

RF/NERC 2023 SUMMER ASSESSMENT

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RF Tech Talk June 12, 2023



AGENDA

NERC 2023 SUMMER RELIABILITY ASSESSMENT

- RESOURCE ADEQUACY ANALYSIS
- RISK ANALYSIS

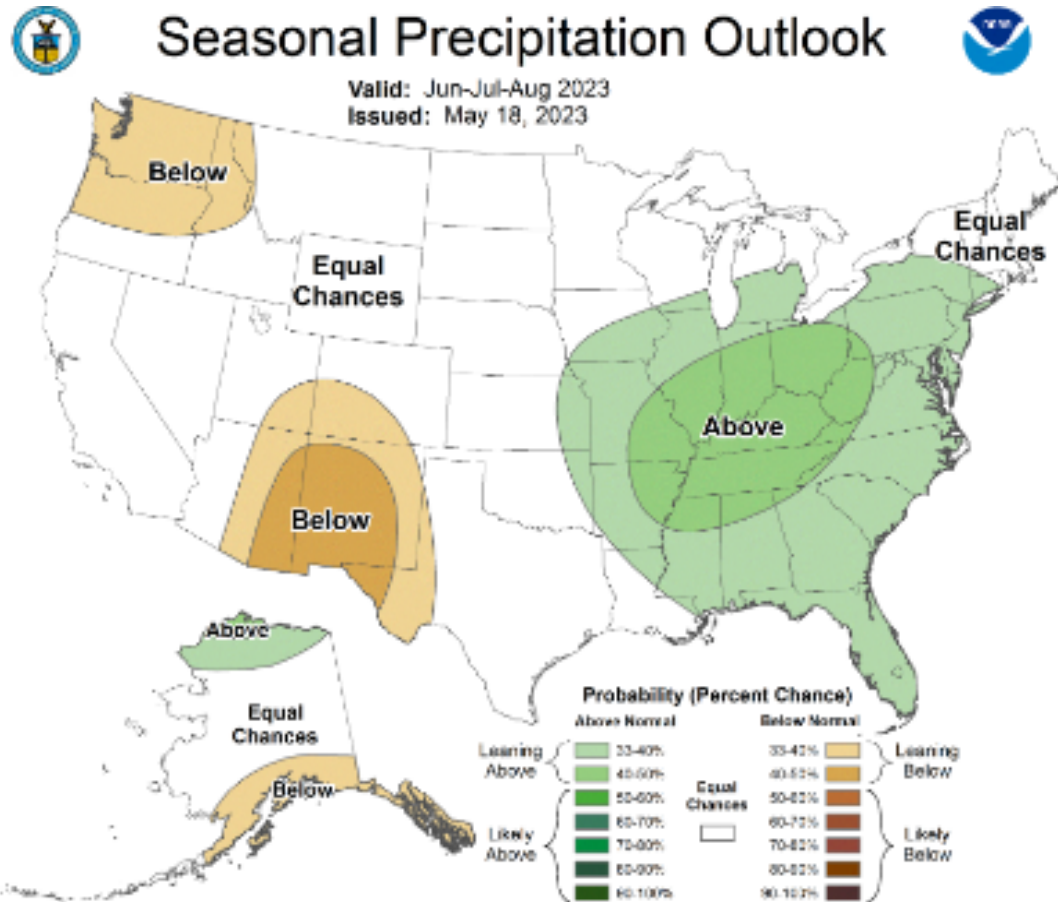
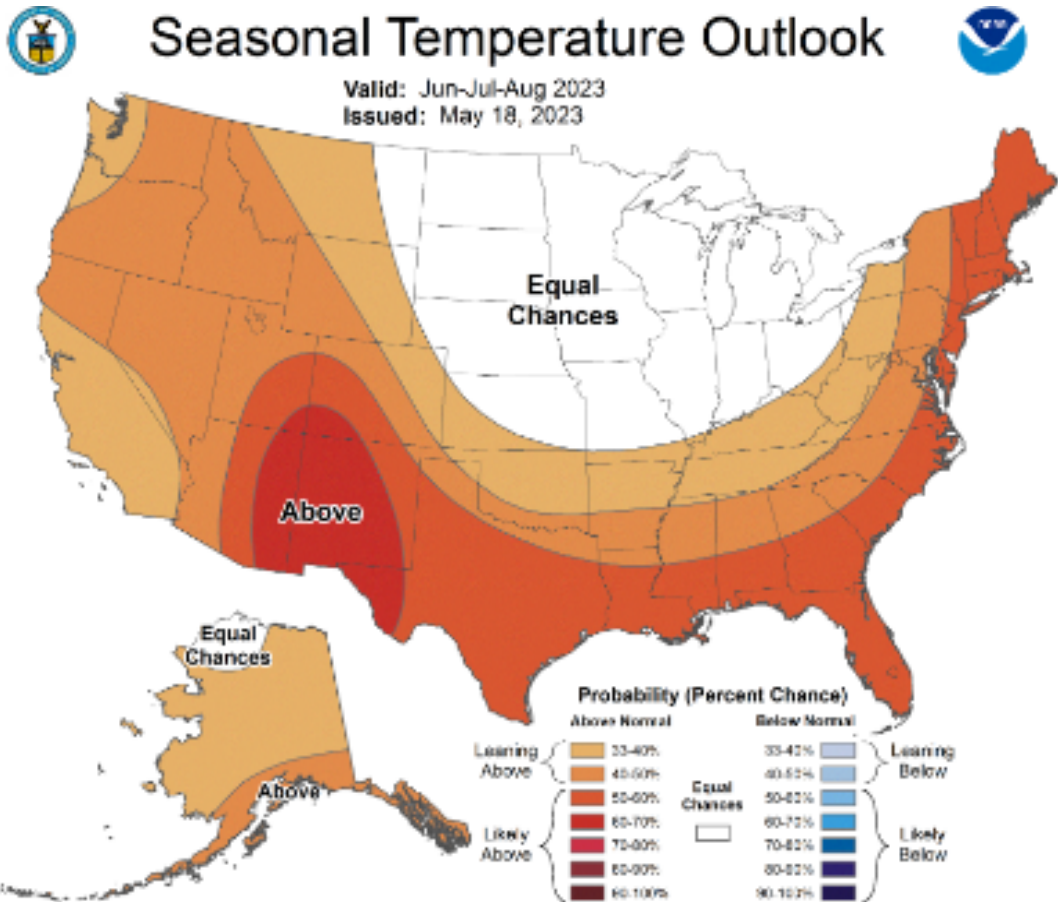
RF 2023 SUMMER RELIABILITY ASSESSMENT

- RESOURCE ADEQUACY ANALYSIS
- RISK ANALYSIS



SUMMER TEMPERATURE AND PRECIPITATION OUTLOOK

High Temperatures are a key driver of peak electricity demand

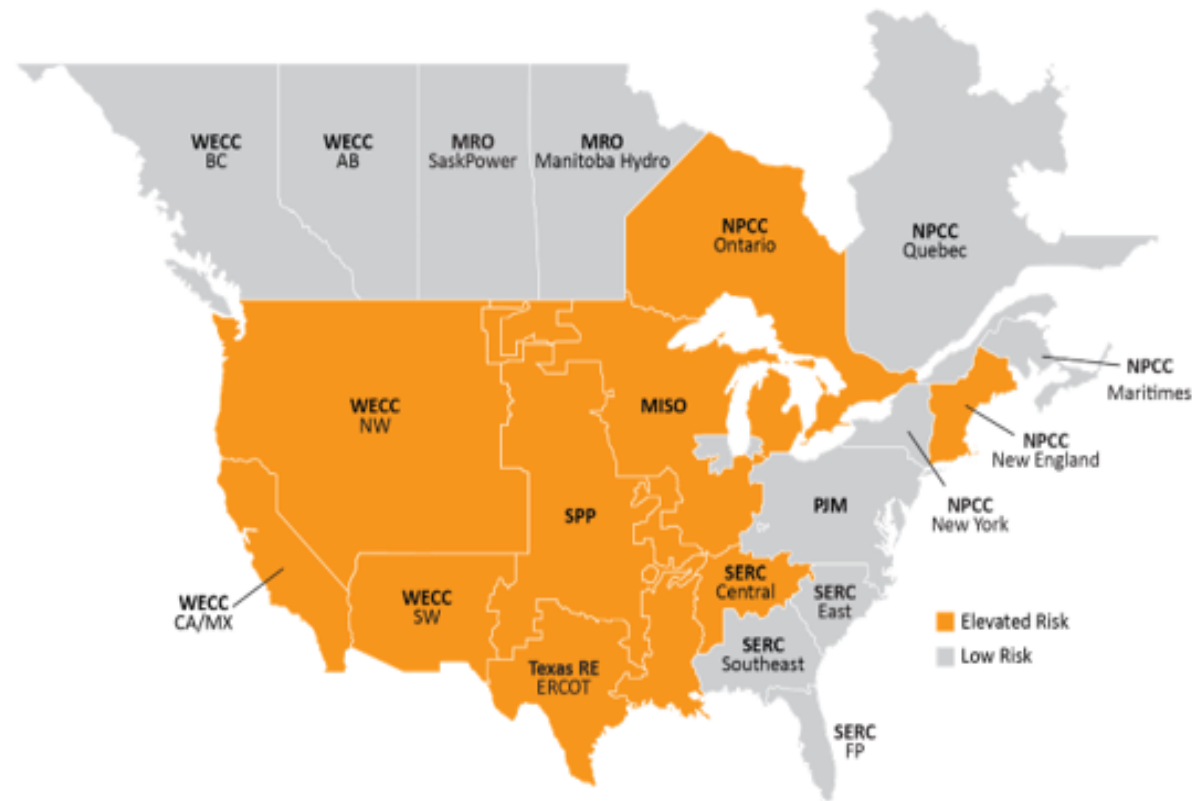


Source: <https://www.cpc.ncep.noaa.gov/>

SUMMER RISK ASSESSMENT

MISO is considered as being at an elevated risk

PJM is considered as being low risk



Seasonal Risk Assessment Summary

High	Potential for insufficient operating reserves in normal peak conditions
Elevated	Potential for insufficient operating reserves in above-normal conditions
Low	Sufficient operating reserves expected

MISO ASSESSMENT - ELEVATED RISK

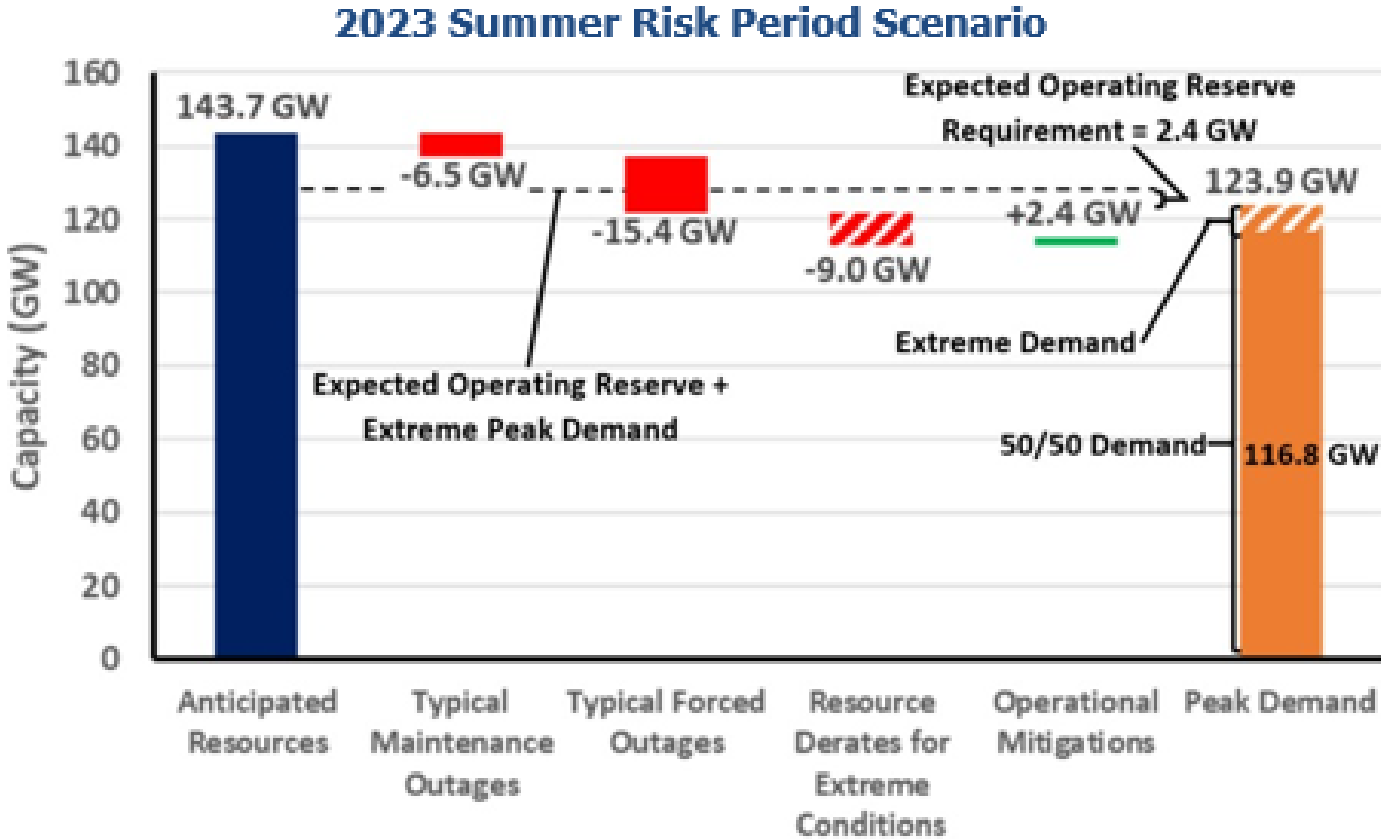
- MISO is expected to have sufficient resources, including firm imports, for normal summer peak demand
- MISO can face challenges in meeting above-normal peak demand if wind generator energy output is lower than expected
- Expect Max Gen alerts

RELIABILITY ISSUES

- New environmental rules that restrict power plant emissions will limit the operation of coal-fired generators in 23 states, including Nevada, Utah, and several states in the Gulf Coast, mid-Atlantic, and Midwest
- Low inventories of replacement distribution transformers could slow restoration efforts following hurricanes and severe storms
- Supply chain issues present maintenance and summer preparedness challenges and are delaying some new resource additions
- Unexpected tripping of wind and solar PV resources during grid disturbances continues to be a reliability concern
- Curtailment of electricity transfers to areas in need during periods of high regional demand is a growing reliability concern

MISO ASSESSMENT - ELEVATED RISK

- MISO implemented a new seasonal capacity construct
- Firm transmission imports for this summer have significantly increased



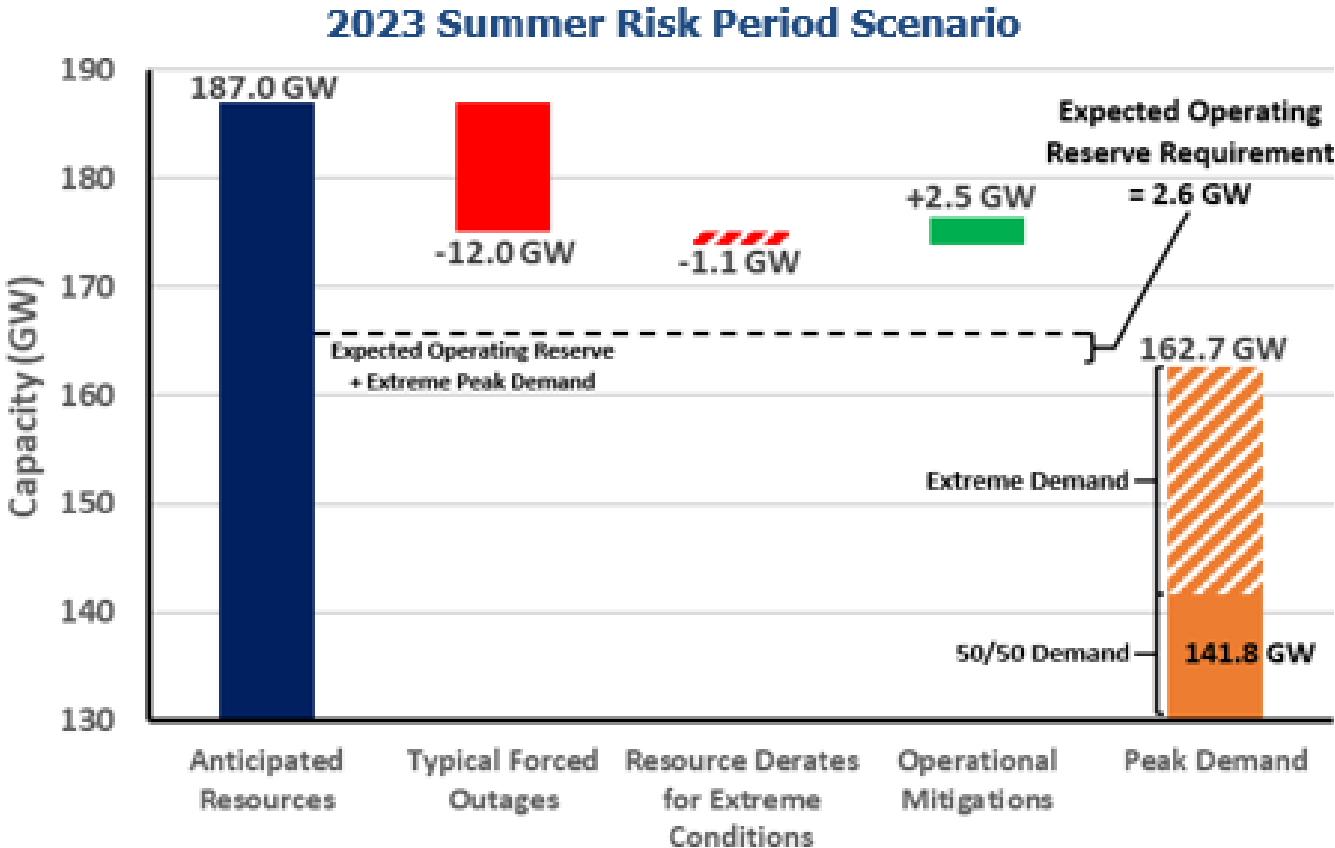
On-Peak Reserve Margin



MISO's Reference Margin Level declined from 17.9% in 2022 to 15.9% in 2023.

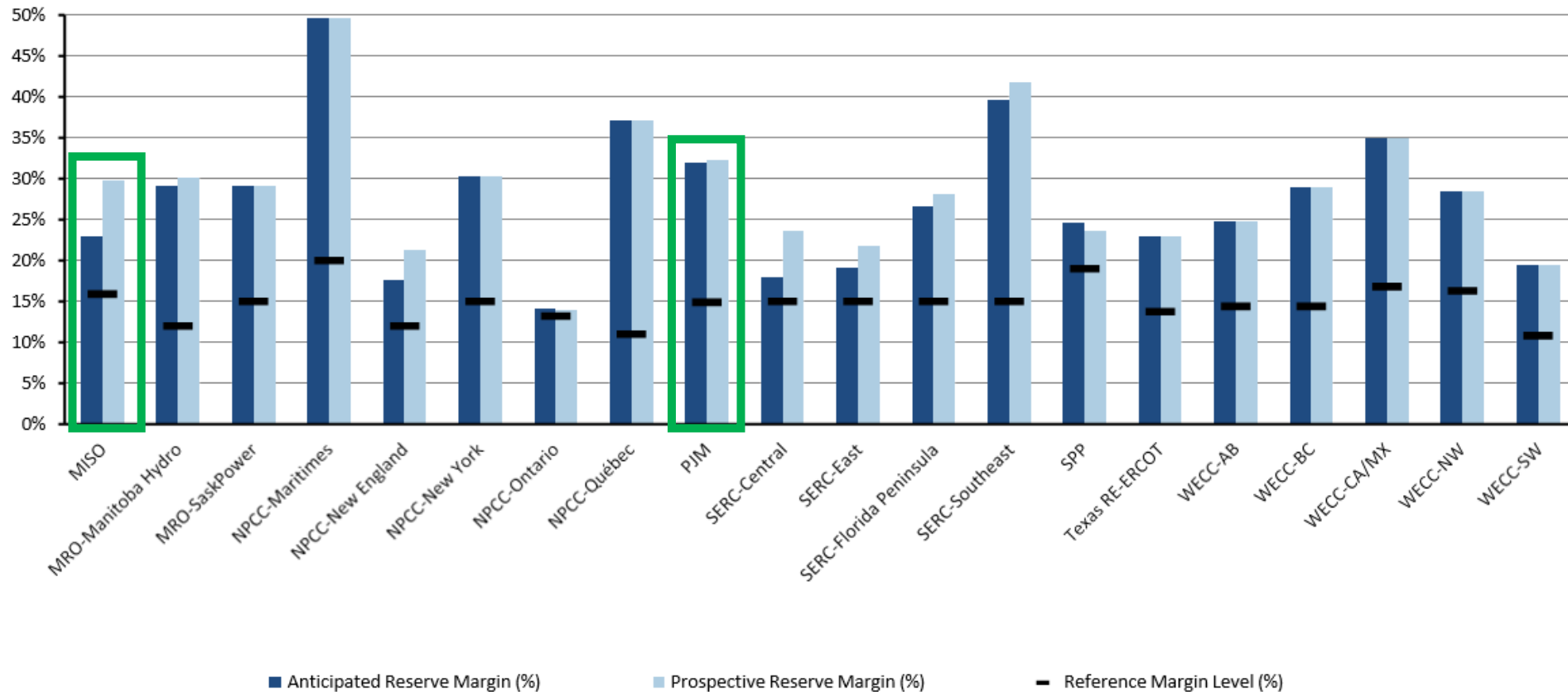
PJM ASSESSMENT - LOW RISK

- PJM expects no resource problems over the entire 2023 summer peak season
- The hour with most loss of load risk remains the hour with highest forecasted net peak demand



2023 SUMMER RESERVE MARGINS

- Anticipated Reserve Margins meet reference levels in all areas



COMPARISON OF ASSESSMENTS

- RF analysis uses the same load and resources data gathered during the NERC Assessment.
- RF publishes the results of the assessment in the RF quarterly newsletter and posts them on our public website.

Differences in analyses:

- RF uses actual historical Generator Availability Data System (GADS) data from a rolling five-year period from May through September.
- NERC polls the assessment area (i.e., PJM and MISO) and requests the average forced outages for June through September weekdays, over the past three years.

RESOURCE ADEQUACY ANALYSIS

PJM Capacity and Reserves

Net capacity Resources ²	187,03 MW
Projected Peak Reserves	45,232 MW
Net Internal Demand (NID)	141,771 MW
Planning reserve margin	31.9%

MISO Capacity and Reserves

Net Capacity Resources	143,668 MW
Projected Peak Reserves	26,843 MW
Net Internal Demand (NID)	116,825 MW
Planning reserve margin	23.0%

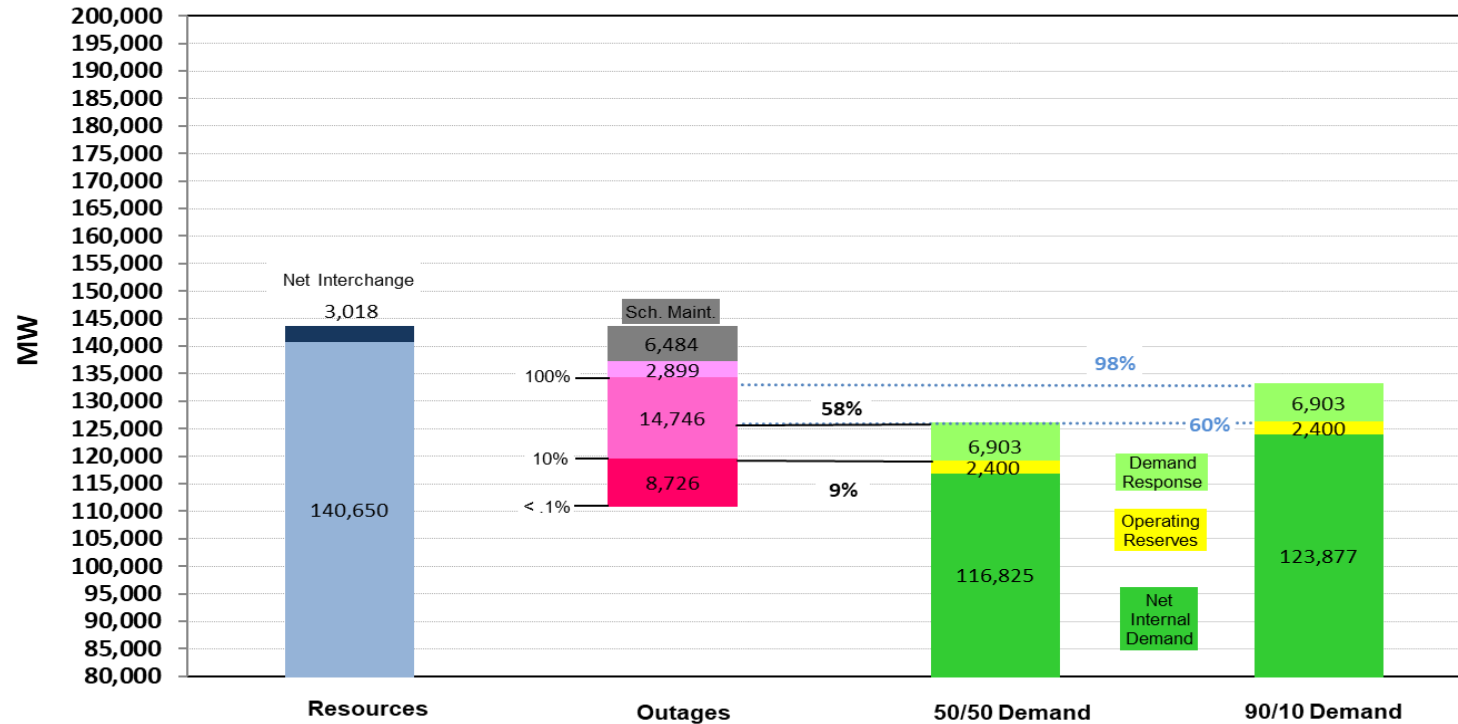
RF Footprint Resources

Net Capacity Resources	223,659 MW
Projected Peak Reserves	62,258 MW
Net Internal Demand (NID)	161,401 MW
Total Internal Demand (TID)	170,696 MW

Since PJM and MISO are projected to have adequate resources to satisfy their respective forecasted reserve margin requirements, the RF region is projected to have sufficient resources for the 2023 summer period

RANDOM GENERATOR OUTAGE RISK ANALYSIS

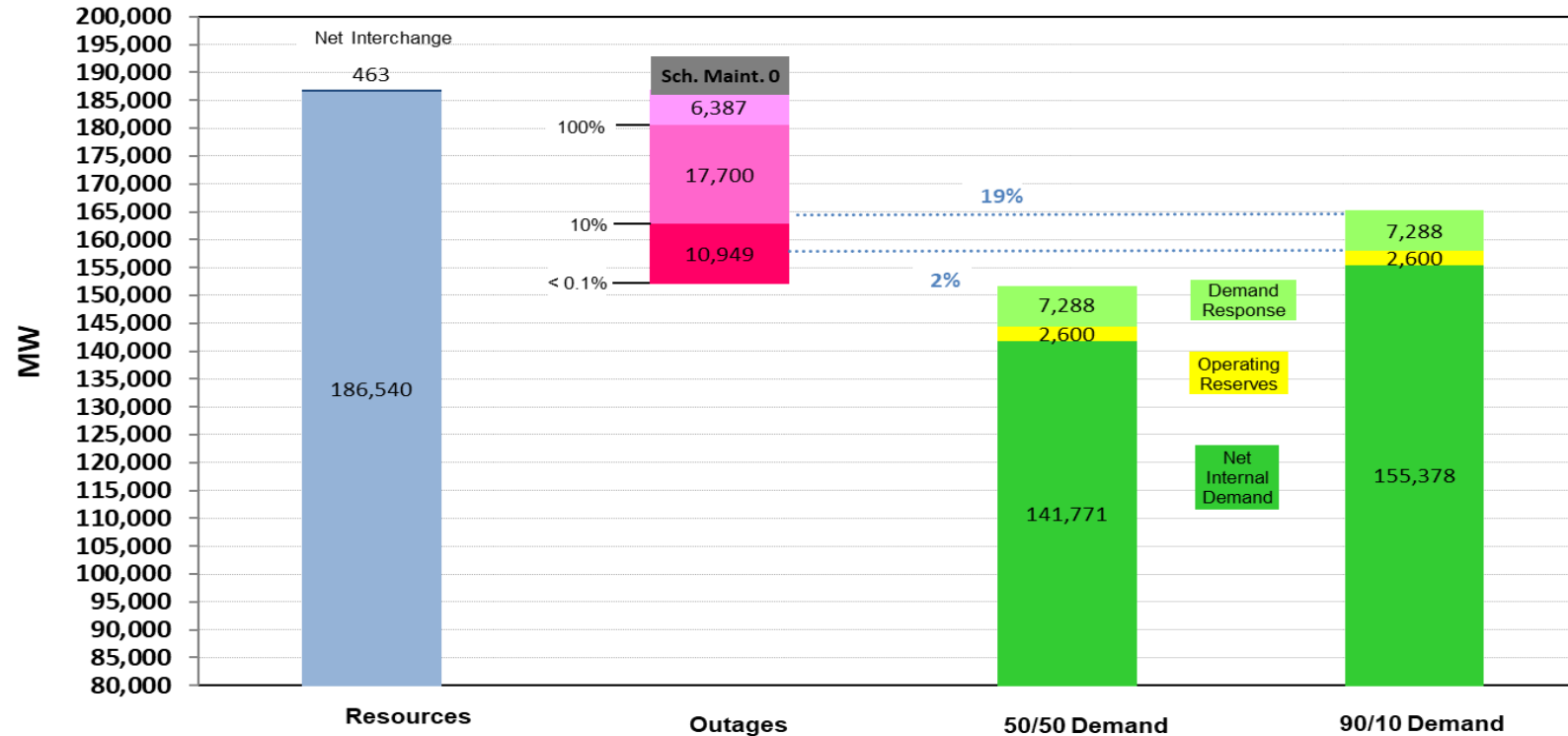
2023 Summer MISO Resource Availability Risk Chart



- During normal operating conditions there will be a 58% likelihood that there will be an amount of outages that will require Demand Response resources to be utilized.
- The top of the 90/10 demand obligation with the operating reserves has a 98% likelihood that Demand Response will be required during high demand.

RANDOM GENERATOR OUTAGE RISK ANALYSIS

2023 Summer PJM Resource Availability Risk Chart



- The 19% line between the Outage bar and the 90/10 Demand bar represents the likelihood that there will be an amount of outages that will require Demand Response resources to be utilized.
- This means that there is a probability of utilizing Demand Response during high demand (90/10).

SUMMARY

- PJM is projected to have adequate resources to satisfy their respective forecasted reserve margin requirement and has a negligible concern during extreme demand (90/10) based on our random generator outage risk analysis.
- MISO is projected to have adequate resources to satisfy their respective forecasted reserve margin requirement and has an elevated concern during an extreme demand (90/10) based on our random generator outage risk analysis.

QUESTIONS & ANSWERS

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