESR, or SOG meets the conditions for review. Notwithstanding the foregoing, this determination shall not preclude ERCOT from subsequently determining that the Generation Resource, ESR, or SOG violates any operational standards established in the Protocols, Planning Guide, Nodal Operating Guides, and Other Binding Documents or from taking any appropriate action based on that determination.

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| ***[NPRR995: Replace paragraph (3) above with the following upon system implementation:]***  (3) Once ERCOT has received a new or amended Standard Generation Interconnection Agreement (SGIA) or a letter from a duly authorized official from the Municipally Owned Utility (MOU) or Electric Cooperative (EC) and has determined that the proposed Generation Resource, ESR, SOG, or SOESS meets the requirements of Planning Guide Section 6.9, Addition of Proposed Generation to the Planning Models, ERCOT shall review the description of the proposed Generation Resource, ESR, SOG, or SOESS in Exhibit “C” (or similar exhibit) to the SGIA and the data submitted pursuant to Planning Guide Section 6.8.2, to assess whether the Generation Resource, ESR, SOG, or SOESS, as proposed, would violate any operational standards established in the Protocols, Planning Guide, Nodal Operating Guides, and Other Binding Documents. ERCOT must provide its determination to the Transmission Service Provider (TSP) and the owner of the proposed Generation Resource, ESR, SOG, or SOESS within 90 days of the date the Generation Resource, ESR, SOG, or SOESS meets the conditions for review. Notwithstanding the foregoing, this determination shall not preclude ERCOT from subsequently determining that the Generation Resource, ESR, SOG, or SOESS violates any operational standards established in the Protocols, Planning Guide, Nodal Operating Guides, and Other Binding Documents or from taking any appropriate action based on that determination. |

(4) An Interconnecting Entity (IE) shall not proceed to Initial Energization of a Generation Resource, ESR, Settlement Only Transmission Generator (SOTG), or Settlement Only Transmission Self-Generator (SOTSG) in the event any required Subsynchronous Oscillation (SSO) studies, SSO Mitigation plan, SSO Protection, and SSO monitoring have not been completed and approved by ERCOT in accordance with Section 3.22, Subsynchronous Oscillation.

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| ***[NPRR995: Replace paragraph (4) above with the following upon system implementation:]***  (4) An Interconnecting Entity (IE) shall not proceed to Initial Energization of a Generation Resource, ESR, Settlement Only Transmission Generator (SOTG), Settlement Only Transmission Self-Generator (SOTSG), or Settlement Only Transmission Energy Storage System (SOTESS) in the event any required Subsynchronous Oscillation (SSO) studies, SSO Mitigation Plan, SSO Protection, and SSO monitoring have not been completed and approved by ERCOT in accordance with Section 3.22, Subsynchronous Oscillation. |

(5) An Interconnecting Entity (IE) shall not proceed to Initial Synchronization of a Generation Resource, ESR, Settlement Only Transmission Generator (SOTG), or Settlement Only Transmission Self-Generator (SOTSG) in the event of any of the following conditions:

(a) Pursuant to paragraph (3) above, ERCOT has reasonably determined that the Generation Resource, ESR, SOTG, or SOTSG may violate operational standards established in the Protocols, Planning Guide, Nodal Operating Guides, and Other Binding Documents, and the Resource Entity has not yet demonstrated to ERCOT’s satisfaction that the Generation Resource, ESR, SOTG, or SOTSG can comply with these standards; or

(b) The requirements of Planning Guide Section 5.3.5, ERCOT Quarterly Stability Assessment, if applicable, have not been completed for the Generation Resource, ESR, SOTG, or SOTSG.

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| ***[NPRR995 and NPRR1234: Replace applicable portions of paragraph (5) above with the following upon system implementation:]***  (5) An Interconnecting Entity (IE) shall not proceed to Initial Synchronization of a Generation Resource, ESR, Settlement Only Transmission Generator (SOTG), Settlement Only Transmission Self-Generator (SOTSG), or Settlement Only Transmission Energy Storage System (SOTESS) in the event of any of the following conditions:  (a) Pursuant to paragraph (3) above, ERCOT has reasonably determined that the Generation Resource, ESR, SOTG, SOTSG, or SOTESS may violate operational standards established in the Protocols, Planning Guide, Nodal Operating Guides, and Other Binding Documents, and the Resource Entity has not yet demonstrated to ERCOT’s satisfaction that the Generation Resource, ESR, SOTG, SOTSG, or SOTESS can comply with these standards; or  (b) The requirements of Planning Guide Section 5.3.5, ERCOT Quarterly Stability Assessment, if applicable, have not been completed for the Generation Resource, ESR, SOTG, SOTSG, or SOTESS. |

(6) DG with an installed capacity greater than one MW, the DG registration threshold, which exports energy into a Distribution System, must register with ERCOT.

(7) A Resource Entity representing an ESR shall register the ESR as an ESR. ERCOT systems, including the Energy and Market Management System (EMMS) and Settlement system, shall continue to treat the ESR as both a Generation Resource and a Controllable Load Resource until such time as all ERCOT systems are capable of treating an ESR as a single Resource.

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| [NPRR1246: Delete paragraph (7) above upon system implementation of the Real-Time Co-Optimization (RTC) project.] |