|  |
| --- |
| **ERCOT Planning Guide**  **Section 5: Generation Resource Interconnection or Change Request**  **September 1, 2020** |
|  |
|  |
|  |
|  |

[5 GENERATION RESOURCE INTERCONNECTION or Change Request 1](#_Toc23252314)

[5.1 Introduction 1](#_Toc23252315)

[5.1.1 Applicability 1](#_Toc23252316)

[5.1.2 Responsibilities 2](#_Toc23252317)

[5.2 Generation Interconnection Process 3](#_Toc23252318)

[5.2.1 Generation Interconnection or Change Request Application 3](#_Toc23252319)

[5.2.2 Generation Interconnection or Change Request Submission Requirements 4](#_Toc23252320)

[5.3 Full Interconnection Study Request 5](#_Toc23252321)

[5.3.1 Full Interconnection Study Submission Requirements 6](#_Toc23252322)

[5.3.2 Modifications to Request Declarations of Resource Data Accuracy 6](#_Toc23252323)

[5.4 Study Processes and Procedures 8](#_Toc23252324)

[5.4.1 Security Screening Study 8](#_Toc23252325)

[5.4.2 Full Interconnection Study 9](#_Toc23252326)

[5.4.2.1 Full Interconnection Study Process Overview 10](#_Toc23252327)

[5.4.2.2 Full Interconnection Study Elements 11](#_Toc23252328)

[5.4.3 Steady-State Analysis 12](#_Toc23252329)

[5.4.4 System Protection (Short-Circuit) Analysis 13](#_Toc23252330)

[5.4.5 Dynamic and Transient Stability (Unit Stability, Voltage) Analysis 13](#_Toc23252331)

[5.4.6 Facility Study 14](#_Toc23252332)

[5.4.7 Economic Study 15](#_Toc23252333)

[5.4.8 FIS Study Report and Follow-up 15](#_Toc23252334)

[5.4.9 Proof of Site Control 17](#_Toc23252335)

[5.4.10 Confidentiality 17](#_Toc23252336)

[5.5 Interconnection Agreement 18](#_Toc23252337)

[5.5.1 Standard Generation Interconnection Agreement 18](#_Toc23252338)

[5.5.2 Other Arrangements for Transmission Service 18](#_Toc23252339)

[5.5.3 Provisions for Municipally Owned Utilities and Cooperatives 18](#_Toc23252340)

[5.5.4 Notification to ERCOT Concerning Certain Project Developments 19](#_Toc23252341)

[5.6 Intentionally Left Blank 20](#_Toc23252342)

[5.7 Interconnection Data, Fees, and Timetables 20](#_Toc23252343)

[5.7.1 Generation Resource and Settlement Only Generator Data Requirements 20](#_Toc23252344)

[5.7.2 Interconnection Study Fees 23](#_Toc23252345)

[5.7.3 Generation Interconnection and Full Interconnection Study Application Fees 23](#_Toc23252346)

[5.7.4 Full Interconnection Study Fee/Cost 24](#_Toc23252347)

[5.7.5 Interconnection Process Timetables 24](#_Toc23252348)

[5.7.6 Inactive Status 26](#_Toc23252349)

[5.7.7 Cancellation of a Project Due to Failure to Comply with Requirements 27](#_Toc23252350)

[5.8 General and Technical Standards 28](#_Toc23252351)

[5.8.1 Other Standards 28](#_Toc23252352)

[5.8.2 Transformer Tap Position 28](#_Toc23252353)

[5.9 Quarterly Stability Assessment 28](#_Toc23252354)

# 5 GENERATION RESOURCE INTERCONNECTION or Change Request

5.1 Introduction

(1) This Section 5, Generation Resource Interconnection or Change Request, defines the requirements and processes used to facilitate new or modified generation interconnections with the ERCOT System. The requirements outlined in this Section 5 are designed to:

(a) Determine the facilities required to directly interconnect new or modified generation to the ERCOT System;

(b) Ensure that the interconnection of the new or modified generation is accomplished in a manner that maintains the reliability of the ERCOT System and is in compliance with the North American Electric Reliability Corporation (NERC) Reliability Standards, Protocols, this Planning Guide and the Operating Guides;

(c) Increase the quality of communications between Interconnecting Entities (IEs), Transmission Service Providers (TSPs), and ERCOT;

(d) Provide for the best available information on future capacity additions for use in identifying, forecasting, and analyzing both short and long-range ERCOT capabilities, demands, and reserves; and

(e) Provide accurate initial data about the proposed Generation Resource to ERCOT to ensure that ERCOT and stakeholders have the information necessary for planning purposes.

(2) The requirements and processes in this Section 5 conform to all applicable Public Utility Commission of Texas (PUCT) rules, NERC Reliability Standards, Protocols, and provisions in this Planning Guide and the Operating Guides. In the event of a conflict between this Section 5 and any PUCT rules, NERC Reliability Standards, and the Protocols, then such PUCT rules, NERC Reliability Standards, or Protocols shall control.

***5.1.1 Applicability***

(1) The requirements in this Section 5, Generation Resource Interconnection or Change Request, are applicable, to the following:

(a) Any Entity proposing a Generation Resource or Settlement Only Generator (SOG), including a storage device, with an aggregate power output (gross power output minus auxiliary Load directly related to the generator) of ten MW or greater, planning to interconnect to the ERCOT Transmission Grid; or

|  |
| --- |
| ***[PGRR074: Replace paragraph (a) above with the following upon system implementation of NPRR973:]***  (a) Any Entity proposing a Generation Resource or Settlement Only Generator (SOG), including a storage device, with an aggregate power output (gross power output minus auxiliary Load directly related to the generator) measured at the low side of the Main Power Transformer (MPT) of ten MW or greater, planning to interconnect to the ERCOT Transmission Grid; or |

(b) Resource Entities that are seeking to modify a generator or storage device that is connected to the ERCOT Transmission Grid by:

(i) Upgrading the summer or winter Seasonal Net Max Sustainable Rating from that shown in the latest Resource Registration data by ten MW or greater within a single year;

(ii) Change the inverter, turbine, generator, or power converter associated with a facility of ten MW or greater, unless the replacement is in-kind; or

(iii) Changing or adding a Point of Interconnection (POI) to a facility of ten MW or greater.

(2) Interconnection requirements for Settlement Only Distribution Generators (SODGs) and on-site Distributed Generation (DG) that are either (a) one MW or less and not registered with ERCOT or (b) greater than one MW and registered with the PUCT as a self-generator are not subject to this Section 5 but are addressed in P.U.C. Subst. R. 25.211, Interconnection of On-Site Distributed Generation (DG), and P.U.C. Subst. R. 25.212, Technical Requirements for Interconnection and Parallel Operation of On-Site Distributed Generation.

(3) Resource Entities making changes to any Generation Resource or SOG of ten MW or greater should consult ERCOT to determine applicability to the requirements of this Section 5.

5.1.2 Responsibilities

(1) In accordance with this Planning Guide, an IE is responsible for providing generator model and data, adhering to timelines specified herein, analyzing and installing protective Facilities to protect its equipment, and installing Facilities as identified by ERCOT or the interconnecting TSP if required to protect Transmission Elements from hazards created by the proposed Generation Resource.

(2) In accordance with this Planning Guide, ERCOT is responsible for coordinating studies, identifying potential reliability risks to the ERCOT Transmission Grid, and reviewing the proposed Generation Resource design for compliance with any operational standards established in the Protocols, this Planning Guide, Nodal Operating Guides, and Other Binding Documents.

(3) TSPs are responsible for conducting and reviewing Generation Interconnection or Change Requests (GINRs) as described in Section 5.4.2.1, Full Interconnection Study Process Overview.

(4) With respect to Subsynchronous Resonance (SSR) issues, an IE shall be responsible for installing appropriate SSR Countermeasures pursuant to Protocol Section 3.22.1, Subsynchronous Resonance Vulnerability Assessment.

**5.2 Generation Interconnection Process**

(1) The ERCOT generation interconnection process is designed in accordance with P.U.C. Subst. R. 25.198, Initiating Transmission Service, which delegates to ERCOT the responsibility for implementing the transmission interconnection process.

5.2.1 Generation Interconnection or Change Request Application

(1) Any Entity seeking to interconnect or modify a Generation Resource or Settlement Only Generator (SOG) meeting paragraph (1) of Section 5.1.1, Applicability, must submit the required Resource Registration data, in the format prescribed by ERCOT, available on the Market Information System (MIS) Public Area, and pay the applicable fees described in Section 5.7.2, Interconnection Study Fees.

(2) All Generation Interconnection or Change Request (GINR) applications and supporting data submissions and required fees shall be submitted to ERCOT via the applicable generation interconnection process in the online Resource Integration and Ongoing Operations (RIOO) system.

(3) The Interconnecting Entity (IE) shall provide in its GINR application all information necessary to allow for timely development, design, and implementation of any electric system improvements or enhancements required by ERCOT and the Transmission Service Provider (TSP) to reliably meet the interconnection requirements of the proposed Generation Resource or SOG.

|  |
| --- |
| ***[PGRR076: Replace paragraph (3) above with the following upon system implementation:]***  (3) The Interconnecting Entity (IE) shall provide in its GINR application all information necessary to allow for timely development, design, and implementation of any electric system improvements or enhancements required by ERCOT and the Transmission Service Provider (TSP) to reliably meet the interconnection requirements of the proposed Generation Resource or SOG. The proposed Commercial Operations Date for GINRs meeting paragraph (1)(a) of Section 5.1.1 must be at least 15 months after the date the application is submitted or it will not be accepted. If conditions allow, the Commercial Operations Date can be changed after submission. |

(4) ERCOT will return the GINR to the IE within ten days using the online RIOO system if the GINR application fails to include the applicable fees or the information that is necessary to perform the initial screening interconnection studies. The IE will be notified that action is required via a RIOO system automated email.

(5) If the IE fails to respond to ERCOT’s inquiries within ten Business Days, the GINR will be deemed incomplete and returned to the IE using the online RIOO system. The IE will be notified that action is required via a RIOO system automated email.

(6) Once the application has been deemed materially complete, ERCOT will notify the IE of receipt of the completed application using a RIOO system automated email within ten Business Days. The IE should note that this acknowledgement is not a reservation of transmission capacity, either planned or unplanned.

(7) An ERCOT designated point of contact will be assigned to oversee the interconnection study process and answer questions concerning the interconnection process. Once assigned, the ERCOT designated point of contact will contact the IE and will be the primary ERCOT contact for the IE until the IE registers pursuant to paragraph (1) of Protocol Section 16.5, Registration of a Resource Entity. At that time, a Client Services Representative will be assigned and will be the designated point of contact. If during the course of the studies, additional information is needed by ERCOT from the IE, ERCOT will return the GINR to the IE and the IE will have ten Business Days to answer the request for additional information by submitting a change request via the online RIOO system without impacting the study timeline. The IE will be notified that action is required via a RIOO system automated email.

(8) Prior to the initial contact from the ERCOT designated point of contact, IEs should direct questions concerning the generation interconnection or change process to [ResourceIntegrationDepartment@ercot.com](mailto:GINR@ercot.com). All email communication sent to [ResourceIntegrationDepartment@ercot.com](mailto:GINR@ercot.com) shall include the associated project identification number (INR number) in the subject field. If the communication is not specific to a project, the email subject field shall have the words “Generation Interconnection or Change Request.”

(9) If proposed, Generation Resources or SOGs that would use the same physical transmission interconnection are to be built in stages with in-service dates more than one year apart, each stage should be treated as a separate interconnection request but may be included in the same study.

5.2.2 Generation Interconnection or Change Request Submission Requirements

(1) In order to consider the GINR, a Generation Interconnection Fee shall be submitted to ERCOT as part of the GINR application as prescribed in Section 5.2.1, Generation Interconnection or Change Request Application. The Generation Interconnection Fee is non-refundable.

(2) ERCOT will assign a unique project identification number (INR number) to all GINRs according to the following convention:

**yrINRxxxx**

where: yr is the calendar year the generation is anticipated to be online

INR indicates interconnection request

xxxx is a sequence number beginning with 0001 (reset for each year)

(3) All correspondence relating to a specific GINR, up to the commissioning of the Generation Resource or SOG, shall reference the unique project identification number once it has been assigned by ERCOT.

5.3 Full Interconnection Study Request

(1) Any Interconnecting Entity (IE) seeking a Full Interconnection Study (FIS) for interconnection to the ERCOT System must submit the following to ERCOT:

(a) A change request via the online Resource Integration and Ongoing Operations (RIOO) system requesting to proceed with the FIS;

(b) Resource Registration data in the format prescribed by ERCOT with applicable information required for interconnection studies identified in the Resource Registration Glossary;

(c) A Full Interconnection Study Application Fee as prescribed in Section 5.7.3, Generation Interconnection and Full Interconnection Study Application Fee;

(d) Proof of site control as described in Section 5.4.9, 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 and requested an informal or formal review as described in 32 C.F.R. § 211.1 (2013); or

(ii) The IE’s proposed Generation Resource 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 (2010).

(2) Transmission Service Providers (TSPs) may charge additional fees for their interconnection studies.

(3) All FIS requests and supporting data submissions shall be entered via the online RIOO system.

(4) The ERCOT designated point of contact will initiate an FIS study scope meeting between the TSP(s) and the IE. If during the course of the studies, additional information is needed by ERCOT from the IE, ERCOT will return the Generation Interconnection or Change Requests (GINR) to the IE and the IE will have ten Business Days to answer the request for additional information without impacting the study timeline. The IE will be notified that action is required via a RIOO system automated email.

5.3.1 Full Interconnection Study Submission Requirements

(1) When an FIS is requested, a Full Interconnection Study Application Fee must be submitted to ERCOT as prescribed by Section 5.7.3, Generation Interconnection and Full Interconnection Study Application Fee. The Generation Interconnection and Full Interconnection Study Application Fee is non-refundable. The IE must comply with the fee requirements before the FIS request can be submitted to ERCOT. See Section 5.7.2, Interconnection Study Fees, for information regarding accepted methods of payment for fees.

(2) All design data shall be submitted via the online RIOO system.

(3) The IE shall submit the Resource Registration data as specified in Section 5.7.1, Generation Resource and Settlement Only Generator Data Requirements, and as defined in the Resource Registration Glossary.

(4) The Resource Registration data and all updates shall be submitted by the IE via the online RIOO system. This information will be used by ERCOT and the TSP(s) in the FIS. The TSP may request additional information necessary to perform the FIS from the IE directly. The IE must provide this information via the online RIOO system in order to facilitate the completion of the FIS in a timely manner.

(5) Resource Registration data required for the FIS shall accurately reflect the design of the facility.

5.3.2 Modifications to Request Declarations of Resource Data Accuracy

(1) The IE shall maintain communication with ERCOT and the assigned TSP at all stages of the generation interconnection process by updating its contact information for the GINR process and in the Resource Registration process. Failure to do so may result in GINR cancellation as described in Section 5.7.7, Cancellation of a Project Due to Failure to Comply with Requirements. As soon as possible, but no later than ten Business Days after any relevant change, the IE shall submit a change request via the online RIOO system to communicate any revisions that would affect the technical attributes and/or timeline of the project. The TSP will receive a RIOO system automated email when ERCOT reviews and acknowledges the change.

(2) The IE shall update the Resource Registration data as soon as possible, but no later than ten Business Days, following any change to the proposed facility and shall submit the updated information via the online RIOO system. This obligation to update continues even after any interconnection agreement is signed.

(3) Twice each year, each IE that has submitted an FIS request shall submit via the online RIOO system, for each proposed facility, the declaration in Section 8, Attachment A, Declaration of Resource Data Accuracy, stating that, as of the date of submission, the most recently submitted data on the current version of the Resource Registration form accurately reflects the anticipated characteristics of the proposed Resource and that the contact information is correct. The declaration shall be executed by an officer or other person having authority to bind the company and shall be submitted via the online RIOO system. Each IE shall submit one declaration for each project no earlier than March 1 and no later than March 15 each year, and shall submit another declaration for each proposed facility no earlier than September 1 and no later than September 15 each year. Failure to submit a declaration may result in a GINR cancellation as described in Section 5.7.7.

(4) If, after receipt of updated Resource Registration data, ERCOT or the TSP determines that any subsequent changes to the project may affect the reliable operation of the ERCOT System or otherwise warrant new studies, then ERCOT may require additional studies to be performed before the proposed Generation Resource or Settlement Only Generator (SOG), is allowed to interconnect to the ERCOT System. The IE and TSP(s) shall develop a schedule for completing the additional studies. The TSP shall provide the FIS studies to ERCOT and the other TSPs via the online RIOO system. If these additional studies show that the project would not meet the operational standards specified in the Protocols, this Planning Guide, the Operating Guides, or Other Binding Documents, ERCOT may require the IE to demonstrate its compliance with these standards as a condition for energization of the proposed Generation Resource or SOG.

(5) If the IE increases the requested amount of capacity of the proposed Generation Resource or SOG by more than 20% of the amount requested in the initial application, ERCOT shall require the IE to submit a new GINR for the additional capacity or for the entire project. ERCOT may, at its discretion, require the IE to submit a new GINR for significant capacity decreases or capacity increases of less than 20%, particularly if other changes to the request are also made, such as changes to the Commercial Operations Date. ERCOT’s determination as to whether new studies are needed in no way affects the ongoing obligations of the IE and TSP to comply with North American Electric Reliability Corporation (NERC) Reliability Standards, Protocols, this Planning Guide and the Operating Guides.

(6) Within ten Business Days, the IE shall notify ERCOT and the relevant TSP(s) of any change in ownership and shall provide conclusive documentary evidence of the ownership change (such as a purchase/sale agreement or a document executed by both parties confirming the transaction) via the online RIOO system. TSPs will receive a RIOO system automated email when ERCOT reviews and acknowledges the change. The new owner shall acknowledge the sale by submitting the Resource Registrations data showing the contact information for the new owners within 60 days. Failure to do so may result in a GINR cancellation as described in Section 5.7.7.

(7) To support ERCOT resource adequacy and NERC reliability assessment reporting requirements, the IE shall enter into the online RIOO system the following information for the proposed Generation Resource or SOG as soon as possible, but in no event later than ten Business Days after the information is available or has been updated:

(a) Revisions to the initial projected Commercial Operations Date;

(b) Notification if any required air permits have been issued or permit applications have been withdrawn; and

(c) Notification and dates for when generator construction has commenced or been completed.

5.4 Study Processes and Procedures

5.4.1 Security Screening Study

(1) For each Generation Interconnection or Change Request (GINR), 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 applicable under Section 5, Generation Resource Interconnection or Change Request, will be assessed pursuant to Protocol Section 3.22.1.2, Generation Resource Interconnection Assessment.

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

(2) The results of the Security Screening Study will provide an indication of the level at which the proposed Generation Resource can expect to operate simultaneously with other known Generation Resources 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 GINR process, and in accordance with the Protocols, all data, documents, and other information required by ERCOT from an IE related to a request for GINR 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 GINRs 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 a Full Interconnection Study (FIS), otherwise ERCOT shall consider the GINR withdrawn by the IE. ERCOT will begin initiation and coordination of the FIS only after receiving this Notification from the IE. 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 GINR 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.

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 the reliability impact on affected Transmission Facilities and identify the Transmission Facilities that are needed to reliably interconnect the new or modified Generation Resource to the ERCOT System, in accordance with the Planning Guide. 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.

(2) The IE must provide the appropriate Full Interconnection Study Application Fee and proof of site control. IEs are not required to resubmit proof of site control for GINRs meeting paragraph (1)(b) of Section 5.1.1, Applicability.

(3) The IE can request an FIS at any time after ERCOT deems the initial GINR application complete, which can be before completion of the Security Screening Study, but must respect the timeline set forth in paragraph (5) of Section 5.4.1, 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.

5.4.2.1 Full Interconnection Study Process Overview

(1) Within ten Business Days of receiving notice to proceed with an FIS, proof of site control, if required, and the correct fee(s) from the IE, ERCOT will designate a TSP to lead the FIS and will contact that TSP to schedule an FIS scope meeting. ERCOT will select the lead TSP based upon a preliminary analysis of the most likely POI. If an IE has previously developed a generation project in ERCOT with the selected TSP, the IE, ERCOT, and the TSP may agree to forgo the scope meeting. If they so agree, the timeline for the IE and TSP to reach agreement on the FIS scope will start on the date ERCOT notifies the TSP of the IE’s decision to proceed with the FIS.

(2) Notification of the FIS to all other TSP(s) will be provided via the online RIOO system. It is the responsibility of each TSP to determine if the proposed project would have a material impact on its Transmission Facilities and to decide whether and to what extent it should participate in the FIS.

(3) Each TSP desiring to participate in the FIS shall promptly notify the lead TSP via email to the lead TSP. The lead TSP must include all interested TSPs in the FIS to the extent such involvement is reasonable.

(4) At the FIS scope meeting, the IE will present the proposed GINR and ERCOT will review the results of the Security Screening Study. The lead TSP will facilitate a general discussion of the preliminary study scope of work for the FIS.

(5) Pursuant to Protocol Section 3.22.1.2, Generation Resource Interconnection Assessment, in the event that the Security Screening Study performed by ERCOT identifies a possible SSR risk, ERCOT or the affected TSP(s) may require additional SSR studies be performed and may require an IE to provide additional detailed modeling data on the proposed Generation Resource in support of these studies. The SSR studies shall be scoped at the same time as the FIS but do not need to be included as part of the FIS.

(6) The IE and the TSP(s) must reach agreement on the FIS scope and sign the FIS study agreement within 60 days of the FIS kickoff meeting. The assistance of more than one TSP may be required in areas where Transmission Facilities are provided by multiple TSPs. In these cases it may be necessary for the IE to execute study agreements with multiple TSPs.

(7) The FIS scope agreement must include all assumptions, timetables, study cost estimates and payment schedules, and the determination of all requirements for interconnection.

(a) The FIS must include all studies required by this section. The IE and the TSP(s) shall consider the Security Screening Study and other preliminary studies and documents provided by the IE when developing the FIS scope. The IE and TSP(s) may divide the FIS into distinct study phases, each requiring IE approval to proceed.

(b) The requirement for one or more FIS studies may be waived for GINRs meeting paragraph (1)(b)(ii) of Section 5.1.1, Applicability, if mutually agreed upon by ERCOT and the TSP(s). In order to aid in the determination of whether or not FIS study waivers are appropriate, ERCOT and the TSP(s) may request additional data and information from the IE beyond what is required by Section 5.3.1, Full Interconnection Study Submission Requirements, and Section 5.7.1, Generation Resource and Settlement Only Generator Data Requirements.

(8) The TSP(s) shall submit the FIS scope document via the online RIOO system. The online RIOO system will provide notification via an automated email to ERCOT and other TSP(s) of availability of the FIS scope document for review and comment. Comments must be made within ten Business Days.

(9) If the IE and TSP(s) cannot agree to the FIS study scope within the 60-day period, ERCOT will attempt to mediate an agreement. If mediation is unsuccessful, ERCOT will consider whether the IE’s GINR should be terminated. If the request is terminated, the IE will be required to file a new GINR and pay all appropriate fee(s) for any new generation project.

5.4.2.2 Full Interconnection Study Elements

(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 study scope agreement. The primary purpose of the FIS is to determine the most effective and efficient manner in which to achieve the proposed GINR 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 Generation Resource or Settlement Only Generator (SOG) 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 scope agreement.

(3) The FIS process includes developing and analyzing various computer model simulations of the existing and proposed ERCOT generation/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 also 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 reserve the right to 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.

(7) All studies undertaken will be performed in compliance with all applicable Public Utility Commission of Texas (PUCT) rules, NERC Reliability Standards, Protocols, this Planning Guide and the Operating Guides, Good Utility Practice, and the guidelines below unless otherwise directed by ERCOT.

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). 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. 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 evaluate the validity of the anticipated violations.

5.4.4 System Protection (Short-Circuit) Analysis

(1) The FIS scope agreement will specify locations where available short-circuit fault duty will be identified, calculated, and documented.

(2) If any of the required transmission system facilities identified in the FIS facility study associated with the GINR result in violations of the TSP’s short circuit criteria, the TSP shall plan and provide facilities to address such violations. The TSP will determine the maximum available fault currents at the interconnection substation for determining switching device interrupting capabilities and protective relay settings.

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

(1) At the discretion of the TSP(s) or ERCOT, the lead TSP(s) 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. If the lead TSP(s) conducting a stability study decides such study is not required, the lead TSP(s) shall provide a written justification in lieu of the study report.

(2) When performing such studies, all operational and planned Generation Resources which have met the requirements of Section 6.9, Addition of Proposed Generation to the Planning Models, in the area of the study shall be dispatched at full net output in at least one of the scenarios/cases evaluated by the lead TSP. The dispatch level may be reduced to respect any published stability limits or to reach a power flow solution. If any Generation Resources in the study area are not dispatched at full output, the study report shall include the technical rationale. 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 Initial Synchronization 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 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. The stability study portion of the FIS shall document any instability identified through performance of the study.

(6) If the TSP identifies instability (other than instability identified for extreme events) in the stability portion of the FIS, the following steps will be taken subsequent to the FIS being deemed complete and posted in the Market Information System (MIS) Secure Area in accordance with Section 5.4.8, FIS Study Report and Follow-up:

(a) The IE and TSP shall investigate alternative solutions to resolve the instability through changes to the proposed Generation Resource and report their findings to ERCOT. If changes to the Generation Resource are determined by ERCOT to be feasible, the IE shall implement the changes prior to Initial Synchronization.

(b) If ERCOT determines that changes to the proposed Generation Resource are not feasible to resolve the identified instability, ERCOT shall notify the TSP and IE, and the TSP shall investigate a transmission improvement to resolve the instability and report their findings to ERCOT.

(c) If ERCOT determines that a proposed transmission improvement is feasible to resolve the identified instability, the TSP shall proceed with implementing the transmission improvement, in accordance with Protocol Section 3.11.4, Regional Planning Group Project Review Process, identified in paragraph (6)(b) above after the requirements of Section 6.9 have been met for the proposed Generating Resource.

(d) If the transmission improvement identified in paragraph (6)(b) or (c) above cannot be implemented prior to Initial Synchronization, ERCOT shall determine the appropriate operating limit, including evaluating the feasibility of a proposed Remedial Action Scheme (RAS) that may mitigate the limit, in accordance with Section 5.9, Quarterly Stability Assessment, prior to Initial Synchronization.

5.4.6 Facility Study

(1) At a minimum, the facility study provides complete details and estimated cost of the facility requirements for the direct interconnection of the proposed Generation Resource project to the TSP.

(2) The facility study will provide conceptual design descriptions, construction milestones, and detailed cost estimates for all direct interconnection-related transmission and substation facilities proposed to be installed in accordance with the findings and recommendations of the FIS.

5.4.7 Economic Study

(1) ERCOT shall perform an independent economic analysis of the transmission projects that are identified through this process as being needed for the direct connection of the proposed Generation Resource and that are expected to cost more than $25,000,000. This economic analysis is performed only for informational purposes, and no ERCOT endorsement will be provided.

(2) If the lead TSP determines that the costs of the recommended direct interconnection facilities for the proposed Generation Resource are expected to exceed $25,000,000, the lead TSP will submit a change request via the online RIOO system to communicate this finding to ERCOT and other TSP(s) within ten Business Days of such determination. This communication will include all available information upon which that finding is based, including but not limited to:

(a) A description of the direct interconnection facilities;

(b) Information necessary to modify a power-flow case to include those facilities;

(c) Any information obtained from the IE that would be helpful in modeling the proposed Generation Resource for the study; and

(d) The estimated cost of the facilities.

(3) The IE shall provide to ERCOT any requested information necessary to accurately represent the Generation Resource in the economic study.

(4) ERCOT will generally complete this economic study within 90 days, and will inform the TSP(s) and IE if additional time is required. ERCOT will provide the results of the economic study to the IE and to the TSP(s) via the online RIOO system.

5.4.8 FIS Study Report and Follow-up

(1) The TSP(s) will submit to ERCOT and to the other TSP(s) via the online RIOO system a preliminary report of findings and recommendations for each of the FIS study elements.

(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 and an email will be sent to notify 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, via the online RIOO system, to ERCOT and all TSPs. The TSP(s) conducting the FIS shall submit via the online RIOO system, the sub-synchronous oscillation analysis, if required, as a separate document 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) The final study element(s) report will be available via the online RIOO system after the report has been deemed complete and marked “final”. The final reports will be posted to the MIS Secure Area within ten Business Days. Separate reports should be created by TSPs for either each FIS study element or, at a minimum, the stability report so that the final FIS study element reports can be posted to the MIS Secure Area. Coincident with posting of the final FIS study element reports to the MIS Secure Area, ERCOT will notify the TSP and the IE when each study element report is posted. The TSP shall provide a copy of each final report to the IE upon request.

(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(s) 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(s) 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(s) reports). Failure to do so may result in a GINR cancellation as described in Section 5.7.7, Cancellation of a Project Due to Failure to Comply with Requirements.

(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 and, if applicable, SSR studies. All IE changes shall be submitted to ERCOT through the applicable process for a change comparison. If the changes are determined by ERCOT and lead TSP(s) to have the potential to materially alter the conclusions documented in the FIS, the lead TSP(s) will make appropriate modifications to one or more FIS study elements. The updated FIS reports will be submitted via the online RIOO system. 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 an updated study report. Initial Synchronization of the Generation Resource or SOG may be delayed pending completion of these modifications to the FIS.

5.4.9 Proof of Site Control

(1) Before ERCOT will proceed with the initiation of an FIS, the IE must submit to ERCOT proof of site control. To establish proof of site control, 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 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 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 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 interconnection is sought.

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

(3) The IE must maintain site control throughout the duration of the FIS and until execution of an SGIA. Otherwise, ERCOT will consider the GINR 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.

5.4.10 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 an 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 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 make available via the online RIOO system 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 via email within ten Business Days of the signing of an SGIA when the cost of the direct interconnection facilities is greater than $25,000,000.

5.5 Interconnection Agreement

5.5.1 Standard Generation Interconnection Agreement

(1) If the Interconnecting Entity (IE) decides to proceed with the construction and completion of the proposed generation project and interconnection within the 180-day period following the completion of the Full Interconnection Study (FIS), it shall execute a Standard Generation Interconnection Agreement (SGIA) with its respective Transmission Service Provider (TSP) as a condition for obtaining transmission service, as required by P.U.C. Subst. R. 25.195, Terms and Conditions for Transmission Service. The IE and the TSP shall use the SGIA. A template of the SGIA can be found on the ERCOT website.

(2) Before an SGIA is signed, all studies included in the FIS scope must be completed, unless mutually agreed by the IE and the TSP. In the event the IE and the TSP agree to sign an SGIA prior to the completion of all studies included in the FIS scope, the TSP shall notify ERCOT. The IE and TSP must meet and maintain compliance with all North American Electric Reliability Corporation (NERC) Reliability Standards, Protocols, and the requirements of this Planning Guide and the Operating Guides concerning interconnection.

(3) ERCOT does not participate in the IE’s and TSP’s negotiation of the SGIA.

5.5.2 Other Arrangements for Transmission Service

(1) In certain situations, the IE and the TSP may agree to allow the TSP to begin design or construction of facilities prior to the execution of the SGIA, or to allow the IE to delay issuing a Notice to proceed until sometime after the SGIA is signed. The TSP shall submit documentation of any alternative arrangements of this type to ERCOT within ten Business Days of executing the alternative arrangement.

5.5.3 Provisions for Municipally Owned Utilities and Cooperatives

(1) A Municipally Owned Utility (MOU) or Electric Cooperative (EC) developing a proposed Generation Resource that will interconnect to its own transmission system is not required to execute an SGIA. However, an MOU or EC must execute an SGIA if its proposed Generation Resource would interconnect with another TSP’s facilities.

(2) A letter from a duly authorized official from the MOU or EC confirming the Entity’s intent to construct and operate the proposed Generation Resource will be deemed by ERCOT to be sufficient as a public commitment by the MOU or EC and will have the same impact as an SGIA for all purposes.

5.5.4 Notification to ERCOT Concerning Certain Project Developments

(1) The following submissions shall be provided to ERCOT via the online Resource Integration and Ongoing Operations (RIOO) system:

(a) The TSP must submit a change request via the online RIOO system within ten Business Days upon completion of the following events:

(i) Signing of the FIS study scope agreement; and

(ii) Funding of the FIS study scope agreement.

(b) The TSP must submit a change request via the online RIOO system to transmit a copy of the signed SGIA to ERCOT within ten Business Days of execution.

(c) The TSP must submit a change request via the online RIOO system within ten Business Days of execution, a copy of any financially binding agreement between the IE and the TSP under which the interconnection for a Generation Resource will be constructed.

(d) The TSP must submit a change request via the online RIOO system within ten Business Days after it receives both a notice to proceed with construction of the interconnection for the Generation Resource and the financial security sufficient to fund the interconnection facilities pursuant to either agreement addressed in items (b) or (c) above.

(e) An MOU or EC must submit a change request via the online RIOO system confirming the Entity’s intent to construct and operate a proposed Generation Resource and interconnect such Generation Resource to its own transmission system.

(f) Except for IEs proposing to interconnect Generation Resources powered by wind or photovoltaic solar energy, the IE must submit a change request via the online RIOO system to provide Section 8, Attachment B, Declaration of Adequate Water Supplies, for each proposed Generation Resource within ten Business Days of securing the relevant water supply rights, or, for Resources that do not require a water supply right to operate (other than wind or photovoltaic solar), within ten Business Days of executing the SGIA.

5.6 Intentionally Left Blank

5.7 Interconnection Data, Fees, and Timetables

5.7.1 Generation Resource and Settlement Only Generator Data Requirements

(1) The Interconnecting Entity (IE) shall submit with its Generation Interconnection or Change Request (GINR) the most current actual facility information (generation, substation, and transmission/subtransmission if applicable) or best available expected performance data for the physical and electrical characteristics of all proposed facilities (in sufficient detail to provide a basis for modeling) up to the Point of Interconnection (POI) with a Transmission Service Provider (TSP).

(2) Failure to supply the required data may delay ERCOT processing of the interconnection application and studies and result in a GINR cancellation as described in Section 5.7.7, Cancellation of a Project Due to Failure to Comply with Requirements. Recommendations resulting from these studies that are based on outdated, false, or bad data may adversely affect the safety and reliability of the ERCOT System and can result in damage to generation or transmission equipment. The IE and subsequently, the Resource Entity associated with any approved Generation Resource or Settlement Only Generator (SOG), must promptly submit any updates to ERCOT to ensure the long-term adequacy, reliability, and safety of the ERCOT System, as required by the Protocols, this Planning Guide, the Operating Guides, and North American Electric Reliability Corporation (NERC) Reliability Standards. Failure to comply may result in financial penalties.

(3) In an effort to produce the best available Security Screening Study and Full Interconnection Study (FIS), ERCOT suggests that IEs begin collecting all appropriate engineering and equipment data from manufacturers as soon as the IE selects its major equipment for the proposed project.

(4) While the duty to update data may require additional information, at a minimum, the IE shall submit the following data via the online Resource Integration and Ongoing Operations (RIOO) system at each step of the process:

(a) Application and Security Screening Study:

(i) Generation Entity Information Sheet; and

(ii) Generation Interconnection Screening Study Request Data.

(b) FIS:

(i) Updates to the above information (if necessary);

(ii) Applicable data required for interconnection studies as defined in the Resource Registration Glossary applicable to the resource type; and

(iii) The appropriate dynamic model for the proposed Generation Resource or SOG and results of model quality tests and associated simulation files as described in paragraph (5)(b) of Section 6.2, Dynamics Model Development, are subject to performance and usability verification by the lead TSP with approval from ERCOT through the FIS process. Dynamic model data shall be provided utilizing the appropriate dynamic model template to enable the TSP(s) and ERCOT to perform stability (transient and voltage) analyses. 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 ERCOT standard models (Siemens/PTI PSS/E and Powertech Labs Inc. TSAT, VSAT and SSAT). 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 both software packages. It is recommended that generation owners and developers encourage manufacturers and software vendors to work together to develop and maintain these important models.

(iv) The IE and the TSP shall coordinate with one another for the IE to complete the reactive study and for the TSP to have the needed data to start the FIS stability study.

(A) The TSP shall send the preliminary short circuit current for the proposed POI based on the most recent System Protection Working Group (SPWG) base case to the IE within 15 Business Days of an IE request after the FIS study agreement has been signed.

(B) The IE shall complete a preliminary reactive study to determine the reactive devices that will be needed to meet ERCOT requirements. Once determined, the IE shall add the reactive devices, if any, to the Resource Registration data and make the updated data available to ERCOT and the TSP via the online RIOO system.

(C) The TSP shall start the FIS stability study after all the required data is available via the online RIOO system.

(v) Once the TSP has completed the FIS short circuit study and it is approved by ERCOT and posted to the Market Information System (MIS) Secure Area, the IE shall complete and submit the final reactive study via the online RIOO system.

|  |
| --- |
| ***[PGRR076: Insert item (vi) below upon system implementation:]***  (vi) For GINR projects attempting to meet the next quarterly stability assessment deadline, pursuant to Section 5.9, Quarterly Stability Assessment, ERCOT shall approve or comment on the final reactive study according to the following timeline:  (A) Within 15 days if submitted at least 45 days before the quarterly stability assessment deadline. Resubmissions submitted 30 days or more before the quarterly stability assessment deadline will be reviewed and returned within ten days;  (B) On the day of the quarterly stability assessment deadline if submitted 30 to 44 days prior to the quarterly stability assessment deadline; or  (C) Without guarantee that it will be reviewed prior to the quarterly stability assessment deadline if submitted less than 30 days prior to the quarterly stability assessment deadline. |

(c) Prior to start of construction:

(i) Any significant design changes in the generator(s) or main power transformer(s) of the proposed Generation Resource or SOG shall be provided to ERCOT and the TSP to ensure compatibility with the existing transmission system.

|  |
| --- |
| ***[PGRR074: Replace item (i) above with the following upon system implementation of NPRR973:]***  (i) Any significant design changes in the generator(s) or Main Power Transformer(s) (MPT(s)) of the proposed Generation Resource or SOG shall be provided to ERCOT and the TSP to ensure compatibility with the existing transmission system. |

(d) Prior to the Resource Commissioning Date:

(i) Registration and official Resource Registration data submittal pursuant to Section 6.8.2, Resource Registration Process;

(ii) Updates to Resource Registration data based on “as-built” or “as-tested” data in all cases; and

(iii) Proof of meeting ERCOT requirements (reactive, Voltage Ride-Through (VRT), dynamic models, Power System Stabilizer (PSS), Subsynchronous Resonance (SSR) models).

(e) During continuing operations:

(i) The IE shall provide ERCOT and the TSP with any equipment data changes which result from equipment replacement, repair, or adjustment. Unless otherwise required in the Protocols, this Planning Guide or the Operating Guides, the IE shall provide such data to ERCOT and the TSP no later than 60 days prior to the date of the actual change in equipment characteristics or during annual data update filings whichever occurs first. This requirement shall also apply to all future owners throughout the service life of the project/plant.

5.7.2 Interconnection Study Fees

(1) P.U.C. Subst. R. 25.198, Initiating Transmission Service, states in part that the customer requesting transmission service shall be responsible for all costs associated with the completion of the Security Screening Study and the FIS.

(2) All fees payable to ERCOT shall be made via the online RIOO system using Automated Clearing House (ACH) E-Checks or credit card.

5.7.3 Generation Interconnection and Full Interconnection Study Application Fees

(1) The ERCOT Generation Interconnection Fee is a non-refundable fee associated with each specific interconnection request. The amount of this fee is listed in the ERCOT Fee Schedule of the Protocols.

(a) The appropriate Generation Interconnection Fee must be remitted for each GINR (i.e., each individual interconnection location, Commercial Operations Date, and additional Generation Resource capacity at this specific interconnection location) at the time the application is submitted to ERCOT.

(b) The appropriate Generation Interconnection Fee is based upon the MW capacity of the proposed or existing Generation Resource or SOG associated with the GINR.

(c) Any waiver of the requirement for a Security Screening Study as described in Section 5.4.1, Security Screening Study, does not negate the requirement for, nor reduce the amount of, the appropriate Generation Interconnection Fee to be remitted.

(2) The ERCOT Full Interconnection Study Application Fee is a non-refundable fee paid directly to ERCOT when an FIS is requested.

(a) The amount of this fee is listed in the ERCOT Fee Schedule of the Protocols and is based on either:

(i) The MW of additional installed capacity for GINRs not meeting paragraph (1)(b)(ii) of Section 5.1.1, Applicability; or

(ii) Total MW capacity for GINRs meeting paragraph (1)(b)(ii) of Section 5.1.1.

(b) This fee will reimburse ERCOT for the development of stability software models for each proposed Generation Resource and allow for continually updating current models as new equipment changes are made.

(c) Payment of this fee to ERCOT does not release an IE from its obligation to provide ERCOT accurate and appropriate stability software models and data (including load data) for each of its proposed generation plants.

5.7.4 Full Interconnection Study Fee/Cost

(1) The FIS fee/cost shall be paid directly to the TSP(s) completing the studies associated with the FIS by the IE. The fee/cost will be agreed on and specified in the study scope agreement. The TSP(s) shall directly invoice the IE for the reasonable costs associated with undertaking and completing the FIS.

(2) ERCOT recommends that the Generation Resource and the TSP provide for a payment methodology and include a cancellation provision in the FIS scope agreement.

(3) If the IE cancels the proposed Generation Resource via the online RIOO system during the term of the FIS, the online RIOO system will immediately notify ERCOT and TSPs.

(4) The IE is responsible for all costs associated with any work performed or non-cancelable commitments made prior to notifying ERCOT and the TSP(s) of the termination date of the project. ERCOT highly recommends the TSP(s) receive the study fee before proceeding with work.

5.7.5 Interconnection Process Timetables

(1) P.U.C. Subst. R. 25.198, Initiating Transmission Service, provides deadlines for ERCOT and TSP(s) to complete and report on the required interconnection studies provided that the IE submits all required data and appropriate fee(s). Therefore, the IE must ensure that ERCOT and the TSP(s) performing these studies receive all required data in order to establish reasonable study models and assumptions that provide meaningful results and recommendations for interconnecting the proposed generating project.

(2) Because the FIS is generally the critical path item in the GINR process, ERCOT recommends that a timetable for the FIS be developed and included in the study scope agreement. In addition, major improvements to the transmission system resulting from interconnection requests should be identified as early in the process as possible so project validity can be considered before the parties go forward with extensive interconnection studies. Once the FIS is underway, the parties may determine whether an adjustment to the original estimated completion date is necessary. Should a schedule adjustment become necessary, the parties must provide Notice to ERCOT and the TSP(s) as soon as practicable, indicating the revised expected completion date.

(3) The following timetable complies with P.U.C. Subst. R. 25.198. It is intended to serve as a guideline only and the times stated are not requirements unless stated elsewhere in this section. If the number of days shown is less than 30, these are Business Days; if the number of days shown is 30 days or more, these are calendar days.

| Task | Responsible Entity | Time Required to Complete |
| --- | --- | --- |
| Acknowledgement of GINR Application | ERCOT | 1 to 10 Business Days |
| Notification of Additional Information Needed to Complete Application | ERCOT | 1 to 10 Business Days |
| Perform Security Screening Study (after application is deemed complete) | ERCOT | 10 to 90 days |
| Decision to Pursue FIS (following issuance of Security Screening Study by ERCOT) | IE | Up to 180 days |
| Develop Scope Agreement for FIS (following IE’s Notification to ERCOT of desire for FIS and remittance of appropriate fees) | IE, ERCOT, and TSP(s) | Up to 60 days |
| Perform FIS (following agreement on scope) |  | 40 to 300 days |
| *Steady-State and Transfer Analysis* | TSP(s) | 10 to 90 days |
| *System Protection Analysis (following Steady-State Analysis)* | TSP(s) | 10 to 30 days |
| *Dynamic and Transient Stability Analysis (following System Protection Study)* | TSP(s) | 10 to 90 days |
| *Facility Study* | TSP(s) | 10 to 90 days |
| *SSR* | TSP(s) | 60 to 180 days |
| Study Report Review and Acceptance (following issuance of FIS) | ERCOT, and TSP(s) | 10 to 15 Business Days |
| FIS Posted to Market Information System (MIS) | ERCOT | Within 10 days of being deemed complete |
| Report stability resolution findings to ERCOT | TSP | Within 90 days |
| Negotiate and Execute Standard Generation Interconnection Agreement  (SGIA) (following acceptance of FIS) | IE and TSP | 180 days |

5.7.6 Inactive Status

(1) A proposed Generation Resource or SOG, shall be given the status of “Inactive” if the Resource has not met the conditions for inclusion in the ERCOT planning models, as specified in Section 6.9, Addition of Proposed Generation to the Planning Models, within two years of the date on which ERCOT posts the final FIS studies for the proposed Generation Resource or SOG to the MIS Secure Area. An IE may also elect “Inactive” status for any proposed Generation Resource or SOG. For any study or process in progress when the IE elects “Inactive” status, the Entity doing the study or process may, at its own discretion, stop work on the study, not include the Generation Resource or SOG in the study, or discontinue any process.

(2) If a proposed Generation Resource or SOG had met the requirements of Section 6.9 and is included in the planning models prior to the status change to “Inactive”, the proposed Generation Resource or SOG shall be removed from the planning models.

(3) When a proposed Generation Resource or SOG with the status of “Inactive” meets the conditions to be given the status of “Planned”, if it meets the requirements of Section 6.9, it shall be added to the planning models. If the proposed Generation Resource or SOG does not meet the requirements of Section 6.9 and at least two years have elapsed since the date any one or more of the studies in the most recent FIS was posted to the MIS Secure Area, any such FIS studies may need to be performed again. ERCOT and the TSP(s) shall determine if the results of the FIS studies that are posted on the MIS are still valid.

(4) For any proposed Generation Resource or SOG with the status of “Inactive”, the IE associated with the project shall not be required to submit the semiannual attestation or any other information that would otherwise be required under this Planning Guide and ERCOT shall exclude the Resource’s capacity from each monthly Generator Interconnection Status report that is issued while the IE is in “Inactive” status.

(5) If a project has been “Inactive” for five years, ERCOT may cancel the project pursuant to Section 5.7.7, Cancellation of a Project Due to Failure to Comply with Requirements. At any time prior to cancellation of its project, an IE may submit a request to terminate the project’s “Inactive” status and return the project to “Planned” status if ERCOT determines that the IE has provided complete and updated project information.

(6) If the project is moving from “Inactive” status to “Planned” status, and if two years or more have elapsed since ERCOT posted the FIS studies to the MIS Secure Area, the IE will restart FIS process for the project, unless ERCOT notifies the IE in writing that such studies are unnecessary.

5.7.7 Cancellation of a Project Due to Failure to Comply with Requirements

(1) If at any time ERCOT determines that an IE has failed to meet any requirement of the ERCOT Protocols or this Planning Guide, including, without limitation, any requirement to provide materially accurate or complete information concerning any proposed Generation Resource or SOG, ERCOT may send a written notice of potential cancellation to the IE through the online RIOO system. The notice of potential cancellation shall describe the failure and provide notice of ERCOT’s intent to cancel the project if the failure is not remedied.

(2) Within 60 days of receiving ERCOT’s notification of potential cancellation, the IE shall correct the failure or provide information that explains to ERCOT’s satisfaction why the IE cannot reasonably comply with ERCOT requirements or why the failure to comply cannot reasonably be remedied.

(3) If the IE fails to respond to ERCOT’s notice of potential cancellation within 60 days, or if ERCOT determines that, notwithstanding the IE’s response, the IE has neither satisfactorily resolved the deficiency nor provided an explanation that, in ERCOT’s sole judgment, justifies the deficiency, ERCOT may cancel the IE’s project no sooner than 30 days after providing notice to the IE that the project will be canceled.

(4) If at any time before cancellation ERCOT determines that the IE did not fail to meet any requirement of the ERCOT Protocols or the Planning Guide or that any failure has been satisfactorily remedied, then ERCOT shall notify the IE that the concern has been resolved and the potential cancellation has been rescinded.

(5) At any time prior to cancellation, an IE may request a change in the status of the project to “Inactive” status as provided in Section 5.7.6, Inactive Status.

(6) Once a project is canceled, it is permanently removed from the GINR queue and must be resubmitted to be reconsidered for interconnection.

5.8 General and Technical Standards

5.8.1 Other Standards

(1) The North American Electric Reliability Corporation (NERC) Reliability Standards, the Protocols, this Planning Guide and the Operating Guides also contain provisions that apply to Generation Resources.

5.8.2 Transformer Tap Position

(1) The Interconnecting Entity (IE) will contact the Transmission Service Provider (TSP) providing the interconnection before the main power transformers are placed into service and will work with the TSP to select the tap position on the main power transformers. The Generation Resource will confirm the use of this tap position with the TSP and ERCOT. The main power transformer will be considered the step-up to the transmission level voltage of the interconnection.

|  |
| --- |
| ***[PGRR074: Replace Section 5.8.2 above with the following upon system implementation of NPRR973:]***  5.8.2 Transformer Tap Position  (1) The Interconnecting Entity (IE) will contact the Transmission Service Provider (TSP) providing the interconnection before the Main Power Transformers (MPTs) are placed into service and will work with the TSP to select the tap position on the MPTs. The Generation Resource will confirm the use of this tap position with the TSP and ERCOT. |

**5.9 Quarterly Stability Assessment**

(1) ERCOT shall conduct a stability assessment every three months to assess the impact of planned Generation Resources and Settlement Only Generators (SOGs) connecting to the ERCOT Transmission Grid. The assessment shall derive the conditions to be studied with consideration given to the results of the Full Interconnection Study (FIS) stability studies for Generation Resources or SOGs, with planned Initial Synchronization in the period under study. ERCOT may study conditions other than those identified in the FIS stability studies.

(2) Generation Resources or SOGs that are not included in the assessment as described in this Section as result of the Interconnecting Entity (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:

|  |  |  |
| --- | --- | --- |
| **Generation Resource or SOG 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 planned new Generation Resource or SOG being included in the quarterly stability assessment:

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

(b) The IE has provided all Generation Resource or SOG 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 or SOG in the three month period associated with the quarterly stability assessment deadline. ERCOT shall include the Generation Resource 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 Generation Resource or SOG.

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

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

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