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| PGRR Number |  | PGRR Title |  |
| Date Posted | |  | |
|  | |  | |
| Requested Resolution | | Normal or Urgent, and justification for Urgent status | |
| Planning Guide Sections Requiring Revision | | Include Section No. and Title | |
| Related Documents Requiring Revision/Related Revision Requests | | Include title of document to be revised (i.e. Nodal Protocols, Telemetry Standards, etc.) or related Revision Request number and title. | |
| Revision Description | | Describe the basic function of the Revision Request. | |
| Reason for Revision | | Addresses current operational issues.  Meets Strategic goals (tied to the [ERCOT Strategic Plan](http://www.ercot.com/content/news/presentations/2013/ERCOT%20Strat%20Plan%20FINAL%20112213.pdf) or directed by the ERCOT Board).  Market efficiencies or enhancements  Administrative  Regulatory requirements  Other: (explain)  *(please select all that apply)* | |
| Business Case | | Describe qualitative benefits (Examples: satisfies regulatory requirements, data transparency enhancement, etc.), quantitative benefits (benefit calculations), impacts to market segments and other information relating to the impacts or benefits of the PGRR. | |

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| Sponsor | |
| Name |  |
| E-mail Address |  |
| Company |  |
| Phone Number |  |
| Cell Number |  |
| Market Segment |  |

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| **Market Rules Staff Contact** | |
| **Name** |  |
| **E-Mail Address** |  |
| **Phone Number** |  |

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| Proposed Guide Language Revision |

5.4.2 Full Interconnection Study

(1) An FIS consists of the set of steady-state, dynamic, short-circuit, facility studies, along with other relevant studies that are necessary to determine whether additional Transmission Facilities are needed to reliably interconnect the new or modified Generation Resource to the ERCOT System. The FIS is not intended to determine the deliverability of power from the proposed Generation Resource to market or to ensure that the proposed Generation Resource does not experience any congestion-related curtailment. The FIS is intended to include, among other things, the identification of potential steady-state, dynamic, or short-circuit limits that may impact reliable operation of the ERCOT system, either under normal operating conditions or during transmission outages, and the system conditions that contribute to these limits

(2) The IE must provide the appropriate Stability Modeling Fee and proof of site control.

(3) The IE can request an FIS at any time after ERCOT deems the initial GINR application complete and may request an FIS before the completion of the Security Screening Study. Requesting both studies at the same time may shorten the overall time to complete the GINR process due to overlap of work on both studies.

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

5.4.3 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 GINRs 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). Any modifications to the SSWG base case shall be documented in the FIS.

(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. All facilities necessary to reliably interconnect the proposed generation will be determined and clearly identified in the report for this part of the FIS. Any facility that cannot be constructed or otherwise completed in time to accommodate Initial Synchronization will be identified and reported to the IE along with any likely limitations of generation output that may result.

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

(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 attempting to verify the validity of the anticipated violations.

5.4.5 Dynamic and Transient Stability (Unit Stability, Voltage, Subsynchronous Resonance) Analysis

(1) At the discretion of the TSP(s) or ERCOT, the TSP will perform transient stability studies if necessary to meet NERC Reliability Standards, Protocols, this Planning Guide or the Operating Guides applicable to the Generation Resource or the ERCOT System.

(2) If the TSP(s) in charge of these stability studies decides not to conduct the studies, the TSP(s) must provide a written justification in lieu of the study report. When performing such studies, all existing or publicly committed Generation Resource in the area of the study will normally be represented at full net output, although some Combined Cycle Generation Resources or coal plants might be modeled at full gross output (including auxiliary load). Any resulting increase in generation will be balanced as addressed in the FIS scope agreement.

(3) Stability study base cases shall be formed from the latest available approved SSWG base cases consistent with the most recently approved Dynamics Working Group (DWG) stability data base. The initial transmission configuration in the area of study included in a stability study base case shall be identical to that used in the steady-state studies of the same period. Any previously identified transmission improvements that will not be in service prior to the Commercial Operations Date of the proposed Generation Resource shall not be included in the stability study base case.

(4) Transient stability studies will analyze the performance of the proposed Generation Resource and the ERCOT System in terms of angular stability, voltage stability and excessive frequency excursions. Additional studies may include small signal stability, subsynchronous resonance or critical clearing time analyses where the number of cycles for which a transmission line can sustain a fault without causing loss of synchronism of any of the Resource is compared to the response of the protection systems. Such studies should incorporate reasonable and conservative assumptions regarding plant operating conditions. Proposed analyses shall be identified and defined in the FIS scope agreement.

(5) All stability studies shall be performed in accordance with NERC Reliability Standards, Protocols, this Planning Guide and the Operating Guides, and the results shall identify any additional facilities or other action(s) necessary to ensure conformance with that standard.

(6) For the stability portion of the FIS if the TSP identifies instability (other than instability identified for any extreme events) the following steps will be followed:

(a) The IE and TSP shall investigate the cause and potential solutions through changes to the proposed Generation Resource to resolve the instability, and shall implement such solutions prior to Initial Synchronization.

(b) If solutions through the proposed Generation Resource are not feasible, as determined by ERCOT, to resolve the identified instability the TSP shall identify a transmission improvement to resolve the instability.

(c) The TSP shall attempt to implement the transmission improvement identified in paragraph (b) above, if the IE has a SGIA, has provided financial commitment and notice to proceed with the construction of the interconnection, and the estimated capital cost is less than or equal to $25,000,000 prior to Initial Synchronization. The TSP shall submit the improvement project for ERCOT’s acceptance prior to implementation.

(d) If the estimated capital cost of the transmission improvement is greater than $25,000,000 the TSP shall submit the improvement project for Regional Planning Group review as detailed in Protocol Section 3.11.4, Regional Planning Group Project Review Process once the IE has a SGIA and has provided financial commitment and notice to proceed with the construction of the interconnection.

(e) If the transmission improvement identified in paragraph (b) above cannot be implemented prior to Initial Synchronization, the TSP shall identify generic stability limits and the expected system conditions associated with them in the FIS report or implement a Remedial Action Scheme (RAS) prior to Initial Synchronization.

5.4.5.1 Subsynchronous Resonance Studies

(1) ERCOT shall establish criteria for evaluating SSR studies.

(2) If the Security Screening Study determines that an additional SSR study is required, the interconnecting TSP shall perform the more detailed study for the IE prior to Initial Synchronization. However, to the extent that the IE can demonstrate with sufficient documentation that the Generation Resource is not vulnerable to SSR and has no negative impact to the ERCOT System, then ERCOT and the interconnecting TSP shall determine whether the IE’s documentation obviates the need for the affected TSP to perform the more detailed study. The SSR study shall determine which system configurations create a vulnerability to SSR and endeavor to identify possible measures to mitigate the risk of SSR.

(3) If studies indicate that a design proposal for a proposed Generation Resource is vulnerable to SSR with the ERCOT Transmission Grid, ERCOT shall consult with the IE and any affected interconnecting TSP(s) and may require a mitigation plan as a condition of interconnection of a Generation Resource. ERCOT may require that the TSP(s) mitigate this vulnerability on the ERCOT Transmission Grid and/or the IE mitigate this vulnerability at the generation project prior to Initial Synchronization. ERCOT shall approve all mitigation plans. Any mitigation plan shall be consistent with NERC Reliability Standards, Protocols, this Planning Guide, Nodal Operating Guides, and Other Binding Documents.

5.4.8 FIS Study Report and Follow-up

(1) The TSP(s) will present a preliminary report of its findings and recommendations for each of the study elements to ERCOT and to the other TSP(s) via the confidential Transmission Owner Generation Interconnection email list.

(2) Any questions, comments, proposed revisions, or clarifications by any party shall be made in writing to the TSP(s) within ten Business Days after the issuance of each study report, which may cover one or more study elements. ERCOT can extend this review period by an additional 20 Business Days by notifying the affected TSP(s) and the IE that it needs additional time to review the report.

(3) After considering the information received from ERCOT and other TSPs, the study element(s) report will be deemed complete and a final report shall be provided to ERCOT and all TSPs. The TSP(s) conducting the FIS shall submit the dynamic and transient stability analysis and any sub-synchronous oscillation analysis as separate documents from the remainder of the report. The ten Business Day review period will be used by ERCOT to determine if any transmission upgrades proposed and clearly identified in the Steady-State Study Report need to be submitted to the RPG review process. Protocol Section 3.11, Transmission Planning, provides more information on the process to review transmission upgrades that are unrelated to the direct connection of new or modified generation.

(4) ERCOT shall post to the MIS Secure Area the final study element(s) report within ten Business Days after the study element(s) report has been deemed complete. After being posted, the TSP(s) shall send the final study element(s) report to the IE. Study element(s) reports shall not be sent to the IE prior to being posted to the MIS Secure Area.

(5) The study element(s) report shall not contain sensitive information including, but not limited to, confidential plant design information including stability study model data and parameters and contingencies causing instability. The TSP(s) shall provide this information to ERCOT and other TSP(s) upon request.

(6) The TSP issuing the final FIS element report shall indicate that the report is the final report required by the FIS. At the end of the ten Business Day review period following the issuance of the final FIS element report, the FIS will be deemed complete and the IE and TSP may execute an SGIA. If an economic study of the direct interconnection facilities is required, pursuant to Section 5.4.7, Economic Study, and has not yet been completed, the IE and TSP may agree that the completion of the economic study is not required before the FIS is deemed complete.

(7) Should the IE wish to proceed with the proposed GINR, the IE must execute an SGIA with the respective TSP within 180 days following the completion of the FIS (includes all major study element reports).

(8) If during the time after the FIS is completed, and before Initial Synchronization, changes occur that substantially differ from the assumptions used for the FIS, ERCOT and the TSP(s) shall determine the impact of the changes on the results of the FIS. All changes shall be submitted to ERCOT through the Resource Registration process for a change comparison. If the proposed direct interconnection is negatively affected by the changes, the TSP(s) will make appropriate modifications to the FIS.

5.4.10 Confidentiality

(1) All data, documents or other information regarding the GINR, including the identity of the IE, will remain Protected Information until ERCOT receives written Notice from the IE that this information may be made public or until the IE requests a FIS. Since the FIS scope agreement contains possibly confidential cost estimates and represents an agreement between the IE and the lead TSP, it will remain Protected Information and will not be released to parties other than those who are members of the confidential Transmission Owner Generation Interconnection email list except as required in a court of law or by regulatory authorities having jurisdiction. Once classified as a public project through one of these steps, ERCOT will post on the ERCOT MIS Secure Area the project description, all FIS reports, the results of the economic analysis of direct interconnection facilities costing over $25,000,000, and any information developed throughout the interconnection study process about transmission improvement projects that may be submitted for RPG review as a result of the new generation.

(2) The lead TSP will notify the RPG email list within ten Business Days of the signing of an SGIA when the cost of the direct interconnection facilities is greater than $25,000,000.

***7.1 Planning Data and Information***

(1) The information available on the applicable Market Information System (MIS) (i.e., Public, 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.

| **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 | Secure |
| ERCOT Steady State Planning Contingency Files | Secure |
| ERCOT System Operating Limit (SOL) Methodology | Public |
| Generation Data Forms | Secure |
| Documents Initiating a Generation Interconnection or Change Request | Certified (all TSPs) |
| GINR Security Screening Studies and Supporting Documents | Secure |
| Sub-Synchronous Oscillation Studies and Supporting Documents | Certified (all TSPs) |
| FIS: Steady-State, System Protection, Stability, and Facility Studies and Supporting Documents | Secure |
| IMM and Topology Processor Supporting Documents | Certified (all TSPs) |
| PDCWG Group Documents and Project Files | Certified (PDCWG members) |
| Planning Horizon Transmission Capability Methodology | Public |
| Public Generation Information | Public |
| RAP Review Cases | Certified (all TSPs) |
| RARF Generator Data | Certified (specific Resource Entity) |
| Regional Planning Group Projects | Secure |
| Regional Transmission Plan Postings | Secure |
| Seasonal Voltage Profile Studies | Certified (all TSPs) |
| Special Planning Studies | Secure |
| Steady State Power Flow Base Cases | Secure |
| Steady State Power Flow Case Data | Certified (all TSPs) |
| Steady State Topology Processor Files | Secure |
| Steady State 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) |