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| PGRR Number | TBD | PGRR Title | Incorporating Advanced Technology Options for Generator and Large Load Interconnections |
| Date Posted | | TBD | |
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| Requested Resolution | | Normal | |
| Planning Guide Sections Requiring Revision | | 2.1, Definitions  5.2.10, Required Interconnection Equipment  9.2.2, Submission of Large Load Project Information and Initiation of the Large Load Interconnection Study (LLIS)  9.2.5, Required Interconnection Equipment  9.3.5, Reconsideration for Fast Responding Loads (new) | |
| Related Documents Requiring Revision/Related Revision Requests | | ERCOT Nodal Operating Guide, Section 11: Constraint Management Plans and Remedial Action Schemes  Planning Guide Revision Request (PGRR) 115, Related to NPRR1234, Interconnection Requirements for Large Loads and Modeling Standards for Loads 25 MW or Greater | |
| Revision Description | | Describe the basic function of the Revision Request. | |
| Reason for Revision | | X [Strategic Plan](https://www.ercot.com/files/docs/2023/08/25/ERCOT-Strategic-Plan-2024-2028.pdf) Objective 1 – Be an industry leader for grid reliability and resilience  [Strategic Plan](https://www.ercot.com/files/docs/2023/08/25/ERCOT-Strategic-Plan-2024-2028.pdf) Objective 2 - Enhance the ERCOT region’s economic competitiveness with respect to trends in wholesale power rates and retail electricity prices to consumers  [Strategic Plan](https://www.ercot.com/files/docs/2023/08/25/ERCOT-Strategic-Plan-2024-2028.pdf) Objective 3 - Advance ERCOT, Inc. as an independent leading industry expert and an employer of choice by fostering innovation, investing in our people, and emphasizing the importance of our mission  General system and/or process improvement(s)  Regulatory requirements  ERCOT Board/PUCT Directive  *(please select ONLY ONE – if more than one apply, please select the ONE that is most relevant)* | |
| Justification of Reason for Revision and Market Impacts | | The implementation of traditional Remedial Action Schemes (RAS) is currently restricted by ERCOT, as detailed in Nodal Operating Guide Revision Request 215 (NOGRR 215), decided October 12, 2023. However, advanced technology now exists that is capable of monitoring, managing, and responding to grid conditions and contingency events, and that mitigates or completely eliminates many of the concerns raised in NOGRR 215. This type of technology, termed here an “Advanced Remedial Action Scheme” (defined below), provides benefits to electric systems that, among other things, can help ERCOT interconnect significant new demand from large loads, as well as reduce congestion hampering access to additional generation required to serve the ever increasing demand. To that end, this revision request intends to build upon PGRR 115 to provide for the integration of Advanced Remedial Action Schemes.  The key objectives of this revision request are as follows:  (1) to expand and increase load interconnection on the existing grid without a loss of reliability;  (2) to encourage and facilitate the use of new technologies to increase utilization of existing grid assets;  (3) to assure that the amount of capacity made available to a large load is proportionate to, or responsive to, the degree of flexibility of the load, in particular the speed and amount of demand reduction with which the load can respond to grid conditions; and  (4) to facilitate collaborative relationships between the grid and the grid owners.  *Note: A Nodal Operating Guide Revision Request will be submitted with the aim of removing restrictions to enable eligibility for this type of advanced RAS.* | |

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| Proposed Guide Language Revision |

**NOTE: This PGRR assumes the adoption of the changes to the Planning Guide detailed in the recently approved PGRR 115.**

## 2.1 DEFINITIONS

**Advanced Remedial Action Scheme (ARAS)**

A form of Remedial Action Scheme (RAS), as described in ERCOT Nodal Operating Guide, Section 11, implemented by a transmission owner, transmission service provider, generator, and/or large flexible load to monitor a certain grid area, the integrity of which could be impacted in the event of a contingency, which is capable of responding in real time to grid conditions by dynamically reducing injection to, or demand from, the grid. An ARAS is capable of replacing one or more existing RAS or, incorporating multiple RAS in a single ARAS, such that concerns about possible RAS-RAS interactions can be ameliorated. By its nature, an ARAS would automatically reduce the power flows of grid assets in response to unexpected events/grid necessity without violating the existing Protection Scheme thereby serving as an additional layer of protection.

***5.2.10 Required Interconnection Equipment***

(1) Each Point of Interconnection (POI) for a Generation Resource, Energy Storage Resource (ESR), or Settlement Only Generator (SOG) interconnected at transmission voltage to the ERCOT System:

(a) Must have a permanent configuration consisting of a station with breakers capable of interrupting fault current to sectionalize the transmission lines connecting the station to the ERCOT System. The breakers shall be under the remote control of the applicable TO and capable of being operated remotely to comply with an instruction from ERCOT.

(b) For any Generation Resource, ESR, or SOG that is a requesting interconnection as part of a generation-based Advanced Remedial Action Scheme, the resource owner shall also demonstrate the necessary control response characteristics.

**9** **Large Load additions at new or MODIFICATION OF existing LOAD INTERCONNECTION(S)**

9.2.2 Submission of Large Load Project Information and Initiation of the Large Load Interconnection Study (LLIS)

(1) For any Load request meeting one or more criteria defined in paragraph (1) of Section 9.2.1, Applicability, the following actions shall be completed prior to the initiation of the LLIS process described in Section 9.3, Interconnection Study Procedures for Large Loads.

(a) Submission of all information, including but not limited to, data required by the lead TSP to perform steady state, short circuit, motor start, stability analyses and any other studies the lead TSP deems necessary to reliably interconnect the Load. The dynamic load model to be provided for performing stability analysis will be in a format prescribed by the lead TSP and/or ERCOT;

(b) Submission of a preliminary Load Commissioning Plan that fully reflects the proposed project schedule;

(c) Written acknowledgement from the ILLE of its obligations to notify the interconnecting TSP of changes to the Large Load project information or to the load composition, technology, or parameters, as described in Section 9.2.3 Modification of Large Load Project Information, during the interconnection process;

(d) A formal request to initiate the LLIS process described in Section 9.3; and

(e) Payment of the LLIS Application Fee to ERCOT as described in paragraph (3).

(f) For any large load that is a fast-responding resource requesting interconnection as part of a load-based Advanced Remedial Action Scheme, as defined in ERCOT Nodal Operating Guide Section 11.2, the resource owner shall submit all relevant information about its control systems and method for monitoring transmission system conditions and contingencies in real time.

(2) The interconnecting Transmission Service Provider (TSP) shall submit the information described in paragraphs (1)(a) through (1)(d) above on behalf of the Interconnecting Large Load Entity (ILLE).

(3) The ILLE shall pay to ERCOT the LLIS Application Fee, as described in the ERCOT Fee Schedule prior to the commencement of the LLIS. The interconnecting TSP, RE, or IE may choose to submit this fee to ERCOT on the behalf of the ILLE. Payment of the ERCOT LLIS Application Fee shall not affect the independent responsibility of the ILLE to pay for interconnection studies conducted by the interconnecting TSP or for any DSP studies.

**9.2.5**  **Required Interconnection Equipment**

(1) Each Service Delivery Point for a Large Load not co-located with a Generation Resource, Energy Storage Resource (ESR), or Settlement Only Generator (SOG) interconnected at transmission voltage to the ERCOT System:

(a) Must have a permanent configuration consisting of one or more breakers capable of interrupting fault current to isolate the Large Load from the ERCOT System without interrupting flow on the associated transmission lines. The breakers shall be under the remote control of the applicable TO.

(b) For any Large Load that is a requesting interconnection as part of a load-based Advanced Remedial Action Scheme, the resource ownermust also demonstrate the capacity to respond in the manner required for such participation.

(2) Each Large Load co-located with a Generation Resource, ESR, or SOG interconnected at transmission voltage to the ERCOT System must have a permanent configuration consisting of one or more breakers capable of interrupting fault current to isolate the Large Load from the ERCOT System without isolating any of the co-located generators. The breakers shall be remotely controllable at the direction of the applicable QSE.

**9.3.5 Reconsideration for Fast Responding Loads**

If a large load resource has applied for a designated capacity on a specified schedule and the application is denied in whole or in part, and that load is a controllable load resource or otherwise proves to the satisfaction of the TSP and ERCOT that it has the capability to respond to grid conditions in the required manner, the resource may request re-study as part of an Advanced Remedial Action Scheme for an additional amount of capacity during normal operation for:

1. Up to the short-term emergency rating of the grid, if the load has entered into a flexible interconnection agreement allowing the transmission owner/operator to reduce the energy delivered from its system, within 10 minutes, in response to an energy emergency alert;
2. Up to the full physical capacity of the grid with all lines in service, if the load can offer the transmission owner/operator the ability to reduce the energy delivered from its system within 20 cycles, and, if such response has the capacity to remediate a limiting contingency, without violating the existing grid protection scheme, or applicable reliability criteria.