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| NPRR Number | [809](http://www.ercot.com/mktrules/issues/NPRR809) | NPRR Title | GTC or GTL for New Generation Interconnection |
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| Date | January 6, 2017 |
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| Submitter’s Information |
| Name | Jeff Billo |
| E-mail Address | jbillo@ercot.com |
| Company | ERCOT |
| Phone Number | 512-248-6334 |
| Cell Number |  |
| Market Segment | Not Applicable |

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| Comments |

At the December 21, 2016 Planning Working Group (PLWG) meeting, PLWG was in consensus to remove from Planning Guide Revision Request (PGRR) 052, Stability Assessment for Interconnecting Generation, the requirement for an Interconnecting Entity (IE) to have any required sub-synchronous resonance studies completed for a proposed Generation Resource prior to being included in the quarterly stability assessment. At the meeting, ERCOT committed to submitting comments on Nodal Protocol Revision Request (NPRR) 809, GTC or GTL for New Generation Interconnection, that would create a requirement in Protocol Section 16.5, Registration of a Resource Entity, for the sub-synchronous resonance studies to be completed prior to the initial synchronization of a new Generation Resource.

Therefore, ERCOT submits these comments and has determined that sub-synchronous resonance studies, if required, should be completed at least 90 days prior to the initial synchronization of a new Generation Resource in order to allow time for ERCOT to process the study results and build in any necessary sub-synchronous resonance alarms in the Outage Coordination and Real-Time monitoring systems and processes.

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| Revised Proposed Protocol Language |

## 2.1 DEFINITIONS

Initial Energization

The first time an All-Inclusive Generation Resource facility’s equipment connects to the ERCOT System. This occurs prior to any Commercial Operations Dates or Resource Commissioning Dates as defined in these Protocols.

Initial Synchronization

The first time an All-Inclusive Generation Resource facility’s equipment produces power, for testing purposes, to the ERCOT System, during its commissioning. This occurs prior to any Commercial Operations Dates or Resource Commissioning Dates as defined in these Protocols.

1.3.3 Expiration of Confidentiality

(1) If PUCT Substantive Rules or other sections of the ERCOT Protocols require public posting (or posting to all Market Participants) of information identified as Protected Information in Section 1.3.1.1, Items Considered Protected Information, the Protected Information status of such information shall expire at the time such information is required to be posted.

(2) ERCOT shall make the following information available on the MIS Public Area in a standard reporting format:

(a) Ancillary Service Obligation and Ancillary Service Supply Responsibility for each QSE. This information shall be made available 180 days after the Operating Day; and

(b) Complete COP data for each QSE snapshot on each hour. This information shall be made available 60 days after the Operating Day.

(3) ERCOT shall make available the AML for each QSE by LSE, by Load Zone and by Settlement Interval, from the True-Up settlement. This data shall be made available within two Business Days of the 180 day expiration of confidentiality date. Data for the posting will remain accessible for six months after such data are posted.

(4) The Protected Information status of the following information related to generation interconnection requests expires once ERCOT receives a request from an Interconnecting Entity (IE) for a Full Interconnection Study (FIS):

(a) County in which the Facility is located;

(b) Facility fuel type(s);

(c) Facility nameplate capacity;

(d) Anticipated Commercial Operations Date(s);

(e) Facility name;

(f) Identity of the IE; and

(g) The security screening study.

Information related to items (a) through (f) above will be updated and posted at least once per month on the ERCOT MIS Public Area.

(5) Upon the expiration of the Protected Information status of any data specified in Section 1.3.1.1, which does not have specific posting requirements, that data must be made available to the extent required under Section 12, Market Information System.

(6) Information that is no longer Protected Information, but not posted, including Dispatch Instructions, is available on request under the ERCOT Request for Records and Information Policy. Requested information must be provided within a reasonable timeframe. For Dispatch Instructions, the information may be requested with respect to a specific Resource, where applicable, and by service type and Settlement Interval or as integrated over each Settlement Interval for Dispatch Instructions with sub-Settlement Interval frequency.

3.10.1 Time Line for Network Operations Model Changes

(1) ERCOT shall perform periodic updates to the Network Operations Model. Market Participants may provide Network Operations Model updates to ERCOT to implement planned transmission and Resource construction one year before the required submittal date below. TSPs and Resource Entities must timely submit Network Operations Model changes pursuant to the schedule in this Section to be included in the updates.

(2) For a facility addition, revision, or deletion to be included in any Network Operations Model update, all technical modeling information must be submitted to ERCOT pursuant to the ERCOT NOMCR process or the applicable Resource Registration process for Resource Entities. Resource Entities must meet the conditions of Planning Guide Section 6.9, Addition of Proposed All-Inclusive Generation Resources to the Planning Models, for inclusion in the planning models before submitting data to add a new, or increase the capacity of, an All-Inclusive Generation Resource to the Network Operations Model.

(3) TSPs and Resource Entities shall submit Network Operations Model updates at least three months prior to the physical equipment change. ERCOT shall update the Network Operations Model according to the following table:

| Deadline to Submit Information to ERCOT Note 1 | Model Complete and Available for Test Note 2 | Updated Network Operations Model Testing CompleteNote 3Paragraph (5) | Update Network Operations Model Production Environment | Target Physical Equipment included in Production Model Note 4 |
| --- | --- | --- | --- | --- |
| Jan 1 | Feb 15 | March 15 | April 1 | Month of April |
| Feb 1 | March 15 | April 15 | May 1 | Month of May |
| March 1 | April 15 | May 15 | June 1 | Month of June |
| April 1 | May 15 | June 15 | July 1 | Month of July |
| May 1 | June 15 | July 15 | August 1 | Month of August |
| June 1 | July 15 | August 15 | September 1 | Month of September |
| July 1 | August 15 | September 15 | October 1 | Month of October |
| August 1 | September 15 | October 15 | November 1 | Month of November |
| September 1 | October 15 | November 15 | December 1 | Month of December |
| October 1 | November 15 | December 15 | January 1 | Month of January (the next year) |
| November 1 | December 15 | January 15 | February 1 | Month of February (the next year) |
| December 1 | January 15 | February 15 | March 1 | Month of March (the next year) |

Notes:

1. TSP and Resource Entity data submissions complete per the NOMCR process or other ERCOT-prescribed process applicable to Resource Entities for inclusion in next update period.

2. Network Operations Model data changes and preliminary fidelity test complete by using the Network Operations Model test facility described in paragraph (3) of Section 3.10.4, ERCOT Responsibilities. A test version of the Redacted Network Operations Model will be posted to the MIS Secure Area for Market Participants and Network Operations Model to the MIS Certified Area for TSPs as described in paragraph (9) of Section 3.10.4, for market review and further testing by Market Participants.

3. Testing of the Redacted Network Operations Model by Market Participants and Network Operations Model by TSPs is complete and ERCOT begins the Energy Management System (EMS) testing prior to placing the new model into the production environment.

4. Updates include changes starting at this date and ending within the same month. The schedule for Operations Model load dates will be published by ERCOT on the MIS Public Area.

(4) ERCOT shall only approve energization requests when the Transmission Element is satisfactorily modeled in the Network Operations Model.

(5) Changes to an existing NOMCR that modify only Inter-Control Center Communications Protocol (ICCP) data object names shall be provided 15 days prior to the Network Operations Model load date. NOMCR modifications containing only ICCP data object names shall not be subject to interim update reporting to the Independent Market Monitor (IMM) and Public Utility Commission of Texas (PUCT) (reference Section 3.10.4), according to the following:

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| ***NOMCR that contains ICCP Data and is submitted …*** | ***ERCOT shall …*** | ***Subject to IMM & PUC Reporting*** |
| Beyond 90 days of the energization date | Allow modification of only ICCP data for an existing NOMCR | No |
| Between 90 and 15 days prior to the scheduled database load. | Allow modification of only ICCP data for an existing NOMCR  | No |
| Less than 15 days before scheduled database load. | Require a new NOMCR to be submitted containing the ICCP data  | Yes |

3.10.7.6 Use of Generic Transmission Constraints and Generic Transmission Limits

(1) For the sole purpose of creating transmission flow constraints between areas of the ERCOT Transmission Grid in ERCOT applications that are unable to recognize non-thermal operating limits (such as system stability limits and voltage limits on Electrical Buses), ERCOT may create new Generic Transmission Constraints (GTCs) or modify existing GTCs for use in reliability and market analysis. GTCs created or modified as described in this Section shall be used in the SCED application. ERCOT shall not use GTCs in ERCOT applications to replace other constraints already capable of being directly modeled in the SCED application.

(2) During the ERCOT quarterly stability assessment, performed pursuant to Planning Guide Section 5.9, Quarterly Stability Assessment, if ERCOT determines a GTC is necessary for a new All-Inclusive Generation Resource due to localized stability issues associated with the output of the interconnecting All-Inclusive Generation Resource, the GTL for the GTC shall be set to the lowest non-zero limit for all system conditions outside those in which the limit is zero.

(3) Except as provided in paragraph (6) below, ERCOT shall post a description of each new or modified GTC to the MIS Secure Area as soon as possible, but no later than the day prior to the GTC or GTC modification becoming effective in any ERCOT application. Posting of each new or modified GTC shall include:

(a) The description of the new or modified GTC including the GTL or description of the data and studies used to calculate the GTL associated with each new or modified GTC;

(b) The effective date of the new or modified GTC;

(c) The identity of all constrained Transmission Elements that make up the GTC, including the defined interface where applicable; and

(d) Detailed information on the development of each GTC, including the defined constraint or interface where applicable; and data and studies used for development of each new or modified GTC, including the GTL associated with each new or modified GTC. This information shall be redacted or omitted to protect the confidentiality of certain stability-related GTCs.

(4) Market Participants may review and comment on each new or modified GTC. Within seven days following receipt of any comments, ERCOT shall post the comments to the MIS Secure Area as part of the information related to the subject GTC. ERCOT shall review any comments and may modify any part of a given GTC in response to any comments received.

(5) Anticipated GTLs, except those determined pursuant to paragraph (6) below, shall be posted to the MIS Secure Area no later than one day before the Operating Day.

(6) If an unexpected change to ERCOT System conditions requires the creation of a new GTC or the modification of an existing GTC to manage ERCOT System reliability, and the GTC has not been posted pursuant to paragraph (3) above, ERCOT shall issue an Operating Condition Notice (OCN) and post on the MIS Secure Area the new or modified GTC and its associated GTL(s), including the detailed information described in paragraphs (3) and (5) above. ERCOT shall include an explanation regarding why it did not post the GTC or modification on the previous day.

(7) No later than 180 days after the effective date of a new GTC (or December 31, 2017 for GTCs effective before December 31, 2016), ERCOT shall post a report listing alternatives for exiting the GTC to the MIS Secure Area. The listed alternatives may include but are not limited to the implementation or modification of a Remedial Action Scheme (RAS) or a transmission improvement project.

3.11.4.4 Tier 4

(1) This category consists of small system upgrades with estimated capital cost less than or equal to $15,000,000 and that do not require a CCN. “Neutral” projects are also classified as Tier 4 projects, irrespective of estimated capital cost and whether a CCN is required. Neutral projects are:

(a) The addition of or upgrades to radial transmission lines; the addition of equipment that does not affect the transfer capability of a line;

(b) Repair and replacement-in-kind projects;

(c) Projects that are associated with the direct interconnection of new generation;

(d) The addition of static reactive devices; and

(e) A project to serve a new Load, unless such project would create a new transmission line connection between two stations (other than looping an existing line into the new Load-serving station).

3.11.6 Generation Interconnection Process

(1) The generation interconnection process facilitates the interconnection of new generation units in the ERCOT Region by assessing the transmission upgrades necessary for new generating units to operate reliably. The process to study interconnecting new generation or modifying an existing generation interconnection to the ERCOT Transmission Grid is covered in the Planning Guide. The generation interconnection study process primarily addresses the direct connection of generation Facilities to the ERCOT Transmission Grid and directly-related projects. Projects that are identified through this process and are regional in nature may be reviewed through the RPG Project Review process upon recommendation by the TSP or ERCOT, subject to the confidentiality provisions in Section 1.3, Confidentiality.

(2) ERCOT shall perform an independent economic analysis of the transmission projects that are identified through this process that are expected to cost more than $25,000,000. This economic analysis is performed only for informational purposes; as such, no ERCOT endorsement will be provided. The results of the economic analysis shall be included in the interconnection study posting.

(3) Additional upgrades to the ERCOT Transmission Grid that might be cost-effective as a result of new or modified generation may be initiated by any stakeholder through the RPG Project Review procedure described in Section 3.11.4, Regional Planning Group Project Review Process, at the appropriate time, subject to the confidentiality provisions of the generation interconnection procedure.

16.5 Registration of a Resource Entity

(1) A Resource Entity owns or controls an All-Inclusive Resource connected to the ERCOT System. Each Resource Entity operating in the ERCOT Region must register with ERCOT. To become registered as a Resource Entity, an Entity must execute a Standard Form Market Participant Agreement (using the form in Section 22, Attachment A, Standard Form Market Participant Agreement), designate Resource Entity Authorized Representatives, contacts, and a User Security Administrator (USA) (per the Application for Registration as a Resource Entity), and demonstrate to ERCOT’s reasonable satisfaction that it is capable of performing the functions of a Resource Entity under these Protocols. The Resource Entity shall provide Resource Registration data pursuant to Planning Guide Section 6.8.2, Resource Registration Process, for each All-Inclusive Resource through ERCOT registration, except for Distributed Generation (DG) with an installed capacity equal to or lower than the DG registration threshold. A Resource Entity may submit a proposal to register the aggregation of non-Intermittent Renewable Resource (IRR) generators as an Aggregate Generation Resource (AGR) which ERCOT may grant at its sole discretion.

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

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

 (4) ERCOT shall not permit Initial Synchronization of an All-Inclusive Generation Resource if any of the following occur:

(a) Pursuant to paragraph (3) above, ERCOT reasonably determines that the All-Inclusive Generation Resource may violate operational standards established in the Protocols, Planning Guide, Nodal Operating Guides, ERCOT procedures, and Other Binding Documents, unless the Resource Entity can demonstrate that the All-Inclusive Generation Resource can comply with the standards indicated in paragraph (3) above to ERCOT’s satisfaction;

(b) The requirements of Planning Guide Sections 5.4, Study Processes and Procedures, and 5.9, Quarterly Stability Assessment, have not been completed for the All-Inclusive Generation Resource; or

(c) Any required sub-synchronous resonance studies have not been complete for at least 90 days.

 (5) DG with an installed capacity greater than one MW, the DG registration threshold, which exports energy into a Distribution System, must register with ERCOT. ERCOT shall produce quarterly reports on the total unregistered installed capacity of DG as specified in Commercial Operations Market Guide Section 10.3, Unregistered Distributed Generation Reports.