

News : NERC finds North American power reliability risks this winter, natural gas supplies critical

By Jared Anderson

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- Recent winter weather forced over 20% of capacity offline
- Winter power demand forecasting becoming more complex

A large portion of the North American bulk power system faces risk of insufficient electricity supplies this winter from prolonged, wide-area cold snaps that threaten power generation reliability and fuel supply availability for natural-gas-fired generation, the North American Electric Reliability Corporation said Nov. 8.

"As observed in [recent winter reliability events](#), over 20% of generating capacity has been forced offline when freezing temperatures extend over parts of North America that are not typically exposed to such conditions," NERC said in its 2023-2024 Winter Reliability Assessment.

The analysis found that the following areas are at greatest risk for power supply shortfalls this winter:

- Midcontinent Independent System Operator
- MRO-SaskPower
- NPCC-Maritimes
- NPCC-Quebec
- PJM, SERC-East, and SERC-Central
- Southwest Power Pool
- Texas RE-ERCOT

In addition to power generation fuel supplies being at risk under extreme weather conditions, power demand forecasting in winter is getting more complex and underestimating demand is a risk to reliability in extreme cold temperatures. Load serving entities and balancing authorities should pay particular attention to the risk of demand underestimation ahead of extreme winter conditions, NERC said.

Curtailing power transfers to areas in need during periods of high regional demand is another growing reliability concern.

"While the curtailments alleviate an issue in one part of the system, curtailments can contribute to supply shortages or affect local transmission system operations in another area," the report said.

For winter 2023-2024, areas identified as having capacity or energy risks are relying on power imports and these areas include MRO-SaskPower, NPCC-Maritimes, NPCC-New England, SERC-Central, and SERC-East.

NERC said it has taken steps to ensure cold weather preparations for extreme weather events are adopted, but generator owners have indicated that potential problem areas include improper heat tracing, frozen instrumentation and control equipment, generator circuit breaker tripping in low temperatures or low air pressures, and wind turbine blade icing.

Risk highlights

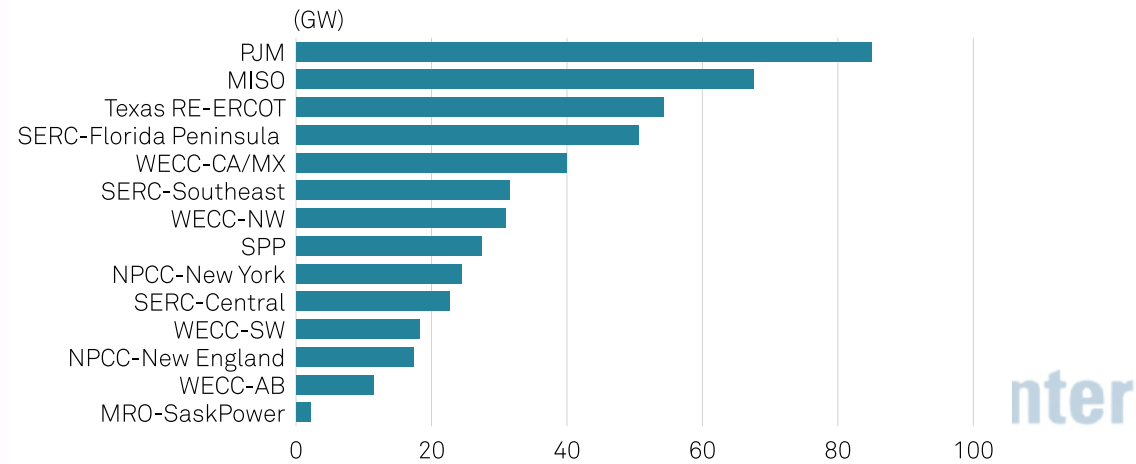
Over the past 11 years, five cold weather events have jeopardized bulk electric system reliability by triggering unplanned cold weather-related power generation outages, the assessment found.

"What has become clear is that the natural-gas-electric system has now become fully interconnected, each requiring the other to remain reliable," NERC said.

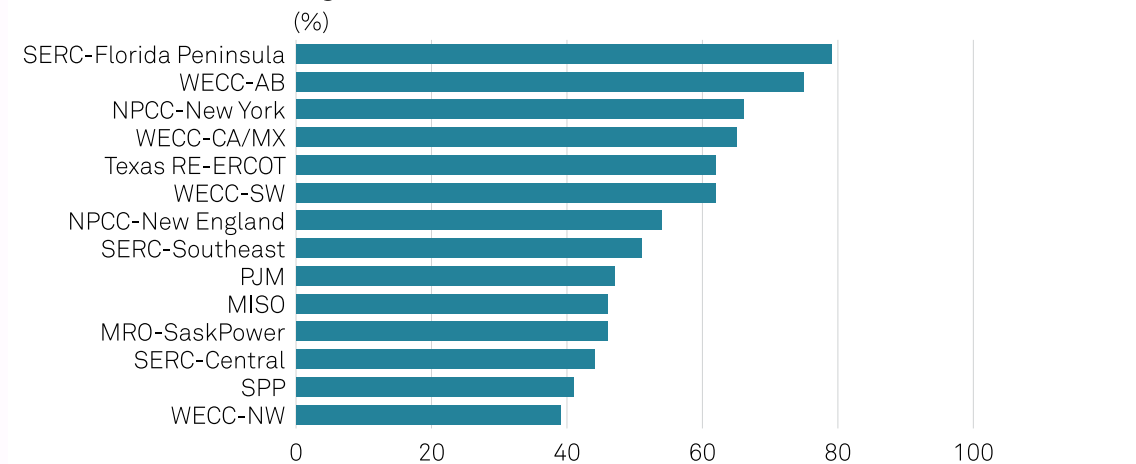
There is not enough gas pipeline infrastructure to serve all gas generation in large areas like PJM and MISO, so reliability will depend on getting gas, John Moura, NERC's director of reliability assessment and system analysis, said during a Nov. 8 conference call with members of the media.

US natural gas-fired power generation

Peak winter capacity



Contribution to total winter generation fuel mix



Source: NERC

Asked what surprised him about this year’s assessment, Moura said he was surprised about how much reliability depends on things that the power industry cannot control, like gas availability and wind variability.

Moura also said that significant progress has been made on [gas-power system coordination](#) and that the operators are talking more than they ever have. But while progress has been made, more can be done and perhaps standards could be required in the future.

Despite the potential reliability concerns identified by NERC, forward power prices remain considerably lower than last year at this time. For example, PJM West on-peak forward power prices for November, December and January 2024 averaged \$56.41/MWh in October trading, down 46% from \$104.63/MWh for the corresponding period last year, according to Platts M2MS data.

The power price declines are largely related to lower gas prices, with Platts Transco Zone 6 Non-New York gas prices for January 2024 averaging \$6.54/MMBtu compared with \$14.11/MMBtu in January 2023, a decline of 53.6%.

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