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| PGRR Number | [118](https://www.ercot.com/mktrules/issues/PGRR118) | PGRR Title | Related to NPRR1246, Energy Storage Resource Terminology Alignment for the Single-Model Era |
| Date Posted | | July 31, 2024 | |
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| Requested Resolution | | Normal | |
| Planning Guide Sections Requiring Revision | | 2.1, Definitions  3.1.1.3, Regional Planning Group Project Reviews  3.1.1.4, Generation Interconnection Process  3.1.2.1, All Projects  3.1.3, Project Evaluation  3.1.3.1, Definitions of Reliability-Driven and Economic-Driven Projects  3.1.4, Regional Transmission Plan Development Process  3.1.4.1, Development of Regional Transmission Plan  3.1.4.1.1, Regional Transmission Plan Cases  3.1.8, Planning Geomagnetic Disturbance Activities  3.1.9, Transmission Interconnection Study  4.1, Introduction  4.1.1.1, Planning Assumptions  5, Generator Interconnection or Modification  5.2.1, Applicability  5.3, Interconnection Study Procedures for Large Generators  5.3.1, Security Screening Study  5.3.2, Full Interconnection Study  5.3.2.1, Proof of Site Control  5.3.2.3, Full Interconnection Study Description and Methodology  5.3.2.4.1, Steady-State Analysis  5.3.5, ERCOT Quarterly Stability Assessment  6.1, Steady-State Model Development  6.2, Dynamics Model Development  6.2.1, Dynamics Data Requirements for Generation Resources and Settlement Only Generators  6.3, Process for Developing Short Circuit Cases  6.8, Resource Registration Procedure  6.8.1, Resource Registration  6.8.2, Resource Registration Process  6.9, Addition of Proposed Generation to the Planning Models  6.11, Process for Developing Geomagnetically-Induced Current (GIC) System Models  7.1, Planning Data Information  Section 8 Attachment B, Declaration of Adequate Water Supplies  Section 8 Attachment C, Declaration of Department of Defense Notification | |
| Related Documents Requiring Revision/Related Revision Requests | | Nodal Operating Guide Revision Request (NOGRR) 268, Related to NPRR1246, Energy Storage Resource Terminology Alignment for the Single-Model Era  Nodal Protocol Revision Request (NPRR) 1246, Energy Storage Resource Terminology Alignment for the Single-Model Era  Other Binding Document Revision Request (OBDRR) 052, Related to NPRR1246, Energy Storage Resource Terminology Alignment for the Single-Model Era | |
| Revision Description | | This Planning Guide Revision Request (PGRR) inserts terminology associated with Energy Storage Resources (ESRs) in the appropriate places throughout the Guides, aligning provisions and requirements for ESRs with those already in place for Generation Resources and Controllable Load Resources.  While several key sections of the Planning Guides have already been modified to accommodate ESRs in the “combo model” era — in which ESRs are treated as two Resources — numerous other provisions and requirements rely on **the blanket provision from NPRR1002, BESTF-5 Energy Storage Resource Single Model Registration and Charging Restrictions in Emergency Conditions, in paragraph (1) of Protocol Section 3.8.6, (Special Considerations for) Energy Storage Resources, as follows:**  “For the purposes of all ERCOT Protocols and Other Binding Documents, all requirements that apply to Generation Resources and Controllable Load Resources shall be understood to apply to Energy Storage Resources (ESRs) to the same extent, except where the Protocols explicitly provide otherwise.”  As discussed at meetings in 2020 of the Battery Energy Storage Task Force (BESTF), ERCOT intended for this provision to be temporary, and explained to stakeholders that it would introduce an NPRR and related Revision Requests that incorporated the ESR terminology in all appropriate locations in the Nodal Protocols. This PGRR accomplishes that objective in the Planning Guide.  This PGRR is applicable to ESRs in the future single-model era and should be implemented simultaneously with NPRR1246 and NPRR1014, BESTF-4 Energy Storage Resource Single Model.  ERCOT invites review of this Revision Request from the RTC+B Task Force and any other applicable groups. It is also worth noting these changes have no system impacts as they reflect the current RTC+B business requirements and interface requirements for Market Participants. | |
| 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 | | This PGRR improves transparency and ease of access to provisions and requirements for ESR developers and Market Participants. With the implementation of this PGRR at the time of RTCB go-live, all references to the Combo-Model will be removed. | |

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| Market Segment | Not applicable |

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| Market Rules Notes |

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

* PGRR107, Related to NPRR1180, Inclusion of Forecasted Load in Planning Analyses
  + Section 3.1.2.1
  + Section 3.1.3
  + Section 3.1.4.1
  + Section 4.1.1.1
* PGRR115, Related to NPRR1234, Interconnection Requirements for Large Loads and Modeling Standards for Loads 25 MW or Greater
  + Section 4.1.1.1
  + Section 5.3.5
* PGRR116, Related to NPRR1240, Access to Transmission Planning Information
  + Section 4.1
  + Section 7.1
* PGRR117, Addition of Resiliency Assessment and Criteria to Reflect PUCT Rule Changes
  + Section 4.1

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| Proposed Guide Language Revision |

**2.1 DEFINITIONS**

Manual System Adjustment

Operator actions, with consequences allowed by Section 4, Transmission Planning Criteria, in response to an outage in the ERCOT System, including, but not limited to circuit switching or changes to schedules of Generation Resources and Energy Storage Resources (ESRs), but excluding the physical repair or replacement of any damaged equipment.

**3.1.1.3 Regional Planning Group Project Reviews**

(1) Except for minor transmission projects that have only localized impacts and projects that are directly associated with the interconnection of new Generation Resources and Energy Storage Resources (ESRs), all transmission projects in the ERCOT Region undergo a formal review by the RPG in accordance with Protocol Section 3.11.4, Regional Planning Group Project Review Process. In addition, ERCOT performs an independent analysis of the need for major transmission projects that are submitted for RPG Project Review. The affirmative result of this review is formal endorsement of the project by ERCOT. This ERCOT project endorsement is intended to support, to the extent applicable, a finding by the Public Utility Commission of Texas (PUCT) that a project is necessary for the service, accommodation, convenience, or safety of the public within the meaning of Public Utility Regulatory Act, Tex. Util. Code Ann. § 37.056 (Vernon 1998 and Supp. 2007) and P.U.C. Subst. R. 25.101, Certification Criteria.

**3.1.1.4 Generation and Energy Storage Interconnection Process**

(1) This process facilitates the interconnection of new generation and energy storage units in the ERCOT Region by assessing the transmission upgrades necessary for new units to operate reliably. The process to study interconnecting new generation or energy storage, or modifying an existing generation or energy storage interconnection to the ERCOT Transmission Grid, is covered in Section 5, Generator/Energy Storage System Interconnection or Modification. The interconnection study process primarily covers the direct connection of generation and energy storage Facilities to the ERCOT Transmission Grid and directly-related projects. Additional upgrades to the ERCOT Transmission Grid that might be cost-effective as a result of new or modified generation or energy storage may be initiated by any stakeholder through the RPG Project Review procedure described in Protocol Section 3.11.4, Regional Planning Group Project Review Process, at the appropriate time, subject to the confidentiality provisions in Section 5.

**3.1.2.1 All Projects**

(1) The submittal of each transmission project (60 kV and above) for RPG Project Review should include the following elements:

(a) The proposed project description including expected cost, feasible alternative(s) considered, transmission topology and Transmission Facility modeling parameter data, and all study cases used to generate results supporting the need for the project in electronic format (powerflow data should be in PTI Power System Simulator for Engineering (PSS/E) RAWD format). Also, the submission should include accurate maps and one-line diagrams showing locations of the proposed project and feasible alternatives;

(b) Identification of the SSWG, Dynamics Working Group (DWG), or Regional Transmission Plan powerflow cases used as a basis for the study and any associated changes that describe and allow accurate modeling of the proposed project;

(c) Description and data for all changes made to the SSWG base cases or Regional Transmission Plan cases used to identify the need for the project, such as Resource unavailability and area peak Load forecast;

(d) A description of the reliability and/or economic problem that is being solved;

(e) A description of the Subsynchronous Resonance (SSR) impact of the proposed project to the generation or energy storage Facilities in the system pursuant to Protocol Section 3.22.1, Subsynchronous Resonance Vulnerability Assessment, and potential SSR Countermeasure plan for any identified SSR vulnerability, if applicable;

(f) Desired/needed in-service date for the project, and feasible in-service date, if different;

(g) The phone number and email address of the single point of contact who can respond to ERCOT and RPG participant questions or requests for additional information necessary for stakeholder review; and

(h) Analysis of rejected alternatives, including cost estimates, and other factors considered in the comparison of alternatives with the proposed project.

(2) Both transmission and distribution solutions to performance deficiencies may be considered where applicable.

(3) If there is any other information, not included above, that the submitting party believes is relevant to consideration of the need for any submitted project, the submitting party should include that information in the project submission.

***3.1.3 Project Evaluation***

(1) ERCOT and the RPG shall evaluate proposed transmission projects using a variety of tools and techniques as needed to ensure that the system is able to meet applicable reliability criteria in a cost-effective manner. For most proposed projects, several alternatives will be identified to meet the reliability criteria or other performance improvement objectives that the proposed project is designed to meet. The project alternative with the expected lowest cost over the life of the project is generally recommended, subject to consideration of the expected long-term system needs in the area, and consideration of the relative operational impacts of the alternatives.

(2) In some cases, one alternative may be to dispatch the system in such a way that all reliability requirements are met, even without the proposed transmission project or any transmission alternative, resulting in a less efficient dispatch than what would be required to meet the reliability requirements if the proposed project was in place. Consideration of the merits of this alternative relative to the proposed transmission project is more complex. To facilitate the discussion and consideration of these alternatives, ERCOT has adopted certain definitions and practices, described in paragraph (4) of Protocol Section 3.11.2, Planning Criteria, and Sections 3.1.3.1, Definitions of Reliability-Driven and Economic-Driven Projects, and 3.1.3.2, Reliability-Driven Project Evaluation below.

(3) In conducting an independent review of any project, ERCOT may, in its discretion, make adjustments to the planning case to ensure that the case reaches a solution. When conducting an independent review of any project classified as Tier 1 pursuant to Protocol Section 3.11.4, Regional Planning Group Project Review Process, ERCOT must provide reasonable advance notice to the RPG of any proposed adjustments and an opportunity for stakeholder comment on them.

(4) As part of its independent review of any project classified as Tier 1 pursuant to Protocol Section 3.11.4, ERCOT shall:

(a) Perform a generation/energy storage sensitivity analysis. The sensitivity analysis will evaluate the effect that proposed Generation Resources or Energy Storage Resources (ESRs) in or near the study area will have on a recommended transmission project. Generation Resources and ESRs that have signed Standard Generation Interconnection Agreements (SGIAs) but were not included in the study cases because they did not meet all of the requirements for inclusion in the cases pursuant to Section 6.9, Addition of Proposed Generation or Energy Storage to the Planning Models, will be included in the sensitivity analysis. ERCOT shall not consider the results of the sensitivity analysis in determining project need during its independent review of the project; and

(b) Evaluate impacts related to the Load scaling used in the study on any constraints resulting in project recommendations. The results of this evaluation shall be included in the final recommendations in the independent review.

**3.1.3.1 Definitions of Reliability-Driven and Economic-Driven Projects**

(1) Proposed transmission projects are categorized for evaluation purposes into two types:

(a) Reliability-driven projects; and

(b) Economic-driven projects.

(2) The differentiation between these two types of projects is based on whether a simultaneously-feasible, security-constrained unit commitment and dispatch is expected to be available for all hours of the planning horizon that can resolve the system reliability issue that the proposed project is intended to resolve. If it is not possible to simulate a dispatch of the Generation Resources and ESRs such that all reliability criteria are met without the project, and the addition of the project allows the reliability criteria to be met, then the project is classified as a reliability-driven project. If it is possible to simulate a dispatch of the Generation Resources and ESRs in such a way that all reliability criteria are met without the project, but the project may allow the reliability criteria to be met at a lower total cost, then the project is classified as an economic-driven project. When performing a simulation of the unit commitment and dispatch, only contingencies and limits that would be considered in the operations horizon shall be simulated.

***3.1.4 Regional Transmission Plan Development Process***

(1) As prescribed by Section 3.1.1.2, Regional Transmission Plan, the purpose of the Regional Transmission Plan is to provide a coordinated plan for the ERCOT System. This Section describes the process used by ERCOT to develop the Regional Transmission Plan. While unanticipated changes in Load and Resources may require additional projects to be needed that were not included in the current Regional Transmission Plan, or require additional evaluation of projects included in the current Regional Transmission Plan when they are submitted for RPG Project Review, the Regional Transmission Plan provides a reasonable and supportable basis for analyses of the planned ERCOT Transmission Grid.

**3.1.4.1 Development of Regional Transmission Plan**

(1) The planning process begins with computer modeling studies of the Resource and Transmission Facilities and substation Loads under normal conditions in the ERCOT System. Contingency conditions along with changes in Load and Resources that might be expected to occur in operation of the ERCOT Transmission Grid are also modeled. To maintain adequate service and minimize interruptions during Outages, model simulations are used to identify adverse results based upon the planning criteria and to examine the effectiveness of various problem-solving alternatives.

(2) The effectiveness of each alternative will be evaluated under a variety of possible operating environments because Loads and operating conditions cannot be predicted with certainty. As a result, repeated simulations under different conditions are often required. In addition, options considered for future installation may affect other alternatives so that several different combinations must be evaluated, thereby multiplying the number of simulations required.

(3) Once feasible alternatives have been identified, the process is continued with a comparison of those alternatives. To determine the most favorable, the short-range and long-range benefits of each alternative must be considered including operating flexibility and compatibility with future plans.

**3.1.4.1.1 Regional Transmission Plan Cases**

(1) The starting base cases for the Regional Transmission Plan development are created by removing all Tier 1, 2, and 3 projects that have not received RPG acceptance or, if applicable, ERCOT endorsement from the most recent SSWG base cases.

(2) ERCOT shall set all non-seasonal Mothballed Generation Resources and Mothballed ESRs to out of service in the Regional Transmission Plan reliability base cases. ERCOT shall add proposed Generation Resources and ESRs that have met the criteria for inclusion in Section 6.9, Addition of Proposed Generation of Energy Storage to the Planning Models, to the Regional Transmission Plan base cases.

(3) ERCOT shall update the Regional Transmission Plan reliability and economic base cases to reflect any updates to the amount of Switchable Generation Resource (SWGR) capacity available to the ERCOT Region.

(4) ERCOT may, in its discretion, set a Generation Resource or ESR to out of service in the Regional Transmission Plan base cases prior to receiving a Notification of Suspension of Operations (NSO) if the Resource Entity notifies ERCOT of its intent to retire/mothball the Resource and/or makes a public statement of its intent to retire/mothball the Resource. ERCOT must provide reasonable advance notice to the RPG of any proposed Resource retirements/mothballs and allow an opportunity for stakeholder comments.

(a) ERCOT will post and maintain the current list of Generation Resources and ESRs that will be set to out of service pursuant to paragraph (4) above on the ERCOT website.

(5) In its Regional Transmission Plan studies, ERCOT shall first consider transmission needs without Remedial Action Scheme (RAS) actions. After evaluating these needs, ERCOT may model a RAS in the Regional Transmission Plan cases only if ERCOT’s initial studies did not identify a transmission project to exit the RAS or if a transmission project to exit the RAS is not expected to be in service by the season and year the case represents.

(6) ERCOT may, in its discretion, make other adjustments to any Regional Transmission Plan base case to ensure that the case reaches a solution. ERCOT must provide reasonable advance notice to the RPG of any proposed adjustments and an opportunity for stakeholder comment on them.

***3.1.8 Planning Geomagnetic Disturbance (GMD) Activities***

(1) As required by the applicable NERC Reliability Standard, ERCOT shall employ the Geomagnetically-Induced Current (GIC) system models described in Section 6.11, Process for Developing Geomagnetically-Induced Current (GIC) System Models, to perform simulations to identify maximum effective GIC flow in the high side wye-grounded transformers for the worst case geoelectric field orientation for each transformer for the benchmark and supplemental Geomagnetic Disturbance (GMD) events. ERCOT shall provide the preliminary GIC flow results to the TSPs and Resource Entities for comment before finalizing the results. Upon consideration of the comments, ERCOT shall make the maximum effective GIC flows in the high side wye-grounded transformers available to TSPs and Resource Entities by posting this data on the ERCOT MIS Secure Area.

(a) Upon written request from the TSP or Resource Entity who owns a high side wye-grounded transformer within the ERCOT planning area that is included in the ERCOT GIC system models, ERCOT shall perform simulations to make effective GIC time series available no later than 90 calendar days after ERCOT’s receipt of such written requests.

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| ***[PGRR108: Replace paragraph (1) above with the following upon system implementation of NPRR1183:]***  (1) As required by the applicable NERC Reliability Standard, ERCOT shall employ the Geomagnetically-Induced Current (GIC) system models described in Section 6.11, Process for Developing Geomagnetically-Induced Current (GIC) System Models, to perform simulations to identify maximum effective GIC flow in the high side wye-grounded transformers for the worst case geoelectric field orientation for each transformer for the benchmark and supplemental Geomagnetic Disturbance (GMD) events. ERCOT shall post on the MIS Secure Area the preliminary maximum effective GIC flows and preliminary GIC time series results to the TSPs and Resource Entities for comment before finalizing the results. Upon consideration of the comments, ERCOT shall make the final maximum effective GIC flows in the high side wye-grounded transformers and the final GIC time series available to TSPs and Resource Entities by posting this data on the ERCOT MIS Secure Area. |

(2) Each TSP and Resource Entity that owns a high side wye-grounded transformer(s) with the high side terminal operated at 200 kV or higher within the ERCOT planning area shall perform the benchmark and supplemental transformer thermal impact assessment(s) as required in the applicable NERC Reliability Standard and shall provide to ERCOT any suggested actions to mitigate the impact of GICs on those transformers with the high side terminal operated at 200 kV or higher within 18 months of the date of ERCOT notification to TSPs and Resource Entities that the final GIC flow results are posted on the MIS Secure Area.

(3) ERCOT and the TSPs shall develop for approval by the TAC, criteria for acceptable steady-state voltage performance during the benchmark and supplemental GMD events.

(4) ERCOT in collaboration with the TSPs and Resource Entities shall perform the ERCOT benchmark and supplemental GMD vulnerability assessments as required in the applicable NERC Reliability Standard; and may set a Generation Resource or ESR to out of service prior to receiving an NSO if the Resource Entity notifies ERCOT of its intent to retire/mothball the Resource and/or makes a public statement of its intent to retire/mothball the Resource. ERCOT shall provide preliminary results of the GMD vulnerability assessments to the TSPs and Resource Entities for comment before finalizing the results. Upon request, ERCOT shall make available to the TSPs the GIC system models and other model information used for the GMD vulnerability assessments, including suggested actions described in paragraph (2) above.

(a) ERCOT will post and maintain the current list of Generation Resources and ESRs that will be set to out of service pursuant to paragraph (4) above on the ERCOT website.

(5) ERCOT shall finalize the ERCOT benchmark and supplemental GMD vulnerability assessments, post them on the MIS Secure Area, and notify TSPs and Resource Entities of the posting.

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| ***[PGRR108: Replace paragraphs (4) and (5) above with the following upon system implementation of NPRR1183:]***  (4) ERCOT in collaboration with the TSPs and Resource Entities shall perform the ERCOT benchmark and supplemental GMD vulnerability assessments as required in the applicable NERC Reliability Standard; and may set a Generation Resource or ESR to out of service prior to receiving an NSO if the Resource Entity notifies ERCOT of its intent to retire/mothball the Resource and/or makes a public statement of its intent to retire/mothball the Resource. ERCOT shall post on the ERCOT website the preliminary results of the GMD vulnerability assessments to the TSPs and Resource Entities for comment before finalizing the results. Upon request, ERCOT shall make available to the TSPs the GIC system models and other model information used for the GMD vulnerability assessments, including suggested actions described in paragraph (2) above.  (a) ERCOT will post and maintain the current list of Generation Resources and ESRs that will be set to out of service pursuant to paragraph (4) above on the ERCOT website.  (5) ERCOT shall finalize the ERCOT benchmark and supplemental GMD vulnerability assessments, including any associated corrective action plans, post them as follows, and notify TSPs and Resource Entities of the posting:  (a) Versions that include ECEII shall be posted on the MIS Secure Area;  (b) Versions that include both ECEII and Protected Information shall be posted on the MIS Certified Area for TSPs only; and  (c) Versions redacted of ECEII and Protected Information shall be posted on the ERCOT website. |

(6) For each GMD vulnerability assessment that does not satisfy applicable performance requirements, each impacted TSP and Resource Entity, in collaboration with ERCOT, shall develop and document corrective action plan(s) for their facilities, and develop a timetable, subject to revision, for implementing the corrective action plan(s). For any corrective action plan proposing upgrades to the transmission system that are subject to Protocol Section 3.11.4, Regional Planning Group Project Review Process, review shall be conducted in accordance with the process described therein. For any corrective action plan that is not subject to the review process described in Protocol Section 3.11.4, ERCOT shall review the corrective action plan to ensure that it satisfies applicable performance requirements. Any corrective action plan that proposes operational actions shall be reviewed pursuant to Nodal Operating Guide Section 11, Constraint Management Plans and Remedial Action Schemes.

(a) If a situation beyond the control of the TSP or Resource Entity prevents implementation of a corrective action plan within the timetable for implementation required in the applicable NERC Reliability Standard, the TSP or Resource Entity shall submit a revised corrective action plan, updated timetable, and documentation supporting the request for extension of time, as required in the applicable NERC Reliability Standard, to ERCOT within 30 days of the revision of the corrective action plan.

(b) After receipt of all information required in the applicable NERC Reliability Standard, ERCOT shall submit the request for extension of time to the NERC Regional Entity, as required in the applicable NERC Reliability Standard, on behalf of the TSP or Resource Entity.

(7) ERCOT shall post the GMD vulnerability assessment reports and corrective action plan(s) on the ERCOT MIS Secure Area within 90 calendar days of development or revision.

(8) ERCOT in collaboration with TSPs and Resource Entities shall implement a process for obtaining GIC monitor data and geomagnetic field data from TSPs, Resource Entities, or other available sources as required in the applicable NERC Reliability Standard.

***3.1.9 Transmission Interconnection Study***

(1) ERCOT shall perform an annual transmission interconnection study to analyze the reliability impact of any transmission projects 100 kV or above that are expected to be in-service before the completion of the next Regional Transmission Plan and were not included in the current Regional Transmission Plan, an RPG project submission, or a Generation Interconnection or Change Request (GINR) study pursuant to Section 5, Generator/Energy Storage System Interconnection or Modification.

(a) ERCOT shall identify a list of transmission projects 100 kV or above that need to be included in the annual transmission interconnection study and shall send the list to the TSPs that own the projects.

(b) Within 20 Business Days of receipt of the list, each TSP that owns an identified transmission project shall send to ERCOT a PSS/E or PowerWorld formatted incremental change file to model the project in the current Regional Transmission Plan study cases.

(c) ERCOT shall post a study report detailing its findings on the MIS Secure Area within 20 Business Days of completion.

(2) After each Transmission Project Information Tracking (TPIT) update ERCOT shall identify a list of transmission projects 100 kV or above that are expected to be in-service before the completion of the next annual transmission interconnection study and were not included in the previous transmission interconnection study, Regional Transmission Plan, an RPG project submission, or a GINR study pursuant to Section 5. ERCOT shall send the list to the TSPs that own the projects.

(a) Within 20 Business Days of receipt of the list, each TSP that owns an identified transmission project shall send to ERCOT a study report detailing the reliability impact analysis it conducted for the project. At a minimum the report shall identify the study base case(s), contingencies, and results.

(b) ERCOT shall review the TSP reports and provide comments to the TSP within 20 Business Days of receipt.

**4.1 Introduction**

(1) ERCOT employs both reliability criteria and economic criteria in evaluating the need for transmission system improvements. The economic criteria are included in Protocol Section 3.11.2, Planning Criteria. This Planning Guide provides the reliability criteria.

(2) The ERCOT System consists of those Resource and Transmission Facilities (60 kV and higher voltages) that are controlled by individual Market Participants and that function as part of an integrated and coordinated system.

(3) To maintain reliable operation of the ERCOT System, it is necessary that all stakeholders observe and subscribe to certain minimum planning criteria. The criteria set forth in this Section 4.1 constitute the aforementioned minimum planning criteria. Tests outlined herein shall be performed to determine conformance to these minimum criteria; however, ERCOT recognizes that events more severe than those outlined in these criteria could cause grid separation and other tests may also be performed.

(4) The complexity and uncertainty inherent in the planning and operation of the ERCOT System make exhaustive studies impracticable; therefore, to gain maximum benefit from the limited number of tests performed, the selection of the specific tests and the frequency of their performance will be made solely upon the basis of the expected value of the reliability information obtainable from the test.

(5) ERCOT shall perform steady-state, short circuit, and dynamic analyses appropriate to ensure the reliability of the ERCOT System and identify appropriate solutions.

(6) Each Transmission Service Provider (TSP) will perform steady-state, short circuit, and dynamic analyses appropriate to ensure the reliability of its portion of the ERCOT System and implement appropriate solutions to meet the reliability performance criteria in this Section 4.1.

(7) The base cases created by the Steady-State Working Group (SSWG) and System Protection Working Group (SPWG) are available for use by Market Participants.

(8) If a TSP has its own planning criteria in addition to those defined in this Planning Guide, the TSP shall provide documentation of those criteria to ERCOT. ERCOT shall post the documentation on the Market Information System (MIS) Secure Area. The TSP shall notify ERCOT of any changes to their planning criteria and provide revised documentation within 30 days of such change.

**4.1.1.1 Planning Assumptions**

(1) A contingency loss of an element includes the loss of an element with or without a single line-to-ground or three-phase fault.

(2) A common tower outage is the contingency loss of a double-circuit transmission line consisting of two circuits sharing a tower for 0.5 miles or greater.

(3) Unavailability of a single generating unit includes an entire Combined Cycle Train, if no part of the train can operate with one of the units Off-Line as provided in the Resource Registration data.

(4) The contingency loss of a single generating unit shall include the loss of an entire Combined Cycle Train, if that is the expected consequence.

(5) The following assumptions may be applied to the SSWG base cases for use in planning studies:

(a) Reasonable variations of Load forecast;

(b) Reasonable variations of unit commitment and dispatch applicable to transmission planning analyses on a case-by-case basis may include, but are not limited to, the following methods:

(i) Production cost model simulation, security constrained optimal power flow, or similar modeling tools that analyze the ERCOT System using hourly Resource dispatch assumptions;

(ii) Modeling of high levels of intermittent generation conditions; or

(iii) Modeling of low levels of or no intermittent generation conditions.

(6) Assumed Direct Current Tie (DC Tie) imports and exports will be curtailed as necessary to meet reliability criteria in planning studies.

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| ***[PGRR098: Insert paragraph (7) below upon system implementation:]***  (7) Manual System Adjustments shall not increase the amount of consequential Load loss following a common tower outage, or the contingency loss of a single generating unit, transmission circuit, transformer, shunt device, FACTS device, or DC Tie Resource or DC Tie Load, with or without a single line-to-ground fault. |

**5 GenErator/energy storage system INTERCONNECTION or Modification**

***5.2.1 Applicability***

(1) The requirements in Section 5, Generator/Energy Storage System Interconnection or Modification, apply to the following:

(a) Any Entity proposing to interconnect any generator or energy storage system with an aggregate nameplate capacity of one MW or greater, including but not limited to any Generation Resource or Energy Storage Resource (ESR), to the ERCOT System;

(b) Any Entity proposing to interconnect a Settlement Only Generator (SOG) to the ERCOT System; or

(c) Any Resource Entity seeking to modify a Generation Resource, ESR, or SOG that is connected to the ERCOT System by:

(i) Increasing the real power rating from that shown in the latest Resource Registration data by one MW or greater within a single year;

(ii) Changing the inverter, turbine, generator, battery modules, or power converter associated with a facility with an aggregate real power rating of ten MW or greater, unless the replacement is in-kind;

(iii) Modifying any control settings or equipment of Inverter-Based Resources (IBRs) that impact the dynamic response (such as voltage, frequency, and current injections) at the Point of Interconnection (POI) in a manner that is deemed to require further study in accordance with the process outlined in paragraph (5) of Section 5.5, Generator Commissioning and Continuing Operations;

(iv) Changing or adding a POI to a facility with an aggregate real power rating of ten MW or greater; or

(v) Increasing the aggregate nameplate capacity of a generator or energy storage system less than ten MW to ten MW or greater.

(2) For the purposes of Section 5, the term “generator” includes but is not limited to a Generation Resource, SOG, and ESR.

(3) For the purposes of determining the appropriate requirements in Section 5, a generator is considered a “large generator” if it currently has or is proposed to have an aggregate nameplate capacity of ten MW or greater. A generator is considered a “small generator” if it currently has or is proposed to have an aggregate nameplate capacity of less than ten MW.

(4) Notwithstanding paragraph (3), above, if a Resource Entity is proposing to increase the real power rating of an existing generator by one MW or greater but less than ten MW, that generator shall be considered a small generator for the purposes of the interconnection process described in Section 5.

(5) Notwithstanding paragraphs (3) and (4), above, if a Resource Entity is proposing to increase a generator’s real power rating by ten MW or more, or is proposing to increase a generator’s real power rating from less than ten MW to ten MW or more, that generator shall be considered a large generator for the purposes of the interconnection process described in Section 5.

(6) For the purposes of determining the appropriate requirements in Section 5, ERCOT may require two or more separate generator interconnection requests to the same substation to follow the interconnection process applicable to the large generators, if, following the proposed change, those generators would have an aggregate nameplate capacity of ten MW or greater, and the projects are proposed by the same Entity or Affiliates.

(7) For a new or modified generator that has been designated as a Self-Limiting Facility or as a component of a Self-Limiting Facility, the categorization of the generator as a small generator or large generator pursuant to paragraphs (3) through (5) above shall be determined using the Self-Limiting Facility’s established limit on the total MW Injection, or if applicable, the proposed increase in that value instead of the nameplate capacity of the Self-Limiting Facility.

**5.3 Interconnection Study Procedures for Large Generators**

(1) The provisions in this Section establish the procedures for conducting the Security Screening Study and Full Interconnection Study (FIS) for each new or modified large generator or Energy Storage System (ESS), as that term is defined by paragraph (3) of Section 5.2.1, Applicability.

***5.3.1 Security Screening Study***

(1) For each Generator/Energy Storage System Interconnection or Modification (GIM) submitted for a large generator, ERCOT will conduct a steady-state Security Screening Study, including power-flow and transfer studies, based on the expected in-service year to identify potential generation dispatch limitations based on the site proposed by the Interconnecting Entity (IE).

(a) The Security Screening Study is a high-level review of the project and generally includes a number of initial assumptions from both ERCOT and the IE. In accordance with P.U.C. Subst. R. 25.198, Initiating Transmission Service, ERCOT will establish the scope of the Security Screening Study that will include a determination of the need for a more in-depth Subsynchronous Resonance (SSR) study. The SSR vulnerability of all Generation Resources and ESRs applicable under Section 5, Generator/Energy Storage System Interconnection or Modification, will be assessed pursuant to Protocol Section 3.22.1.2, Generation Resource or Energy Storage Resource Interconnection Assessment.

(b) At its sole discretion, ERCOT may waive the requirement for a Security Screening Study for a GIM.

(2) The results of the Security Screening Study will provide an indication of the level at which the proposed generator can expect to operate simultaneously with other known generators in the area before significant transmission additions or enhancements may be required. During the course of the Security Screening Study, ERCOT may consult with the affected Transmission Service Provider(s) (TSP(s)), if needed, to identify the most efficient means of providing transmission service.

(3) During the Security Screening Study phase of the GIM process, and in accordance with the Protocols, all data, documents, and other information required by ERCOT from an IE related to a request for interconnection are considered Protected Information pursuant to Protocol Section 1.3.1.1, Items Considered Protected Information, to the extent that such information is not otherwise publicly available. Accordingly, ERCOT shall not publicly release any of the protected data, documents, or other information during the Security Screening Study phase except to TSPs. Information about interconnection requests in the Security Screening Study phase will only be released publicly in aggregated amounts.

(4) Upon completion of the Security Screening Study, ERCOT will present the IE with a preliminary report that will inform the IE about the suitability of the proposed Point of Interconnection (POI) for the proposed MW amount. This report does not imply any commitment by ERCOT or any TSP to recommend or construct transmission additions or enhancements. The report will also contain a description of the SSR assessment performed as part of the Security Screening Study and any conclusions resulting from the SSR assessment.

(5) Within 180 days of the date ERCOT notifies the IE of the Security Screening Study results, the IE must notify ERCOT, via the online Resource Integration and Ongoing Operations (RIOO) system, of its desire to pursue an FIS, otherwise ERCOT shall consider the GIM withdrawn by the IE. ERCOT will begin initiation and coordination of the FIS only after receiving this Notification and all required items from the IE for the FIS application to be approved. TSPs will receive a RIOO system automated email when ERCOT determines the FIS application is complete.

(6) After the expiration of the 180-day period, an IE must submit a new GIM for a Security Screening Study and must again pay the appropriate fee. The IE will also be required to submit any updates or changes in the project’s data to ERCOT.

(7) For any interconnection request that proposes either a large generator that would be interconnected at distribution voltage or a qualifying modification to a large generator that is interconnected at distribution voltage, ERCOT will not initiate a Security Screening Study or propose any FIS kickoff meeting until the IE first provides written confirmation from the affected Distribution Service Provider (DSP) stating that the DSP has evaluated the proposed project, determined that the interconnection of the generator at distribution voltage is electrically feasible, and identified the necessary upgrades to accommodate the proposed interconnection. In conducting a Security Screening Study for such an interconnection request, ERCOT shall evaluate only the transmission-level impacts, if any, of the proposed generator, and the affected DSP shall provide ERCOT any information concerning the DSP’s facilities or the proposed generator interconnection as may be requested by ERCOT for the purpose of completing the Security Screening Study.

***5.3.2 Full Interconnection Study***

(1) An FIS consists of the set of steady-state, stability, short-circuit, facility, and/or other relevant studies that are necessary to determine the reliability impact of a large generator on affected Transmission Facilities and identify the Transmission Facilities that are needed to reliably interconnect the new or modified generator to the ERCOT System. The FIS is not intended to determine the deliverability of power from the proposed Generation Resource or Energy Storage Resource (ESR) to market or to ensure that the proposed Generation Resource or ESR does not experience any congestion-related curtailment.

(2) For an interconnection request involving a large generator or ESS interconnecting at distribution voltage, the FIS shall evaluate only the transmission-level impacts, if any, of the proposed generator, and the affected DSP shall provide the lead TSP all information concerning the DSP’s facilities or the proposed generator interconnection as may be requested by the TSP for the purpose of completing any one or more FIS studies.

(3) To initiate an FIS, the IE must submit each of the following via the online RIOO system:

(a) A request to proceed with the FIS via the online RIOO system;

(b) Complete Resource Registration data in the format prescribed by ERCOT with applicable information required for interconnection studies identified in the Resource Registration Glossary for the applicable Resource type. This information includes, among other things, the appropriate dynamic model for the proposed generator and results of the model quality tests and associated simulation files as described in paragraph (5)(c) of Section 6.2, Dynamics Model Development, subject to performance and usability verification by the lead TSP with approval from ERCOT through the FIS process. Dynamic model data shall be provided using the appropriate dynamic model template. Paragraph (5) of Section 6.2 and the Dynamics Working Group Procedure Manual contain more detail and IE dynamics data requirements. Data submitted for transient stability models shall be compatible with the current version of the planning and operations model software as described in the Dynamics Working Group Procedure Manual. If no compatible model exists, the IE shall work with a consultant or software vendor to develop and supply accurate/appropriate models along with other associated data. These models shall be incorporated into the standard model libraries of all software packages;

(c) An FIS Application Fee as described in the ERCOT Fee Schedule in the ERCOT Nodal Protocols, with the MW amount determined based on:

(i) The MW of additional installed capacity for GIMs not meeting paragraph (1)(c)(ii) of Section 5.2.1, Applicability; or

(ii) Total MW capacity for GIMs meeting paragraph (1)(c)(ii) of Section 5.2.1;

(d) Proof of site control as described in Section 5.3.2.1, Proof of Site Control; and

(e) A declaration in Section 8, Attachment C, Declaration of Department of Defense Notification, certifying that:

(i) The IE has notified the Department of Defense (DOD) Siting Clearinghouse of the proposed Generation Resource or ESR and requested an informal or formal review as described in 32 C.F.R. § 211.1; or

(ii) The IE’s proposed Generation Resource or ESR is not required to provide notice to the DOD and Federal Aviation Administration (FAA) because the project does not meet the criteria requiring notice to the FAA under 14 C.F.R. § 77.9.

(4) The IE can request an FIS for an active project before completion of the Security Screening Study or at any other time after ERCOT deems the initial GIM application complete, but must comply with the timeline set forth in paragraph (5) of Section 5.3.1, Security Screening Study. Requesting both studies at the same time may shorten the overall time to complete the GIM process due to overlap of work on both studies.

(5) Payment of the ERCOT FIS Application Fee does not affect the IE’s independent responsibility to pay for FIS studies conducted by the TSP or for any DSP studies.

(6) ERCOT shall manage a confidential email list (Transmission Owner Generation Interconnection) to facilitate communication of confidential GIM-related information among TSP(s) and ERCOT. Membership to this email list will be limited to ERCOT and appropriate TSP personnel.

(7) If any of the items required for the FIS request pursuant to paragraph (3) above are deemed not acceptable by ERCOT or are not submitted, then the IE must submit any omitted items and resolve and resubmit any deficient items. If the FIS request is not deemed complete by ERCOT within 60 days of submission of the FIS request, the FIS will be considered to have not been requested for the purpose of meeting paragraph (5) of Section 5.3.1. If the 180-day limit specified in paragraph (5) of Section 5.3.1 has expired, the GIM will be cancelled immediately. If the 180-day limit has not expired and the deficiency is not resolved before the 180-day limit, the GIM will be cancelled upon expiration of the 180-day limit.

**5.3.2.1 Proof of Site Control**

(1) To establish proof of site control for the purposes of paragraph (3)(d) of Section 5.3.2, Full Interconnection Study, the IE must demonstrate through an affiliated company, through a trustee, or directly in its name that:

(a) The IE is the owner in fee simple of the real property to be utilized by the facilities for which any new generation or energy storage interconnection is sought;

(b) The IE holds a valid written leasehold interest in the real property to be utilized by the facilities for which new generation or energy storage interconnection is sought;

(c) The IE holds a valid written option to purchase or obtain a leasehold interest in the real property to be utilized by the facilities for which new generation or energy storage interconnection is sought; or

(d) The IE holds a duly executed written contract to purchase or obtain a leasehold interest in the real property to be utilized by the facilities for which new generation or energy storage interconnection is sought.

(2) The IE must notify ERCOT of any substantive change in status of the arrangement used to demonstrate site control.

(3) If the IE fails to maintain site control at any point before the date the generator or ESS is fully constructed, ERCOT will consider the interconnection request withdrawn as of the date of the loss of site control unless the applicant can show within 30 days that it has re-established site control or has established control of a new site that would not result in any material modification of any interconnection study requested under the current application.

**5.3.2.3 Full Interconnection Study Description and Methodology**

(1) The FIS consists of a series of distinct study elements. The specific elements that will be included in a particular FIS will be stated in the FIS agreement, and not all of the study elements specified below must be included if the IE and the TSP agree that one or more studies are unnecessary. The primary purpose of the FIS is to determine the most effective and efficient manner in which to achieve the proposed project while continuing to maintain the reliability of the ERCOT System by ensuring compliance with all North American Electric Reliability Corporation (NERC) Reliability Standards, Protocols, this Planning Guide and the Operating Guides. The scenarios and base cases being used for these studies to determine potential transmission limitations will be documented in the FIS study scope.

(2) Each proposed generator that requires a separate physical transmission interconnection will be treated as an individual study to be analyzed separately from all other such requests unless otherwise agreed by the IE and TSP(s) in the interconnection study agreement.

(3) The FIS process includes developing and analyzing various computer model simulations of the existing and proposed ERCOT generation/ESS/transmission system. The results from these simulations will be utilized by the TSP(s) to determine the impact of the proposed interconnection.

(4) The TSP(s) will examine normal transmission operations as well as potentially adverse, or contingency, conditions in order to identify and analyze the reliability and effectiveness of various interconnection design alternatives in alleviating or mitigating any undesirable performance of the interconnection under a variety of operating conditions. The study should include analysis demonstrating the adequate reliability of any temporary interconnection configurations.

(5) In comparing interconnection alternatives, the TSP(s) will consider such information as interconnection cost and construction schedule, impact to short- and long-range reliability, operational flexibility, and compatibility with future transmission plans. The TSP(s) may consider interconnection alternatives not suggested by the IE.

(6) The TSP(s) may update the final FIS report to reflect changes to the ERCOT System (i.e., new Standard Generation Interconnection Agreements (SGIAs)) after the report is completed and before the SGIA is executed.

***5.3.2.4.1 Steady-State Analysis***

(1) The steady-state interconnection study base case shall be created from the most recently approved Steady State Working Group (SSWG) base case. TSP(s) or ERCOT may remove any future (currently nonexistent) facility from the steady-state interconnection study base case if either determines that the facility may significantly affect the interconnection study results and the facility has not already undergone appropriate review by the Regional Planning Group (RPG). In addition, ERCOT and TSP(s) may include other publicly disclosed projects in the steady-state interconnection study base case. ERCOT may request a list of the interconnection requests included in the FIS by the TSP(s). Modifications to the SSWG base case, necessary to evaluate the study results, shall be documented in the FIS but not to the extent that documenting the modifications would reveal Protected Information.

(2) The TSP(s) shall perform contingency analyses as required by the NERC Reliability Standards, Protocols, this Planning Guide and the Operating Guides and identify any additional facilities that may be necessary to ensure that expected system performance conforms to these standards. The study shall identify any system limitations that would prevent the generator from achieving full output.

(3) Loss-of-generation analyses shall assume that the lost generation will be replaced from all remaining Generation Resources and/or ESRs in proportion to their nominal capacity (i.e., inertial response and primary frequency response), and shall consider the generation limit of each Generation Resource and ESR.

(4) The lead TSP is responsible for completing an analysis of any contingency events or Outages that could result in a violation of the NERC Reliability Standards, Protocols, this Planning Guide and the Operating Guides, regardless of which TSP owns the facilities involved. The results of this analysis will be shared with TSP(s) that have facilities involved in planning criteria violations and those affected TSP(s) will be responsible for evaluating the validity of the anticipated violations.

***5.3.5 ERCOT Quarterly Stability Assessment***

(1) ERCOT shall conduct a stability assessment every three months to assess the impact of planned large generators connecting to the ERCOT System. The assessment shall derive the conditions to be studied with consideration given to the results of the FIS stability studies for large generators, with planned Initial Synchronization in the period under study. ERCOT may study conditions other than those identified in the FIS stability studies.

(2) Large generators that are not included in the assessment as described in this Section as result of the IE failing to meet the prerequisites by the deadlines as listed in the table below will not be eligible for Initial Synchronization during that three-month period. The timeline for the quarterly stability assessment shall be in accordance with the following table:

|  |  |  |
| --- | --- | --- |
| **Generator Initial Synchronization Date** | **Last Day for an IE to meet prerequisites as listed in paragraph (4) below** | **Completion of Quarterly Stability Assessment** |
| Upcoming January, February, March | Prior August 1 | End of October |
| Upcoming April, May, June | Prior November 1 | End of January |
| Upcoming July, August, September | Prior February 1 | End of April |
| Upcoming October, November, December | Prior May 1 | End of July |

(3) If the last day for an IE to meet prerequisites or if completion of the quarterly stability assessment as shown in the above table falls on a weekend or holiday, the deadline will extend to the next Business Day.

(4) Prerequisites to be satisfied prior to the large generator being included in the quarterly stability assessment:

(a) The generator has met the requirements of Section 6.9, Addition of Proposed Generation to the Planning Models.

(b) The IE has provided all generator data in accordance with the Resource Registration Glossary, Planning Model column, including but not limited to steady state, system protection and stability models.

(i) The dynamic data model will be reviewed by ERCOT prior to the quarterly stability assessment and should be submitted by the IE 30 days before the quarterly stability assessment deadline. If this review cannot be completed prior to the quarterly stability assessment deadline, ERCOT may refuse to allow Initial Synchronization of the Generation Resource, Energy Storage Resource (ESR), or Settlement Only Generator (SOG) in the three-month period associated with the quarterly stability assessment deadline. ERCOT shall include the Generation Resource, ESR, or SOG in the next quarterly stability assessment period provided that the review of the dynamic data model has been completed prior to the next quarterly stability assessment’s deadline.

(c) The following elements must be complete:

(i) FIS studies;

(ii) Reactive Power Study; and

(iii) System improvements or mitigation plans that were identified in these studies as required to meet the operational standards established in the Protocols, Planning Guide, Nodal Operating Guides, and Other Binding Documents prior to synchronizing the generator.

(d) The data used in the studies identified in paragraph (4)(c) above is consistent with data submitted by the IE as required by Section 6.9.

(5) At any time following the inclusion of a large generator in a stability assessment, but before the Initial Synchronization of the generator, if ERCOT determines, in its sole discretion, that the generator no longer meets the prerequisites described in paragraph (4), or that an IE has made a change to the design of the generator that could have a material impact on ERCOT System stability, then ERCOT may refuse to allow Initial Synchronization of the generator, provided that ERCOT shall include the generator in the next quarterly stability assessment period that commences after identification of the material change or after the generator meets the prerequisites specified in paragraph (4), as applicable. If ERCOT determines, in its sole discretion, that the change to the design of the generator would not have a material impact on ERCOT System stability, then ERCOT may not refuse to allow Initial Synchronization of the generator due to this change.

(6) ERCOT shall post to the MIS Secure Area a report summarizing the results of the quarterly stability assessment within ten Business Days of completion.

**6.1 Steady-State Model Development**

(1) To adequately simulate steady-state system conditions, it is necessary to establish and maintain steady-state data and simulation-ready study cases in accordance with the ERCOT Steady State Working Group Procedure Manual. These case models, known as steady-state base cases, shall contain appropriate equipment characteristics and system data, and shall represent projected system conditions that provide a starting point for each required season and year.

(a) The Annual Planning Model base cases, which represent the annual peak load conditions, as prescribed in Protocol Section 3.10.2, Annual Planning Model, shall be developed annually, updated on a biannual basis, and may be updated as needed on an interim basis. Each Annual Planning Model base case, biannual updates, and off-cycle updates shall be posted on the Market Information System (MIS) Secure Area to ensure availability of the most accurate steady-state base cases.

(b) Additional steady-state base cases, such as seasonal base cases, shall also be developed annually, updated on a biannual basis, and may also be updated as needed on an interim basis. These derivative base cases, biannual updates, and off-cycle updates shall be posted on MIS Secure Area to ensure availability of the most accurate steady-state base cases.(c) Off-cycle updates not associated with the biannual update shall be posted in a timely manner and include:

(i) Corrections to significant errors discovered in modeling or major changes in operation configuration that affect the steady-state base cases; or

(ii) A significant change in the scope or timing of a transmission project or the development of a new transmission project that impacts either of the next two summer base cases.

(d) Off-cycle updates that are posted as described in paragraphs (1)(a) through (c) above shall be in the form of a Power System Simulator for Engineering (PSS/E) formatted incremental change file.

(e) All steady-state base cases and incremental change files on the MIS Secure Area shall be available for use by Market Participants.

(f) The ERCOT Steady State Working Group Procedure Manual describes each base case that is required to be built. The schedule for posting all steady-state base cases shall be made available on the MIS Secure Area.

(2) Transmission Service Providers (TSPs) and ERCOT shall develop the steady-state base cases. The steady-state base cases are derived from the Network Operations Model to ensure consistency of key characteristics, including Ratings, impedance and connectivity for Transmission Facilities that are common between the Network Operations Model and each steady-state base case. Minor differences between the models will occur for several reasons. For example:

(a) Additional detailed modeling may be added to the converted Network Operations Model for planning purposes.

(b) Future projects are added to the converted Network Operations Model that do not exist in the Network Operations Model past the model build date used to extract a snapshot from the Network Operations Model.

(3) Using the Network Model Management System (NMMS), ERCOT and TSPs shall create steady-state models that represent current and planned system conditions from the following data elements:

(a) Each TSP, or its Designated Agent, shall provide its respective transmission network steady-state model data, including load data.

(b) Each TSP, or its Designated Agent, shall not include the impact of energy sources connected to the Distribution System that are registered with ERCOT and required to provide telemetry including, but not limited to, Distribution Generation Resources (DGRs), Distribution Energy Storage Resources (DESRs), or Settlement Only Distribution Generators (SODGs) in its submitted Load data as negative loads or as embedded reductions in the submitted load forecast.

(c) Each TSP, or its Designated Agent, shall include the impact of energy sources connected to the Distribution System that are not registered with ERCOT in its submitted Load data. The methodology used shall be consistent across all TSPs and described in the ERCOT Steady State Working Group Procedure Manual.

(d) ERCOT shall utilize the latest available Resource Entity and Private Use Network model data submitted to ERCOT by the Resource Entity and the Private Use Network owners through the Resource Registration process for Resource Entities.

(e) ERCOT shall utilize proposed Generation Resource and Energy Storage Resource (ESR) model data provided by the Interconnecting Entity (IE) during the generation interconnection process in accordance with Section 5, Generator/Energy Storage System Interconnection or Modification.

(f) ERCOT shall determine the operating state of Generation Resources and ESRs (MW, MVAr) using a security-constrained economic dispatch tool.

(g) ERCOT shall determine the import/export levels of asynchronous transmission interconnections based on historical data.

**6.2 Dynamics Model Development**

(1) To adequately simulate dynamic and transient events in the ERCOT System, it is necessary to establish and maintain dynamics data and simulation-ready study cases representing the dynamic capability and frequency characteristics of machines and equipment connected to the ERCOT System.

(2) Dynamics data is the network data and mathematical models required in accordance with the Reliability and Operations Subcommittee (ROS)-approved Dynamics Working Group Procedure Manual for simulation of dynamic and transient events in the ERCOT System.

(3) For Resource Entities, dynamics data includes the data needed to represent the dynamic and transient response of Resource Entity-owned devices and/or Loads including but not limited to generating units, Energy Storage Systems (ESSs), plants, and other equipment when connected to the ERCOT System including the data for any privately owned transmission system or collection system used to connect the Resource to the ERCOT System.

(4) For Transmission Service Providers (TSPs), dynamics data needed to represent the dynamic and transient capability of TSP-owned devices including but not limited to Load shedding relays, protective relays, FACTS devices (e.g., SVC, STATCOMs), Direct Current Ties (DC Ties), variable-frequency transformers, automatically switched shunts, and transformers with automatic load tap changers.

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| --- |
| ***[PGRR101: Replace paragraph (4) above with the following upon system implementation of NPRR1133:]***  (4) For Transmission Service Providers (TSPs) and owners of Direct Current Ties (DC Ties), dynamics data includes the data needed to represent the dynamic and transient capability of dynamic devices including but not limited to Load shedding relays, protective relays, FACTS devices (e.g., SVC, STATCOMs), DC Ties, variable-frequency transformers, automatically switched shunts, and transformers with automatic load tap changers. |

(5) The owner of a generator Facility or any dynamic device shall provide appropriate dynamics data to ERCOT, including the data for a planned Facility, in accordance with the Dynamics Working Group Procedure Manual. The dynamic data shall include the following:

(a) A model with parameters that accurately represent the dynamics of the device and that is compatible with the current version of the planning and operations model software as described in the Dynamics Working Group Procedure Manual. If a user written model is provided:

(i) A model manual containing a technical description of the model characteristics, including descriptions for all model parameters and variables, a list of which parameters are commonly tuned for site-specific settings, and a description of procedures and considerations for using the model in dynamic simulations, including steady state representation and limitations for model adequacy and usability in the planning and operations model software; and

(ii) The user-written model shall allow the user to determine the allocation of machine identifiers (bus numbers, bus names, machine IDs etc.) without restriction.

(b) Verification reports that support the model data based on documented field settings shall be provided as specified in the Dynamics Working Group Procedure Manual for Generation Resources, Energy Storage Resources (ESRs), and for Transmission Elements represented by a dynamic model. The reports shall demonstrate that the model parameters which are commonly tuned match site-specific settings implemented in the field. For new Generation Resources and ESRs, these reports shall be provided as required in paragraph (4) of Section 5.5, Generator Commissioning and Continuing Operations. For existing Generation Resources and ESRs, these reports shall be provided as required in paragraph (5) of Section 5.5. For Transmission Elements represented by a dynamic model, these reports shall be provided no later than two years following energization of new equipment and updated a minimum of every ten years.

(c) Results of model quality tests and associated simulation files that demonstrate acceptable performance of the models in the planning model and operations software as described in the Dynamics Working Group Procedure Manual. The Facility owner shall provide updated information whenever it provides a new or updated dynamic model to ERCOT representing a Generation Resource, ESR, or Transmission Element. These tests ensure the quality of the provided dynamic data and models for use in numerous system studies and consistency across planning and operations software platforms. Therefore, the Facility owner shall also assess sufficient sensitivities, including but not limited to Voltage Set Point at the Point of Interconnection (POI), real power output, and Reactive Power output to ensure acceptable model performance over the entire range of operating conditions. The Facility owner shall provide an explanation if model responses do not match.

(i) Facility owners shall include all site-specific dynamic models representing the Facility in the model quality tests. Facility owners can perform the tests in a simple test system without requiring ERCOT System information.

(ii) For Intermittent Renewable Resource (IRR) equipment aggregated together to form an IRR in accordance with paragraph (13) of Protocol Section 3.10.7.2, Modeling of Resources and Transmission Loads, the dynamic model shall represent the aggregated IRR.

(iii) Results for the following model quality tests shall be provided to demonstrate acceptable model performance. Additional details about each test, including the set up and description of desirable response, are included in the Dynamics Working Group Procedure Manual.

(A) Flat start test: A no-disturbance test shall be performed to demonstrate appropriate model initialization and the Facility’s dynamic response under a no-disturbance condition.

(B) Small voltage disturbance test: A voltage step increase and decrease shall be applied to the POI to demonstrate the Facility’s dynamic response.

(C) Large voltage disturbance test:

(1) For IRRs, ESRs, and inverter-based transmission equipment, the high and low voltage ride-through profiles as described in Nodal Operating Guide Section 2.9.1, Voltage Ride-Through Requirements for Intermittent Renewable Resources and Energy Storage Resources Connected to the ERCOT Transmission Grid, shall be applied to the POI to demonstrate the Facility’s dynamic response.

(2) For Resources other than IRRs, ESRs, and inverter-based equipment, a fault shall be applied to the POI to demonstrate the Facility’s dynamic response.

(D) Small frequency disturbance test: A frequency step increase and decrease shall be applied to the POI to demonstrate the Facility’s dynamic response.

(E) System strength test: The model for IRRs and inverter-based Resources shall be tested under a few equivalent short circuit ratios, as described in the Dynamics Working Group Procedure Manual. This tests the robustness of the model to varying system conditions.

(d) Inverter-Based Resources (IBRs) shall provide results of the unit model validation to demonstrate that the PSCAD model, as described in the Dynamics Working Group Procedure Manual, accurately represents the dynamic responses of all inverter-based dynamic devices within the Facility. This validation is not intended to be site-specific; rather it is intended to be a hardware type test, where models representing different inverter hardware are benchmarked for accuracy. Validation results for a specific model of inverter can be submitted for multiple uses of that model of inverter.

(i) The validation results shall be included when submitting a PSCAD model to ERCOT.

(ii) Results for the following unit model validation tests shall be provided to demonstrate model accuracy. Additional details about each test are included in the Dynamics Working Group Procedure Manual.

(A) Step change in voltage;

(B) Large voltage disturbance (voltage ride-through tests);

(C) System strength test;

(D) Phase angle jump test; and

(E) Subsynchronous test.

(6) Dynamics data for a planned Facility will be updated by the Facility owner upon completion of the design for the Facility.

(7) Updated dynamics data for an existing Facility shall be provided to ERCOT when field tests, inspections, or other information demonstrates that the dynamics data should be changed to accurately represent the dynamic characteristics of the Facility.

(8) Dynamics Data is considered Protected Information pursuant to Protocol Section 1.3, Confidentiality.

(9) Dynamics data shall be provided with the legal authority to provide the information to all TSPs. If any of the information is considered Protected Information, the Facility owner shall indicate as such.

***6.2.1 Dynamics Data Requirements for Generation Resources, Energy Storage Resources, and Settlement Only Generators***

(1) A Resource Entity shall submit new or updated dynamics data in accordance with Section 5, Generator/Energy Storage System Interconnection or Modification. The Resource Entity shall provide all dynamics data as described in paragraph (5) of Section 6.2, Dynamics Model Development, and the Dynamics Working Group Procedure Manual.

(2) A Resource Entity is responsible for tuning and validating the parameters that go into their models to ensure that the models produce an accurate representation of a device’s capability and response. If ERCOT, the interconnecting TSP, or the Dynamics Working Group (DWG) identifies inappropriate or incomplete dynamics data, ERCOT, in its sole discretion, may reject the submitted dynamics data and will provide the Resource Entity an explanation for the rejection. The Resource Entity shall take action to resolve discrepancies and provide updated dynamics data to ERCOT and the interconnecting TSP within 30 days.

6.3 Process for Developing Short Circuit Cases

(1) This Section describes the process for the development of the short circuit cases used for planning purposes. Nodal Operating Guide Section 6, Disturbance Monitoring and System Protection, describes other non-planning aspects relating to system protection and disturbance monitoring requirements.

(a) ERCOT shall collect the short circuit data sets or data updates developed by each Transmission Service Provider (TSP) and shall compile and maintain the short circuit cases.

(b) During the first quarter of each calendar year, ERCOT shall compile and distribute the Current Year (CY) short circuit case to the System Protection Working Group (SPWG).

(c) During the second quarter of each calendar year, ERCOT shall compile and distribute the Future Year (FY) short circuit cases for years two through five to the SPWG.

(d) The transmission and generation systems of each Facility owner in ERCOT shall be represented completely including positive and zero sequence data. Generation Resource and Energy Storage Resource (ESR) data shall be provided by the Resource Entity.

(e) Each common bus within both the short circuit case and the corresponding steady-state load flow case shall have a matching bus name and matching bus number. Each additional bus added to the short circuit case as necessary to perform short circuit studies shall be assigned a name and bus number that does not conflict with pre-existing names and bus numbers used in the current set of load flow cases.

(f) The positive sequence impedance of Transmission Elements used in both the load flow and short circuit cases shall be the same.

(g) Zero sequence data shall include mutual impedance of multi-circuit transmission lines and of adjacent circuits within the same right-of-way, unless the TSP considers such impedance to be insignificant for studies made from this data.

6.8 Resource Registration Procedures

(1) In accordance with Protocol Sections 3.7, Resource Parameters, 3.10, Network Operations Modeling and Telemetry, and 16.5, Registration of a Resource Entity, a Resource Entity shall register each Generation Resource, Energy Storage Resource (ESR), Settlement Only Generator (SOG), or Load Resource with ERCOT. The Resource Entity shall submit Resource Registration data and information through the Resource Registration process pursuant to Section 6.8.2, Resource Registration Process, and made available on the ERCOT website.

6.8.1 Resource Registration

(1) A Resource Entity shall submit complete Resource Registration data pursuant to Section 6.8.2, for each Generation Resource, ESR, SOG, or Load Resource prior to inclusion in applicable ERCOT systems.

(2) All data elements requested in the Resource Registration process will be contained in the Resource Registration Glossary. Changes, deletions or additions to the data elements in the Resource Registration Glossary will be made in accordance with the revision process specified for the Resource Registration Glossary.

(3) ERCOT shall post the Resource Registration Glossary on the ERCOT website.

(4) ERCOT shall post a detailed Resource Registration Guide on the ERCOT website that provides detailed instructions and explanations required for Resource Registration data and shall conform to the Resource Registration Glossary.

(5) ERCOT shall make available related documents for Resource Registration on the ERCOT website and shall notify Market Participants when changes are made to the Resource Registration process and requirements, including Resource Registration forms, the Resource Registration Glossary, and the Resource Registration Guide.

(6) As required by Section 5, Generator Interconnection or Modification, Generation Resources shall provide accurate initial data for inclusion in the ERCOT Network Operations Model. The data will be used to model future generation and energy storage for Steady State Working Group (SSWG), Dynamics Working Group (DWG), and System Protection Working Group (SPWG) base cases.

6.8.2 Resource Registration Process

(1) A Resource Entity shall submit the Resource Registration data for Generation Resources, ESRs, SOGs, or Load Resources as described in the Resource Registration Glossary.

(2) Upon receipt of the Resource Registration data, ERCOT shall review the completeness and accuracy of the data submission. ERCOT shall provide notice of acceptance and/or deficiencies to the Resource Entity.

(3) ERCOT shall provide notice to the Resource Entity if the Resource Registration data is accepted, which is not the same as an approved Network Operations Model Change Request (NOMCR). The acceptance of the Resource Registration data only means that the registered data moves to the next step of being converted to a NOMCR. After acceptance and/or approval, the data is still subject to various and continuous validation processes.

(4) If ERCOT’s notice reports deficiencies through the data submission process or through subsequent validation processes, the Resource Entity shall make necessary changes specified and re-submit the Resource Registration data as necessary, until acceptance of the total set of registered data is granted.

(5) Upon acceptance of the Resource Registration data, ERCOT shall provide the Resource Entity with the model ready date on which the Resource Registration data will be implemented in production. Although a model ready date has been provided, subsequent data corrections may be required as a result of validation processes.

(6) If a Resource Entity desires that the submitted Resource Registration data become effective earlier than the schedule established in Protocol Section 3.10.1, Time Line for Network Operations Model Changes, it may submit a request for interim update as described in the Resource Registration Guide.

(7) ERCOT shall notify each Resource Entity when applicable changes to the model are processed and implemented in accordance with Protocol Section 3.10.1.

(8) A Resource Entity shall revise the Resource Registration data as required by this Section to reflect changes in any data related to a Generation Resource, ESR, SOG, or Load Resource.

(9) The Resource Entity must submit updated Resource Registration data containing changes made for the reasons below for a Generation Resource, ESR, SOG, or Load Resource:

(a) Within ten Business Days of ERCOT approval of a Net Dependable Capability test to reflect the results of the test;

(b) Within ten Business Days of ERCOT approval of a reactive capability test to reflect the results of the test;

(c) Within ten Business Days of a request by ERCOT to check or update specific Resource Registration data; and

(d) Within ten Business Days of a known change to any Resource Registration data.

**6.9 Addition of Proposed Generation to the Planning Models**

(1) For large generators meeting the conditions of paragraph (1) of Section 5.2.1, Applicability, ERCOT will include applicable generation in the base cases created and maintained by the Steady State Working Group (SSWG) once each of the following has occurred:

(a) The Interconnecting Entity (IE) has posted to the online Resource Integration and Ongoing Operations (RIOO) systems all data required in the Security Screening Study, if the Full Interconnection Study (FIS) has not started, or the FIS, if the FIS has started;

(b) The IE has posted to the online RIOO system documentation that it has received all necessary Texas Commission on Environmental Quality (TCEQ)-approved air permits or that no such permits are required and ERCOT has accepted the IE’s submission;

(c) The IE has submitted via the online RIOO system a completed Declaration of Adequate Water Supplies (Section 8, Attachment B, Declaration of Adequate Water Supplies; resource types exempt from this requirement are cited in Attachment B); and

(d) ERCOT receives one of the following via the online RIOO system:

(i) A signed Standard Generation Interconnection Agreement (SGIA) from the Transmission Service Provider (TSP) and a written notice from the TSP that the IE has provided:

(A) A notice to proceed with the construction of the interconnection; and

(B) The financial security required to fund the interconnection facilities; or

(ii) A public, financially binding agreement between the IE and the TSP under which the interconnection for the applicable generation will be constructed along with:

(A) A written notice from the TSP that the IE has provided notice to proceed with the construction of the interconnection; and

(B) The required financial security; or

(iii) A letter from a duly authorized official from a Municipally Owned Utility (MOU) or Electric Cooperative (EC) confirming the Entity’s intent to construct and operate applicable generation or energy storage and interconnect such generation or energy storage to its own transmission system.

(2) Upon receiving notice from ERCOT that the large generator or ESS has met the requirements of paragraph (1) above, the IE shall provide within 60 days the remaining required data as specified in the Resource Registration Glossary, Planning Model column, using the applicable Resource Registration process. The purpose of submitting the data is for modeling of the applicable generation or energy storage in the base cases created and maintained by the System Protection Working Group (SPWG) and the Dynamics Working Group (DWG).

(3) For small generators or ESSs meeting the conditions of paragraph (1) of Section 5.2.1, ERCOT will include applicable generation or energy storage in the base cases created and maintained by the SSWG, SPWG, and DWG once ERCOT has determined that the IE has submitted all data required on the Resource Registration form and after inclusion of the generator or ESS in the Network Operations Model.

(4) Once the IE has met these requirements, ERCOT will notify the SSWG, SPWG, and DWG that the applicable generation and energy storage will be included in the base cases created and maintained by these working groups.

**6.11 Process for Developing Geomagnetically-Induced Current (GIC) System Models**

(1) To adequately simulate Geomagnetic Disturbance (GMD) events, it is necessary to establish and maintain Geomagnetically-Induced Current (GIC) system models and conduct geomagnetic disturbance vulnerability assessments to determine whether the ERCOT System can meet the performance requirements of the benchmark and supplemental geomagnetic disturbance event described in North American Electric Reliability Corporation (NERC) Reliability Standards. These GIC system models shall contain appropriate system data, and shall represent projected system conditions that provide a starting point for the required year(s).

(a) ERCOT, in collaboration with Transmission Service Providers (TSPs) and Resource Entities, shall develop and maintain the GIC system models. The GIC system models are derived from the steady-state base cases developed by Steady State Working Group (SSWG) for the near-term transmission planning horizon to ensure consistency between the system topology in the SSWG base cases and GIC system models.

(b) ERCOT, in collaboration with TSPs and Resource Entities, may set a Generation Resource or Energy Storage Resource (ESR) to out of service prior to receiving a Notification of Suspension of Operations (NSO) if the Resource Entity notifies ERCOT of its intent to retire/mothball the Resource and/or makes a public statement of its intent to retire/mothball the Resource.

(i) ERCOT will post and maintain the current list of Generation Resources and ESRs that will be set to out of service pursuant to paragraph (1)(b) above on the ERCOT website.

(c) Each TSP, or its Designated Agent, shall provide its respective transmission network GIC model data in accordance with the GIC System Model Procedure Manual.

(d) Each Resource Entity, or its Designated Agent, shall provide its respective Resource Entity-owned generating units, ESSs, plants, transmission lines, shunt devices, Main Power Transformers (MPTs), and Generator Step-Ups (GSUs) connected to the ERCOT System in accordance with the GIC System Model Procedure Manual and the Resource Registration Glossary.

(e) ERCOT shall aggregate the GIC system model data supplied by each TSP and Resource Entity and shall compile the data to form the GIC system models. Upon completion of compiling the data for the GIC system models, ERCOT and the TSPs shall review and finalize the GIC system models. Upon completion of the review of the GIC system models, ERCOT shall post these models on the ERCOT Market Information System (MIS) Certified Transmission Service Provider Information page.

(f) Guidelines and formats for the GIC system model data and model maintenance can be found in the GIC System Model Procedure Manual.

(g) GIC data is considered Protected Information pursuant to Protocol Section 1.3, Confidentiality.

(2) Each TSP and Resource Entity shall provide ERCOT for use in the GMD vulnerability assessments as outlined in Section 3.1.8, Planning Geomagnetic Disturbance (GMD) Activities:

(a) A list of equipment potentially removed from service as a result of protection system operation or misoperation due to harmonics that could result from the benchmark GMD event.

(b) A list of equipment potentially removed from service as a result of protection system operation or misoperation due to harmonics that could result from the supplemental GMD event.

(3) TSPs and Resource Entities may refer to a Reliability and Operations Subcommittee (ROS)-approved methodology for developing the equipment lists described in paragraph (2) above. TSPs and Resource Entities are not required to submit the equipment lists described in paragraph (2) above until 30 days after ROS approves a methodology.

***7.1 Planning Data and Information***

(1) The information available on the ERCOT website or applicable Market Information System (MIS) (i.e., Secure or Certified Areas) includes, but is not limited to, planning information pertaining to the following:

(a) Long-term planning;

(b) Regional transmission planning;

(c) Steady state data;

(d) Resource integration;

(e) Case studies and files used in planning;

(f) Model information; and

(g) Data and information available to specific groups of Market Participants.

(i) Market Participants with a nondisclosure agreement with ERCOT have designated sections on the MIS that allow access to the certified posting of group information.

(ii) Market Participants may access the artifacts posted for their respective groups on the MIS Secure Area.

(2) The list below includes both data set and designated MIS classification of the available planning data and information. Where the information is classified as “Certified,” the appropriate Market Participant category or group is also indicated. Information classified as “Public” is available on the ERCOT website.

| **Data Set** | **Classification** |
| --- | --- |
| Aggregated Wind Output | Public |
| Annual Planning Model Data Submittal Schedule | Secure |
| Demand and Energy Monthly Reports | Secure |
| Dynamic Data Information | Certified (all Transmission Service Providers (TSPs)) |
| Economic Studies of Transmission Projects for New Generation | Secure |
| ERCOT Long-Term System Assessment (LTSA) (except for Protected Information) | Secure |
| ERCOT LTSA | Certified (all TSPs) |
| ERCOT Steady State Planning Contingency Files | Secure |
| ERCOT System Operating Limit (SOL) Methodology | Public |
| Generation/Energy Storage Data Forms | Secure |
| Generator Interconnection Status (GIS) Report | Public |
| Geomagnetically-Induced Current ([GIC) Flow Information](https://mis.ercot.com/secure/data-products/grid/regional-planning?id=PG3-953-M) | Secure |
| Geomagnetic Disturbance (GMD) Vulnerability Assessment Postings (except for Protected Information) | Secure |
| GMD Vulnerability Assessment Postings | Certified (all TSPs) |
| Documents Initiating a Generation or Energy Storage Interconnection or Change Request (GINR) | Certified (all TSPs) |
| GINR Security Screening Studies and Supporting Documents | Secure |
| Sub-synchronous Oscillation Studies and Supporting Documents | Certified (all TSPs) |
| Full Interconnection Study (FIS): Steady-State, System Protection, Stability, and Facility Studies and Supporting Documents (except for Protected Information) | Secure |
| FIS: Draft Steady-State, System Protection, Stability, and Facility Studies and Supporting Documents | Certified (all TSPs) |
| Independent Market Monitor (IMM) and Topology Processor Supporting Documents | Certified (all TSPs) |
| Performance, Disturbance, Compliance Working Group (PDCWG) Group Documents and Project Files | Certified (PDCWG members) |
| Public Generation/Energy Storage Information | Public |
| Remedial Action Plan (RAP) Review Cases | Certified (all TSPs) |
| Resource Registration Data | Certified (all TSPs) |
| Regional Planning Group Projects | Secure |
| Regional Transmission Plan Postings (except for Protected Information) | Secure |
| Regional Transmission Plan Postings | Certified (all TSPs) |
| Seasonal Voltage Profile Studies | Certified (all TSPs) |
| Special Planning Studies (except for Protected Information) | Secure |
| Special Planning Studies | Certified (all TSPs) |
| Steady State Power Flow Base Cases | Secure |
| Steady State Power Flow Case Data | Certified (all TSPs) |
| Steady State Topology Processor Files | Secure |
| Steady State Transmission Project and Information Tracking (TPIT) Procedures | Secure |
| System Protection Short Circuit Data | Secure |
| Transient Stability Screening Study for ERCOT System | Certified (all TSPs) |
| TSP Planning Criteria and Procedures | Secure |
| Voltage Stability Screening Study for ERCOT System | Certified (all TSPs) |

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| ***[PGRR108: Replace paragraph (2) above with the following upon system implementation of NPRR1183:]***  (2) The list below includes both data set and designated classification of the available planning data and information. Where the information is classified as “Certified,” the appropriate Market Participant category or group is “(all TSPs)” to indicate all Transmission Service Providers (TSPs) or “(PDCWG members)” to indicate members of the Performance, Disturbance, Compliance Working Group (PDCWG).   | **Data Set** | **Classification** | | --- | --- | | Aggregated Wind Output | ERCOT website | | Annual Planning Model Data Submittal Schedule | Secure | | Demand and Energy Monthly Reports | Secure | | Dynamic Data Information | Certified (all TSPs) | | Economic Studies of Transmission Projects for New Generation | Secure | | ERCOT Long-Term System Assessment (LTSA) (except for Protected Information) | Secure | | ERCOT LTSA | Certified (all TSPs) | | ERCOT Steady State Planning Contingency Files | Secure | | ERCOT System Operating Limit (SOL) Methodology | ERCOT website | | Generation/Energy Storage Data Forms | Secure | | Generator Interconnection Status (GIS) Report | ERCOT website | | Geomagnetically-Induced Current ([GIC) Flow Information](https://mis.ercot.com/secure/data-products/grid/regional-planning?id=PG3-953-M) | Secure | | Geomagnetic Disturbance (GMD) Vulnerability Assessment Postings (except for Protected Information) – includes ERCOT Critical Energy Infrastructure Information (ECEII) | Secure | | GMD Vulnerability Assessment Postings – includes ECEII and Protected Information | Certified (all TSPs) | | GMD Vulnerability Assessment Postings (redacted) – excludes ECEII and Protected Information | ERCOT website | | Documents Initiating a Generation or Energy Storage Interconnection or Change Request (GINR) | Certified (all TSPs) | | GINR Security Screening Studies and Supporting Documents | Secure | | Sub-synchronous Oscillation Studies and Supporting Documents | Certified (all TSPs) | | Full Interconnection Study (FIS): Steady-State, System Protection, Stability, and Facility Studies and Supporting Documents (except for Protected Information) | Secure | | FIS: Draft Steady-State, System Protection, Stability, and Facility Studies and Supporting Documents | Certified (all TSPs) | | Independent Market Monitor (IMM) and Topology Processor Supporting Documents | Certified (all TSPs) | | Performance, Disturbance, Compliance Working Group (PDCWG) Group Documents and Project Files | Certified (PDCWG members) | | Public Generation/Energy Storage Information | ERCOT website | | Remedial Action Plan (RAP) Review Cases | Certified (all TSPs) | | Resource Registration Data | Certified (all TSPs) | | Regional Planning Group Projects | Secure | | Regional Transmission Plan Postings (except for Protected Information) – includes ERCOT Critical Energy Infrastructure Information (ECEII) | Secure | | Regional Transmission Plan Postings – includes ECEII and Protected Information | Certified (all TSPs) | | Regional Transmission Plan Postings (redacted) – excludes ECEII and Protected Information | ERCOT website | | Seasonal Voltage Profile Studies | Certified (all TSPs) | | Special Planning Studies (except for Protected Information) | Secure | | Special Planning Studies | Certified (all TSPs) | | Steady State Power Flow Base Cases | Secure | | Steady State Power Flow Case Data | Certified (all TSPs) | | Steady State Topology Processor Files | Secure | | Steady State Transmission Project and Information Tracking (TPIT) Procedures | Secure | | System Protection Short Circuit Data | Secure | | Transient Stability Screening Study for ERCOT System | Certified (all TSPs) | | TSP Planning Criteria and Procedures | Secure | | Voltage Stability Screening Study for ERCOT System | Certified (all TSPs) | |

**ERCOT Planning Guide**

**Section 8**

**Attachment B: Declaration of Adequate Water Supplies**

**TBD**

**Declaration of Adequate Water Supplies**

An Interconnecting Entity (IE) must submit this attestation form to notify ERCOT that water rights, contracts or groundwater supplies sufficient for generation of electricity have been obtained or that water supplies are not required for the generation of electricity at each proposed Generation Resource. Section 6.9, Addition of Proposed Generation to the Planning Models, requires an IE to submit this form before ERCOT may include certain proposed Generation Resources in the base cases created and maintained by the Steady State Working Group (SSWG), the System Protection Working Group (SPWG), and the Dynamics Working Group (DWG). Any IE that proposes to interconnect a Generation Resource powered by wind or photovoltaic solar, or an Energy Storage Resource (ESR) does not need to submit this form. However, any IE proposing to interconnect any other type of Generation Resource must submit this form, even if the IE’s proposed Resource will not use water.

Each IE should submit this attestation for each unique Generation Resource Interconnection Request (GINR) within ten Business Days of securing the relevant water supply rights, or, for Generation Resources that do not require water supplies to operate, within ten Business Days of executing the Interconnection Agreement with the Transmission Service Provider (TSP). The attestation should be signed by an officer or other individual with authority to bind the IE. The IE should submit the attestation and the necessary attachments to ERCOT via the online Resource Integration and Ongoing Operations (RIOO) system.

**ATTESTATION**

**Name of Interconnecting Entity:**

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Name and GINR Number of Project:**

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

By signing below, I certify that I am knowledgeable about the above-named project, and hereby represent as follows (check one of the following):

No water rights, contracts or groundwater supplies are needed for the above-named proposed Generation Resource to generate electricity.

The IE, the owner of the proposed Generation Resource, or another similarly situated party has secured water rights, contracts or groundwater supplies sufficient for the generation of electricity at the above-named proposed Generation Resource. A copy of the relevant contract(s), permit(s) and/or groundwater adequacy studies is attached to this declaration. The right(s) or contract(s) allows the Generation Resource owner or operator access to water according to the following terms (describe basic terms, including quantity, duration, and conditions of access):

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Signature

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Name

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Title

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Date

**ERCOT Planning Guide**

**Section 8**

**Attachment C: Declaration of Department of Defense Notification**

**TBD**

**Declaration of Department of Defense Notification**

**Interconnecting Entity (IE):\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**This declaration applies to the following proposed project:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Check the below listed attestation(s) which apply to the project.**

I hereby attest that:

\_\_\_\_ This IE has notified the Department of Defense (DOD) Siting Clearinghouse of the above listed proposed project and requested that it perform an Informal Review and/or Formal Review as described in 32 C.F.R. § 211.1 (2013);

\_\_\_\_ This IE has completed the formal review process for the project with the Department of Defense (DOD) Siting Clearinghouse and Federal Aviation Administration (FAA), as described in 14 C.F.R. § 77.7 (2010) and 32 C.F.R. § 211.6 (2013); or

\_\_\_\_ The above listed proposed project is exempt from the requirement to seek review from the Department of Defense (DOD) and the Federal Aviation Administration (FAA), as described in 14 C.F.R. § 77.7 (2010) and 32 C.F.R. § 211.6 (2013).

By signing below, I certify that I am an officer, executive, or authorized employee with authority to bind the IE listed above, that I am authorized to execute and submit this declaration on behalf of each IE listed above, and that, to the best of my knowledge, the statements contained herein are true and correct.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Signature

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Name

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Date