



2023 Summer Energy Market and Electric Reliability Assessment

May 18, 2023



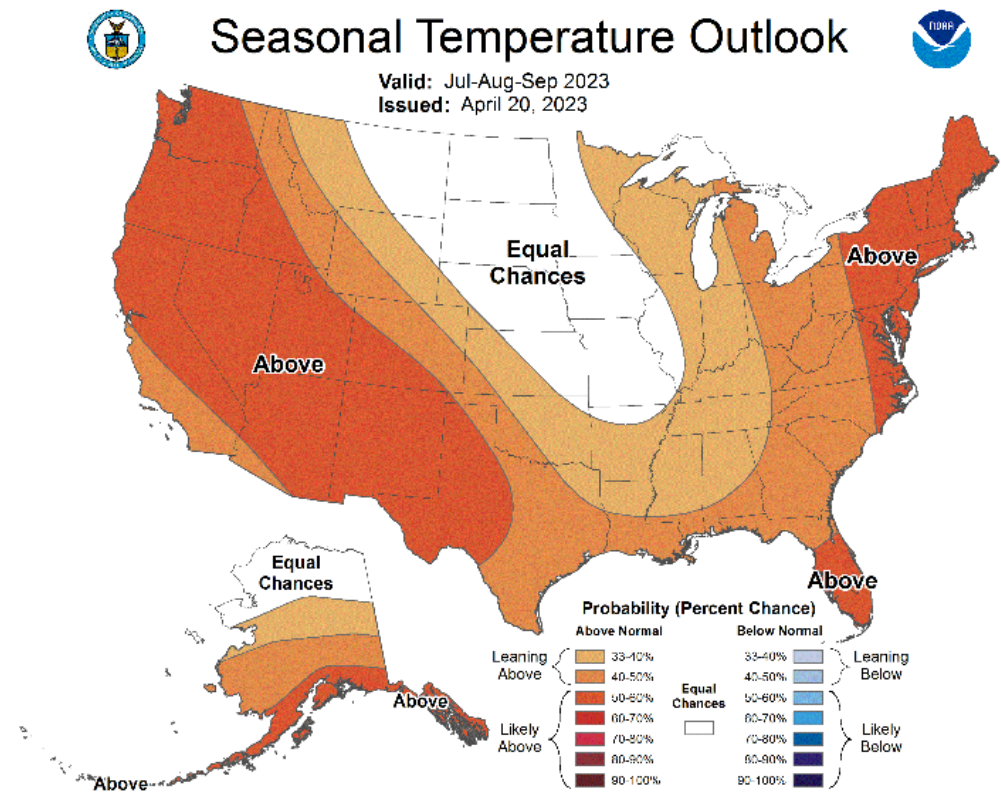
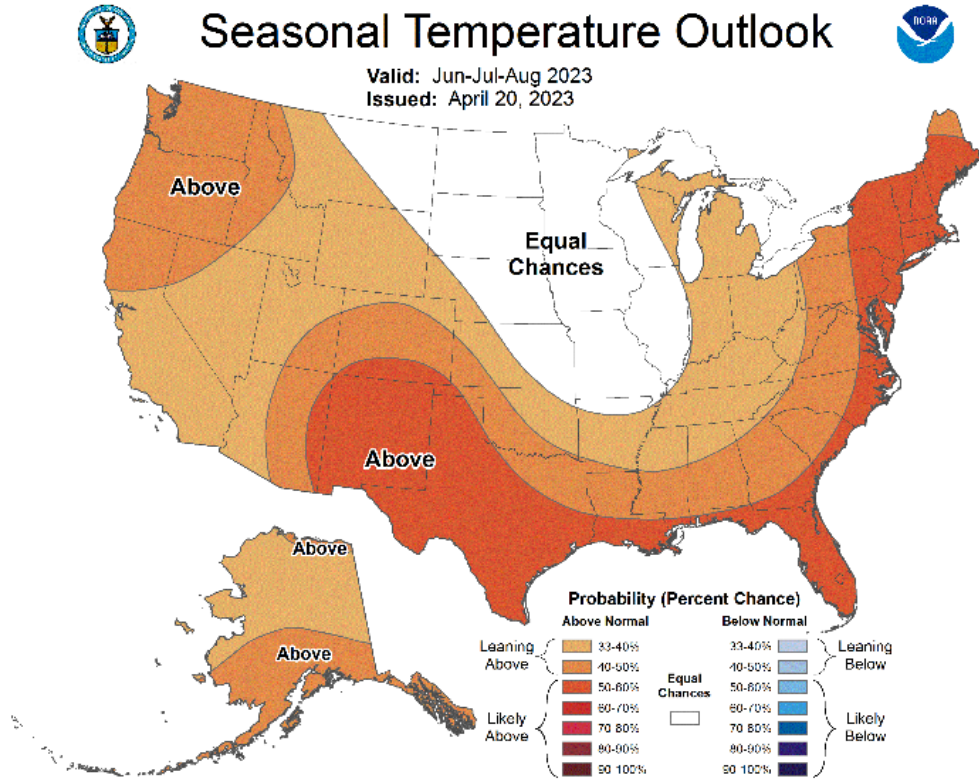
Key Findings

- Warmer-than-average temperatures expected this summer
- NERC forecasts regions will have sufficient generating resources to meet expected summer demand and some regions may require operating mitigations under challenging summer conditions
- Regions facing higher likelihood of tight supply and reliability issues during extreme conditions: ERCOT, MISO, New England, SERC-Central, SPP, and WECC-CAMX, WECC-NW, WECC-SW
- Resource additions outpaced retirements, with rapid growth in storage capacity
- Natural gas prices are expected to be lower this summer than one last with high levels of natural gas production and storage
- Electric industry faces supply chain, economic, and security concerns



Summer Temperatures Likely Warmer Than Normal

Summer 2023 Temperature Forecast

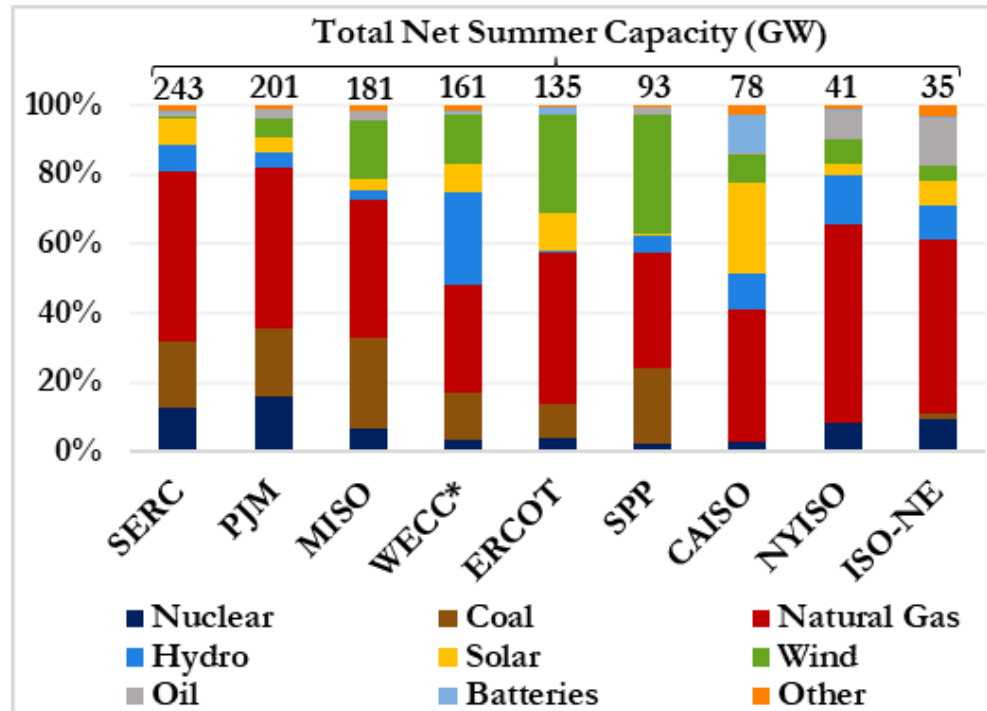


Source: NOAA.



Summer Resource Mix

Total Net Summer Capacity and Percentage Share by Resource Type in September 2023

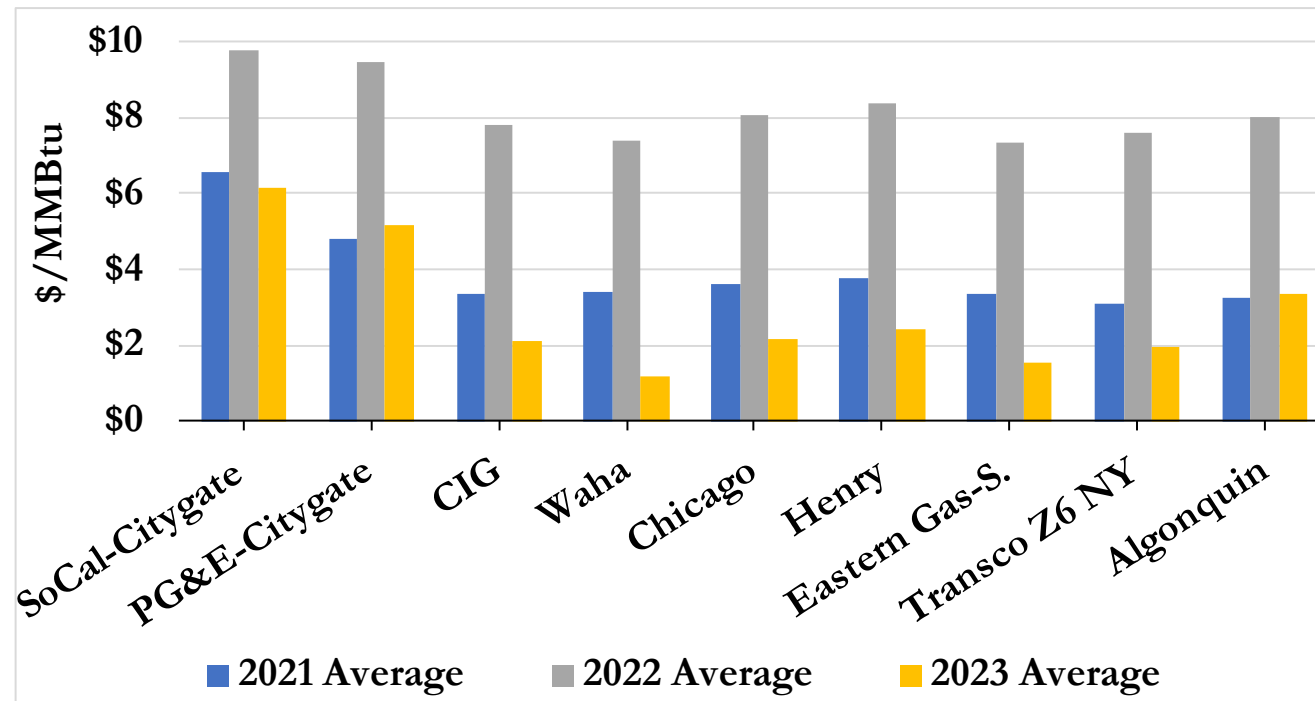


Source: U.S. EIA



Natural Gas Futures Prices Decrease

Natural Gas Futures Prices At Major Hubs (June - September)

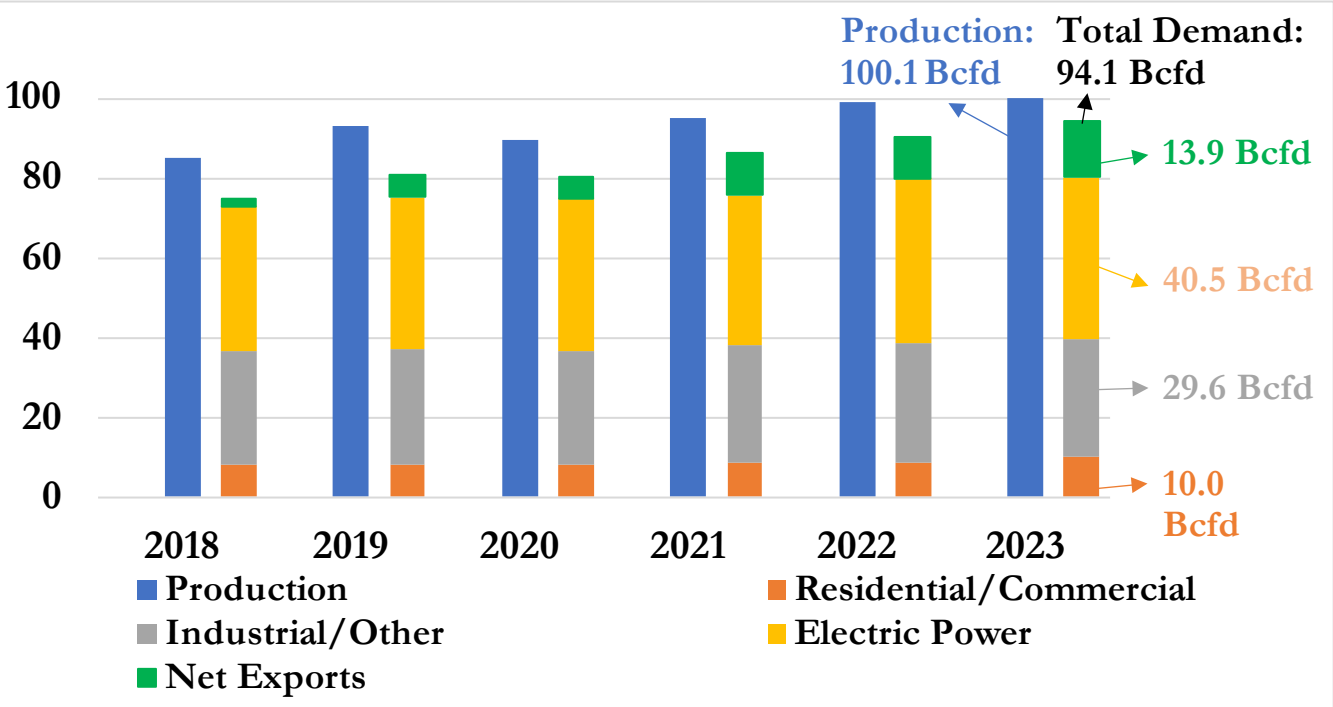


Source: S&P Global Commodity Insights



Natural Gas Demand To Grow Slightly

U.S. Natural Gas Demand and Production

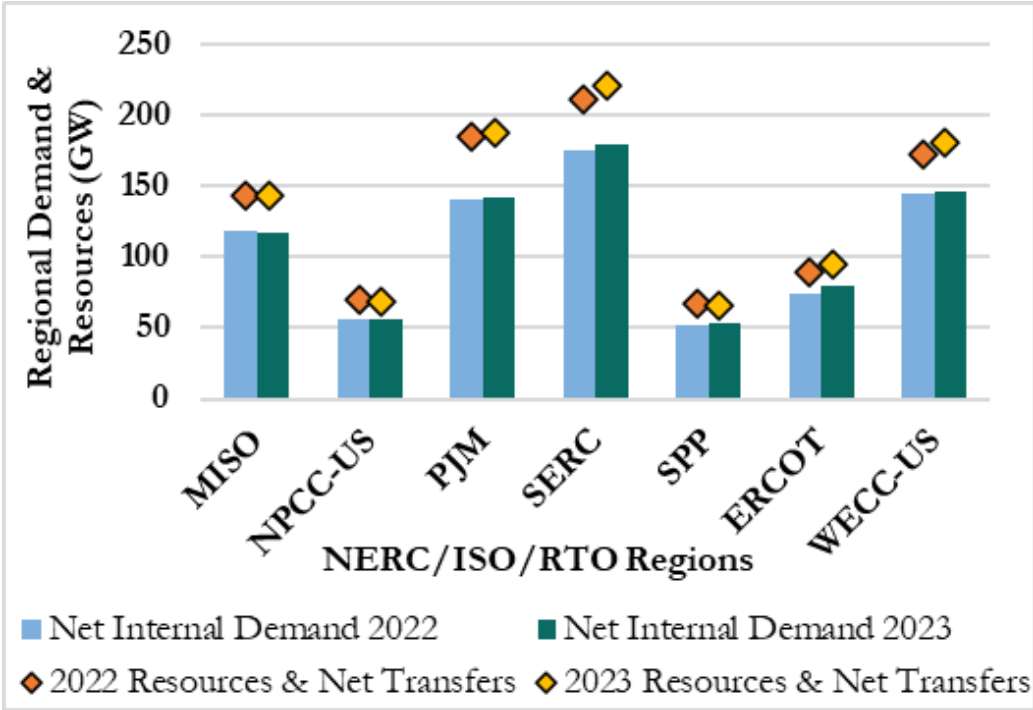


Source: U.S. EIA



Reserve Margins and Net Transfers

2022 and 2023 Demand Resources

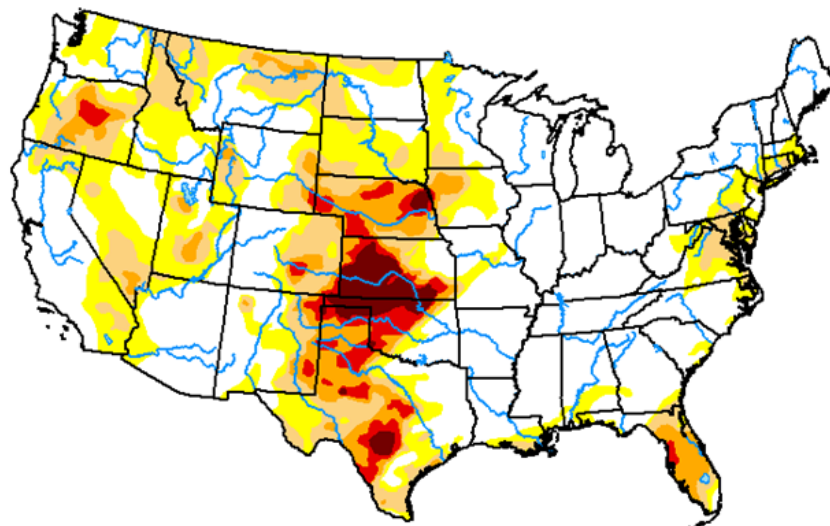


Source: U.S. EIA









Changes in Drought Conditions in the West

Summer Drought Forecast



Intensity:

-  None
-  D0 Abnormally Dry
-  D1 Moderate Drought
-  D2 Severe Drought
-  D3 Extreme Drought
-  D4 Exceptional Drought

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. For more information on the Drought Monitor, go to <https://droughtmonitor.unl.edu/About.aspx>

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droughtmonitor.unl.edu

Source: U.S. EIA



5/18/2023

Electric Risks

New and Continuing Reliability Concerns

- Supply Chain Disruptions
- Factors Affecting Solar Development
- EPA Actions and Regulations
- Increase in Physical Attacks on the Grid
- Diablo Canyon Power Plant License Extension

Source Department of Energy OE-417s



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Resource Adequacy Risks

U.S. West: Extreme demand during wide-area heat events strains resources and transmission network

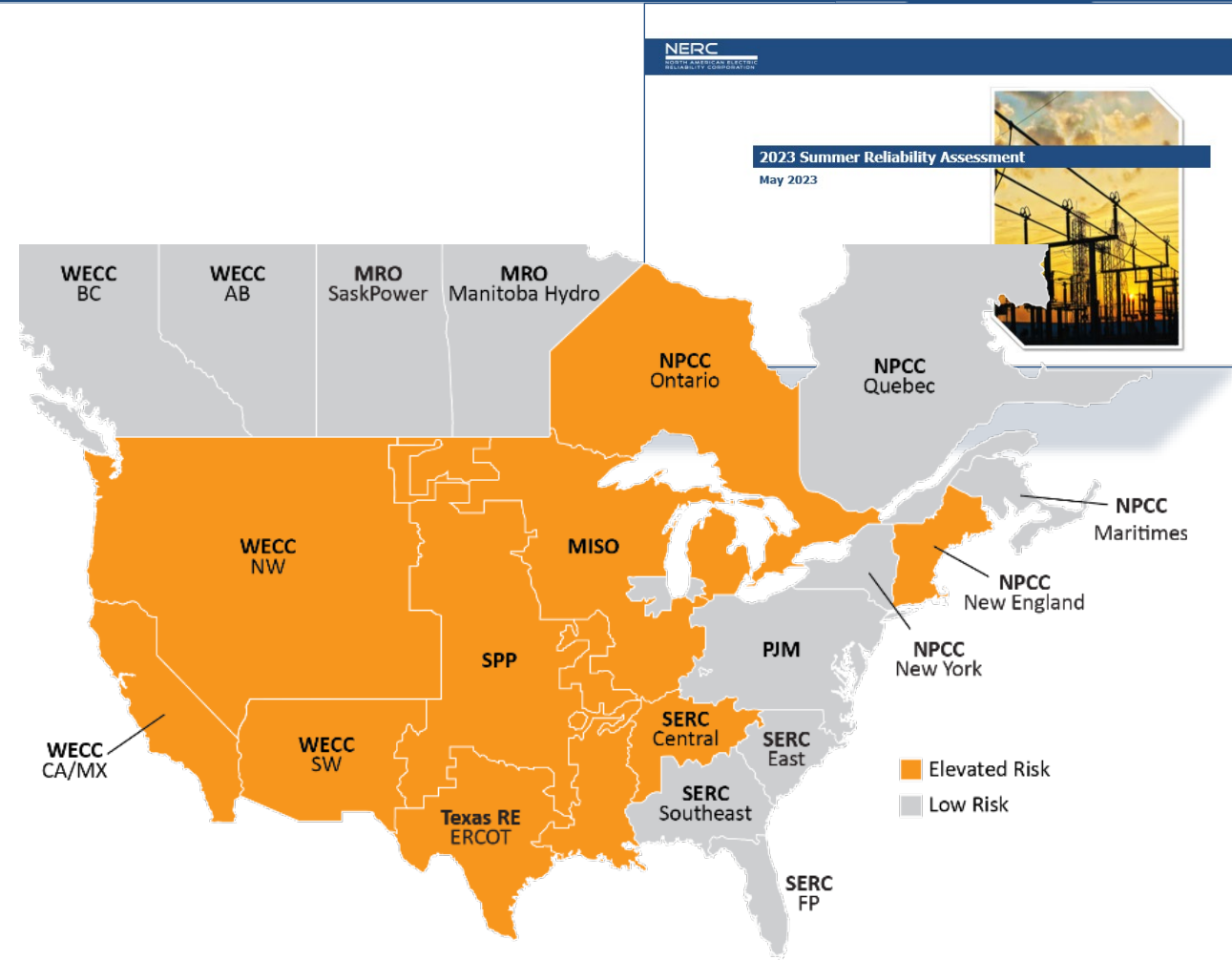
SPP and MISO: Dispatchable generation insufficient for meeting high demand during low wind

Ontario: Extended nuclear maintenance has reduced available capacity resulting in limited reserves

SERC-Central: Higher demand forecast and less supply capacity are reducing reserves

New England: Less supply capacity is reducing reserves and increasing reliance on operating mitigations

Texas (ERCOT): Demand growth increases strain on dispatchable generation when variable energy resource output is low



Seasonal Risk Assessment Summary	
Elevated	Insufficient Operating Reserves in Extreme Conditions
Low	Sufficient Operating Reserves

Extreme summer conditions include 90/10 demand scenarios, historical high generator outage rates, and low variable energy resource scenarios

- Reliability Coordinators (RC), Balancing Authorities (BA), and Transmission Operators (TOP) in elevated risk areas review operating plans for resolving supply shortfalls
 - Employ conservative outage coordination procedures for forecasted conditions
 - Engage with load-serving entities and state administrations to prepare for demand management
- Owners of solar PV resources implement recommendations in NERC's *Inverter-Based Resource Performance Issues Alert* (Level 2) issued in March 2023
- State regulators and industry should have protocols in place for managing emergent requests for environmental waivers to preserve generation needed for high demand



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