

Announcement

Odessa Disturbance Illustrates Need for Immediate Industry Action on Inverter-Based Resources

December 8, 2022

ATLANTA – NERC and Texas RE published a [joint disturbance report](#) that provides a comprehensive assessment of the June 4, 2022, Odessa disturbance, in which a widespread loss of solar photovoltaic (PV) and synchronous generation was caused by a fault in the Texas Interconnection. This event, which occurred just over a year after NERC and Texas RE analyzed a nearly identical event at the same location, illustrates the need for immediate industry action to ensure reliable operation of the bulk power system with the ever-increasing penetrations of inverter-based resources (IBRs).

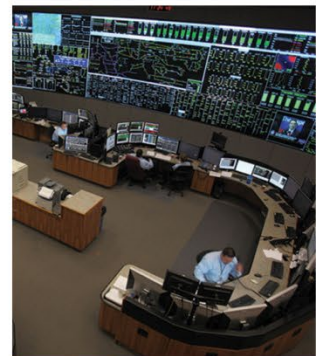
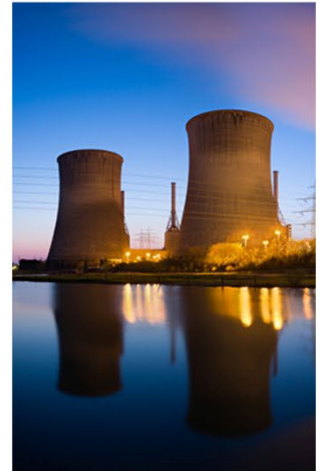
The 2022 Odessa disturbance was a Category 3a event in the [NERC Event Analysis Process](#), and the combined loss of generation nearly exceeded the [Texas Interconnection Resource Loss Protection Criteria](#). This concurrent and unexpected tripping of synchronous generation, in conjunction with the abnormal reduction of power from many solar PV facilities, poses a significant risk to bulk power system reliability. This is especially true when many of the underlying causes of abnormal performance are systemic in nature and are not mitigated in a timely manner (impacting large amounts of resources), and should be captured in system planning assessments or interconnection studies.

“Initially noticed in California, we are seeing these avoidable events increase in frequency and severity,” said Mark Lauby, NERC’s senior vice president and chief engineer. “NERC has issued a number of Alerts and Guidelines that, if followed, would address the risks. With industry’s help, we are now developing Reliability Standards that will call for modernizing the interconnection process and expected ride-through behaviors of the inverter-based and synchronous resources so they contribute to bulk power system reliability.”

As the penetration of solar PV and all IBRs continues to grow rapidly across North America, it is paramount that their performance issues are proactively and immediately addressed.

The report provides several key findings and recommended actions for NERC and industry:

- Generator owners, especially those affected in this event, should mitigate abnormal performance issues in the Texas Interconnection.
- The IBR performance issues risk profile should be elevated, and immediate



CONTACT:
Kimberly.Mielcarek@nerc.net

[Twitter @NERC Official](#)
[LinkedIn](#)

3353 Peachtree Road NE
Suite 600, North Tower
Atlanta, GA 30326
404-446-2560 | www.nerc.com

ERO Enterprise risk-based compliance activities are needed.

- NERC standards should be enhanced to address IBR performance issue identification, analysis and mitigation.
- A performance-based, comprehensive ride-through standard is needed.
- Level 2 NERC alert(s) should be issued to understand the extent of IBR performance issues and modeling deficiencies.
- NERC should develop Electromagnetic transient (EMT) modeling requirements and accurate EMT models for all bulk power system-connected IBRs.
- The ERO Enterprise and industry should conduct a comprehensive model quality review.
- Updates to the FERC pro forma generator interconnection agreements and procedures should be reiterated.
- Improvements to commissioning practices for IBRs are needed.
- NERC should include these key findings and recommendations in its comments to FERC on the Notice of Proposed Rulemaking directing NERC to enhance the NERC Reliability Standards for IBR issues.

“We have now seen several examples of concurrent, unexpected solar photovoltaic generation losses across North America,” said Joseph Younger, vice president and chief operating officer at Texas RE. “The report sets forth a number of key findings and concrete actions that Texas RE and the broader ERO Enterprise will undertake to continue to mitigate the risks to bulk power system reliability associated with these issues.”

As part of its ongoing responsibilities as the electric reliability organization (ERO) of North America, NERC is tasked with assuring the reliability of the North American bulk power system and is continually assessing the impacts of the changing resource mix. While IBRs present new opportunities in terms of grid control, they also introduce potential risks to the system, as documented by NERC in multiple disturbance [reports](#) and related NERC [reliability guidelines](#). In addition, FERC’s recent action — an [order](#) directing NERC to submit a work plan to register certain IBRs and the above-mentioned [Notice of Proposed Rulemaking](#) — reinforces the activities and plans presently underway related to IBR registration and NERC standards enhancement.

The ERO Enterprise, comprised of NERC and the six Regional Entities, will continue to analyze disturbances that involve widespread reductions of solar photovoltaic resources to identify any systemic reliability issues, support affected facilities in developing mitigating measures and share key findings and recommendations with industry for increased awareness and action. An [industry webinar](#) will take place on January 4 to review the findings and recommended actions in the report and answer questions from industry. Please refer to [NERC Quick Reference Guide: Inverter-Based Resource Activities](#) for more information on work in this area.

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Electricity is a key component of the fabric of modern society and NERC, as the Electric Reliability Organization, serves to strengthen that fabric. The vision for the ERO Enterprise, which is comprised of NERC and the six Regional Entities, is a highly reliable and secure North American bulk power system. Our mission is to assure the effective and efficient reduction of risks to the reliability and security of the grid.