

SPOTLIGHT

June 04, 2024

IMPACTED ENTITIES

ALL

IMPACTED STANDARDS

NA

IMPACTED REGIONS

ALL

“State regulators and industry should have protocols in place at the start of summer for managing emergent requests from generators for air-quality restriction waivers. If warranted, U.S. Department of Energy (DOE) action to exercise emergency authority under the Federal Power Act (FPA) section 202(c) may be needed to ensure that sufficient generation is available during extreme weather conditions..”
– 2024 SRA

2024 SUMMER RELIABILITY ASSESSMENT

HIGHLIGHTS

- The annual Summer Reliability Assessment (SRA) evaluates resource adequacy to meet projected peak demand and identifies potential reliability issues and region-specific risks.
- The National Oceanic and Atmospheric Administration (NOAA) forecasts a 60%-70% likelihood of above-normal temperatures for Summer 2024. NOAA has also issued early warnings for an active hurricane season and a transition to a La Niña weather pattern, which typically leads to drier and warmer temperatures overall.
- Drought conditions persist for roughly 40% of the U.S., which may lead to reduced hydro capacity and increased reliance on gas-fired resources.
- NERC has begun using all-hours probabilistic studies to supplement the deterministic scenarios of higher 90/10 demand levels in their reliability assessments.
- NERC predicts that all regions will have sufficient resources to meet expected demand, but ERCOT, MISO, ISO-NE, WECC-CA/MX, and WECC-SW may experience shortfalls under extreme conditions.
- Particular concerns have been identified for high-demand periods with low solar/wind output and heavy transmission line loading conditions.
- For the summer months, newly added capacity is expected to slightly outpace retirements primarily due to solar and wind replacing coal. However, load growth (4.4%) is expected to outpace capacity growth (3.4%).
- Increasing demand growth is attributed to data centers, crypto-currency mining operations, Artificial Intelligence (AI)/machine learning, and the electrification of the transportation sector.
- The largest area of supply growth by percentage (124%) is battery storage, which is expected to increase from 5.4 GW to over 12.2 GW by the end of summer.
- IBR performance issues continue to be a reliability concern.

IMPACTS AND RECOMMENDED ACTIONS

The 2024 Summer Reliability Assessment (SRA) indicates a relatively low-risk summer season, which is a welcome respite from the seemingly endless risks to the BPS. However, NERC has provided the following recommendations as we approach this year's hottest months:

- RCs, BAs, and TOPs in the elevated risk areas identified in the key findings should take the following actions:
 - Review seasonal operating plans and the protocols for communicating and resolving potential supply shortfalls in anticipation of potentially extreme demand levels
 - Employ conservative generation and transmission outage coordination procedures commensurate with long-range weather forecasts to ensure adequate resource availability
 - Engage state or provincial regulators and policymakers to prepare for efficient implementation of demand-side management mechanisms called for in operating plans
- GOs with solar PV resources should implement recommendations in the IBR performance issues alert that NERC issued in March 2023
- State regulators and industry should have protocols in place at the start of summer for managing emergent requests from generators for air-quality restriction waivers. If warranted, U.S. Department of Energy (DOE) action to exercise emergency authority under the Federal Power Act (FPA) section 202(c) may be needed to ensure that sufficient generation is available during extreme weather conditions.

DISCUSSION

This year's SRA is more optimistic than previous years as most regions are predicting adequate resources for typical summer load conditions. However, a few regions, such as ERCOT, WECC, and MISO, may have trouble with higher-than-normal outage rates and low wind or solar output conditions. Additionally, NPCC-New England is managing reduced capacity due to the retirement of 1,400 MWs of gas-fired generation and will need to rely on non-firm imports if summer temperatures exceed current predictions.

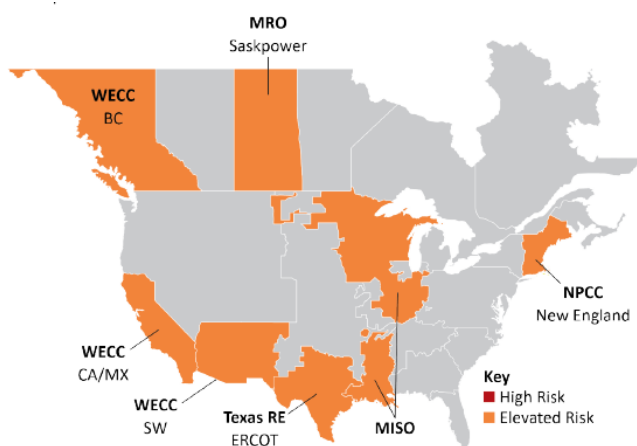


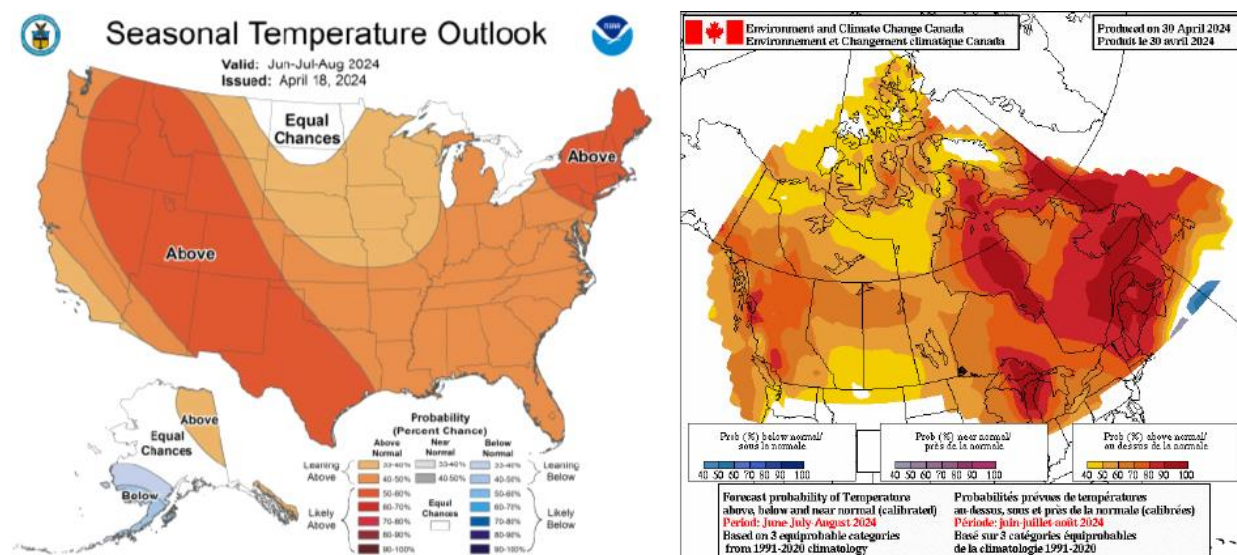
Figure 1: Summer Reliability Risk Area Summary

Seasonal Risk Assessment Summary	
High	Potential for insufficient operating reserves in normal peak conditions
Elevated	Potential for insufficient operating reserves in above-normal conditions
Normal	Sufficient operating reserves expected

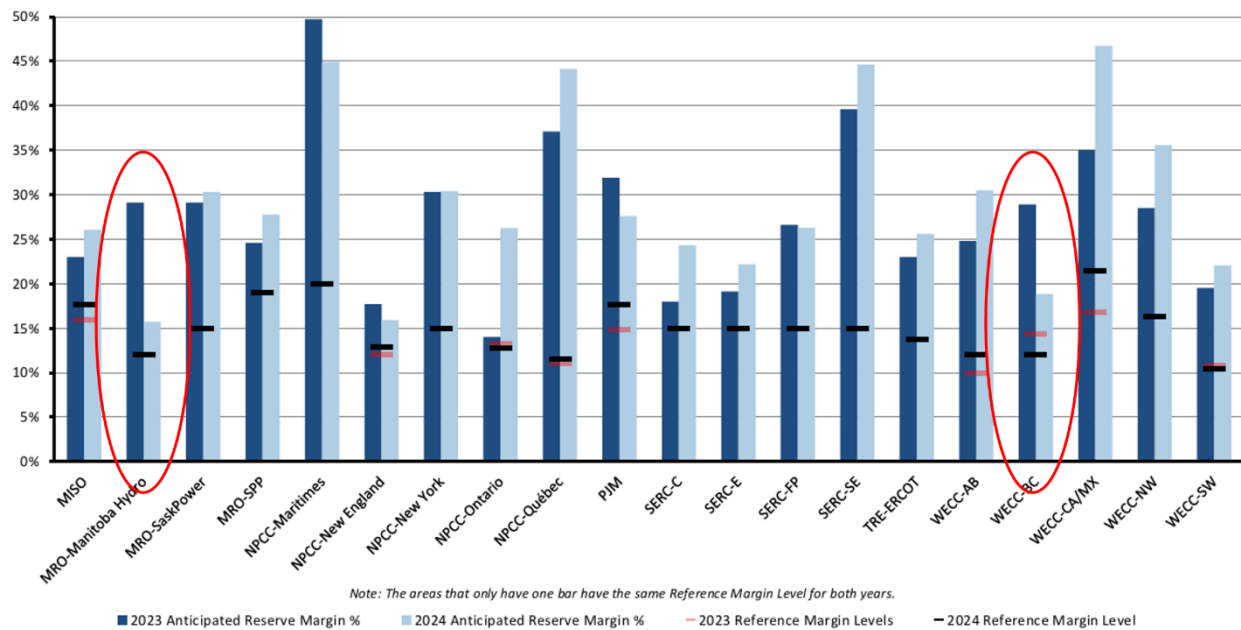
Overall, the outlook is positive and seems to follow a developing trend when comparing SRA's year-over-year.



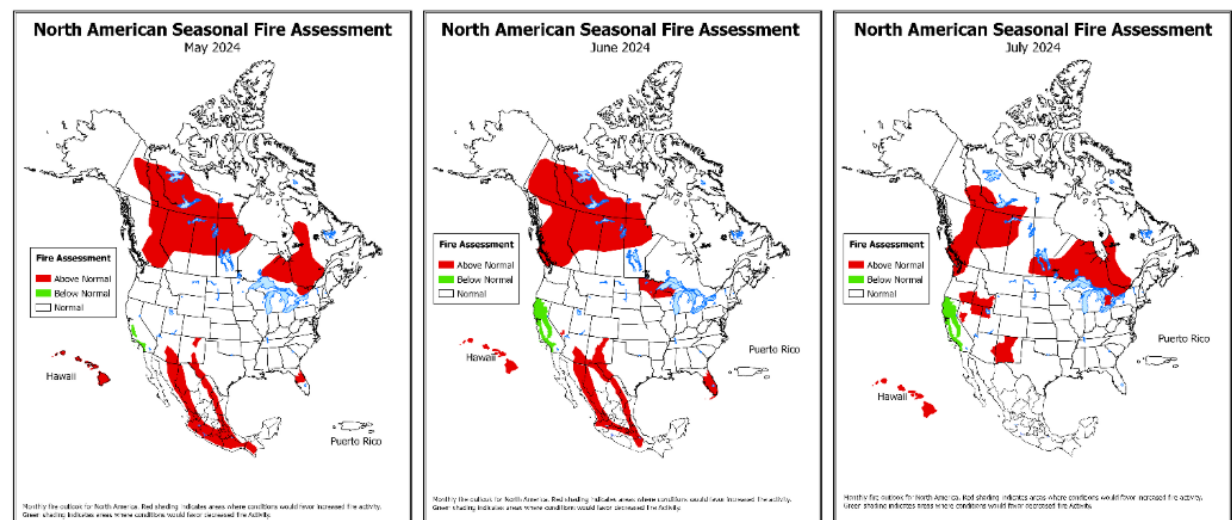
Despite the positive outlook, there are a few factors worth noting for the upcoming summer season. The National Oceanic and Atmospheric Administration (NOAH) forecasts a 60%-70% likelihood of above-normal temperatures for Summer 2024. As we all know, temperature is a major factor in electricity demand and can have a large impact if forecasts are inaccurate.



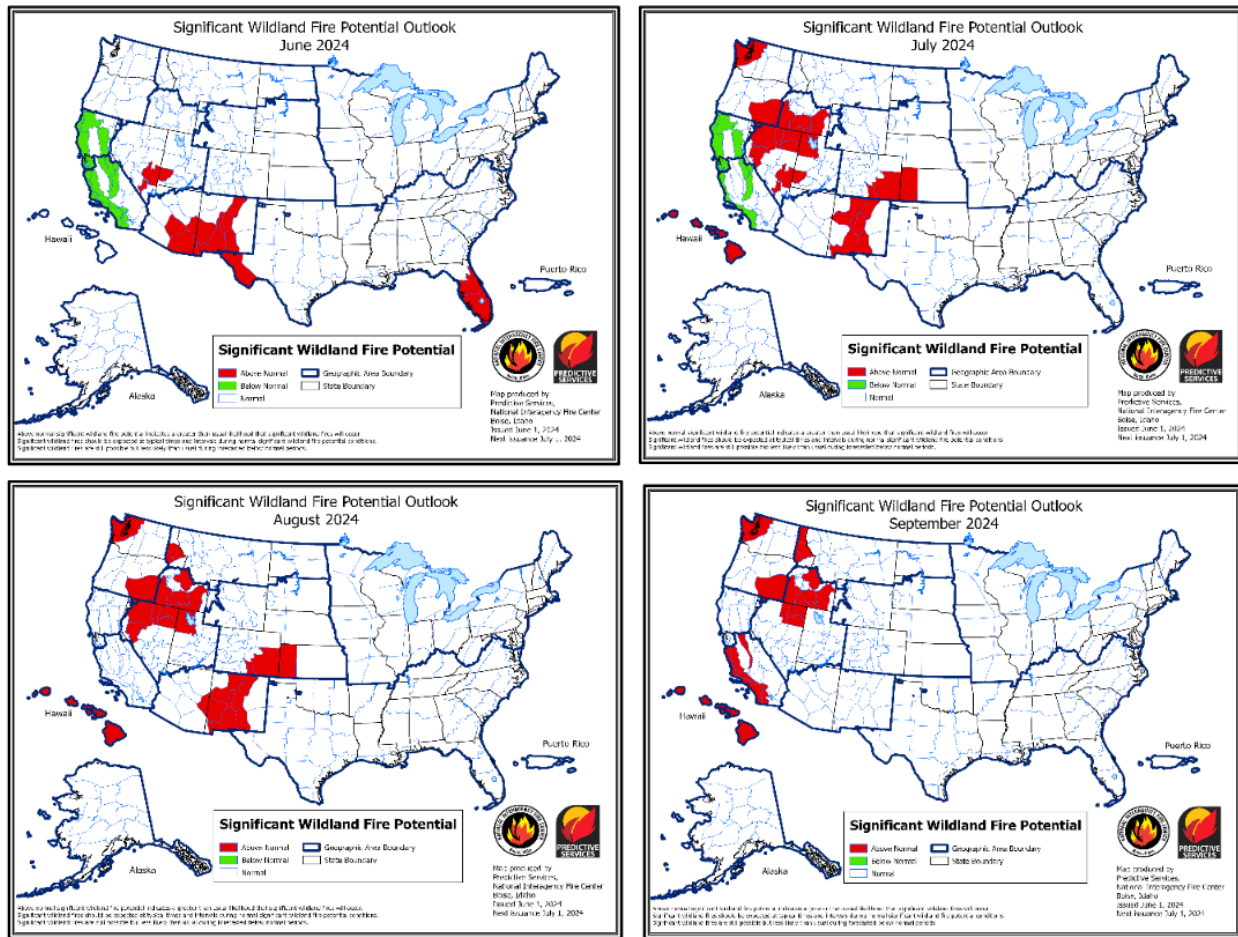
NOAH has also issued early warnings for an active hurricane season and a transition to a La Niña weather pattern, which typically leads to drier and warmer temperatures overall. This will have a continued impact in regions with ongoing drought conditions, particularly in hydro generation capacity, which is reflected in MRO-Manitoba Hydro's and WECC-BC's 2024 Anticipated Reserve Margin (ARM) assessments.



Additionally, the National Interagency Fire Center (NIFC) is predicting a challenging fire season this summer. Specifically, ongoing drought conditions in Western and Central Canada pose a serious concern for a repeat of the 2023 fire season.



Fire danger will transition southward throughout the summer leaving parts of the Western US at above-normal wildfire risk.



Alongside hotter and dryer conditions, NERC is also warning owners of Inverter-Based Resource (IBR) facilities to act on recommendations in the IBR performance issues alert issued in March 2023. Much of the SRA assumes there will be dependable power production from all generators including inverter-based resources. According to the SRA, “Occurrences involving the unexpected tripping of inverter-based resources (IBR) during grid disturbances continue to spread, underscoring the need for operator vigilance in the near term and urgent industry action on long-term solutions.” NERC’s comprehensive Inverter-Based Resources Strategy and FERC Order 901 will ultimately force entities to adopt recommendations in the long run so it makes sense for entities to be proactive where possible.

The transition to inverter-based technologies is happening during a time of unprecedented load growth. Data from FERC Form 714 shows grid planners expect nationwide power demand to grow 4.7% over the next five years, compared to a previous estimate of 2.6%.¹ That’s an 81% forecast adjustment in just two years. Furthermore, estimated load growth over the next five years significantly surpasses expected capacity growth, which will inevitably lead to thinner reserve margins across the board. A positive summer outlook should not be a signal to let our guard down. It will take continued vigilance to keep the lights on into the future.

¹ <https://www.utilitydive.com/news/electricity-load-growing-twice-as-fast-as-expected-Grid-Strategies-report/702366/>

LINKS AND RESOURCES

[2024 Summer Reliability Assessment](#)

[Summer Energy Market and Electric Reliability Assessment \(FERC\)](#)

[NOAA Summer 2024 Forecast](#)

[North American Seasonal Fire Assessment and Outlook](#)

[National Significant Wildland Fire Potential Outlook Predictive Services](#)

ABOUT THE AUTHOR

John Schmoker is a grid reliability professional specializing in protection and control (PRC) and modeling (MOD) Standards. He holds a BS in Chemical Engineering from the University of Washington and has eight years of experience in the NERC field. He currently manages Compliance Testing Services, a division of the NAES NERC Services group where he manages engineering partnerships to provide field support and back-office engineering services.



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