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NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

Announcement

Reliability Measures Demonstrate Improvement in Severe Weather Resilience

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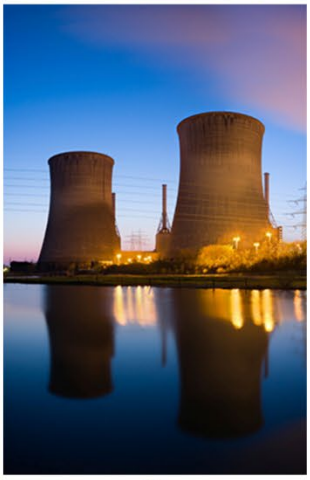
WASHINGTON, D.C. – NERC's *2024 State of Reliability (SOR)* finds that the bulk power system (BPS) remained reliable and resilient in 2023, with no firm load shedding during energy emergencies and quick recovery following severe storms in the United States and wildfires in Canada. Although the BPS was extremely successful at providing reliable energy, high generator outage trends and ongoing inverter ride-through challenges signal potential risks that require mitigating action.

"Last year, we saw relatively mild weather coupled with enhanced preparation measures, which lessened the stressors that system operators were faced with during the summer and winter peak periods," said John Moura, director, Reliability Assessment and Performance Analysis. "The combination of the transforming resource mix, rising forced outage rates for coal generation, and issues with reserve margins are shifting the riskiest periods to spring and fall shoulder months."

With no major winter events, the forced outage rates for coal generation fell to 12.0% in 2023, compared to 13.9% in 2022, but continue a long-term upward trend when compared to the average annual outage rate between 2014-2022, 10.2%. Conversely, transmission outage severity saw its first increase, reaching 173.8 in 2023, up from an all-time low of 161.6 in 2022 and slightly above the prior 4 years' average of 170.9. This increase is a direct result of the record-setting Canadian wildfires, excluding these the metric falls to an all-time low of 143.2.

The response by inverter-based resources to system disturbances continues to impact many solar facilities, with ride-through issues being observed at large battery storage and wind plants.

"These events are a clear indication that this issue can be greatly alleviated, if not resolved, by plant owners working more closely with manufacturers," said Jack Norris, engineer, Performance Analysis. "Until fixes are implemented, the risk posed by this issue continues to grow as inverter-based resources continue to rapidly increase."



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The SOR, which is a look back at system performance over 2023, identifies system performance trends and emerging reliability risks; reports on the relative health of the interconnected system; and measures the success of mitigation activities deployed.

This year, key findings included improved performance in the Texas Interconnection due to the use of battery energy storage systems to support a balanced frequency and a significantly improved misoperation rate when compared to the preceding four years. However, new challenges were also identified due to an increasing dependence on variable resources.

The *2024 State of Reliability Overview* and *2024 State of Reliability Technical Assessment* provide objective and concise information for policymakers and industry leaders on issues that affect the reliability and resilience of the North American BPS while providing strong technical support for those interested in the underlying data and detailed analytics. The report's key findings are also highlighted in the 2024 SOR infographic and video on the Newsroom page of NERC.com.

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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.