

NERC

NORTH AMERICAN ELECTRIC
RELIABILITY CORPORATION

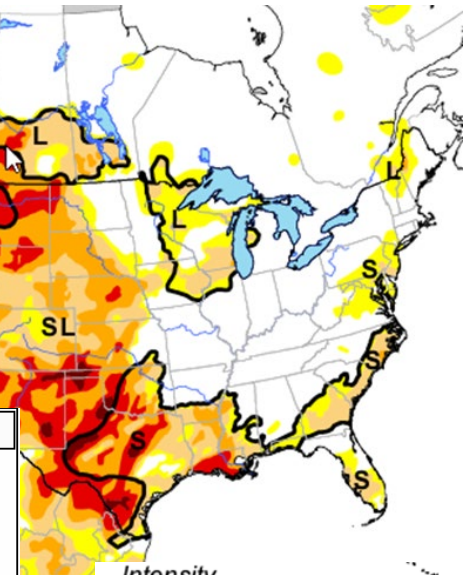
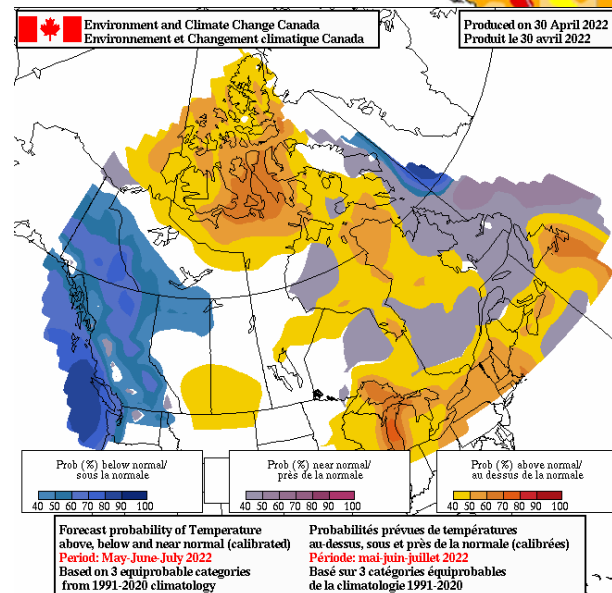
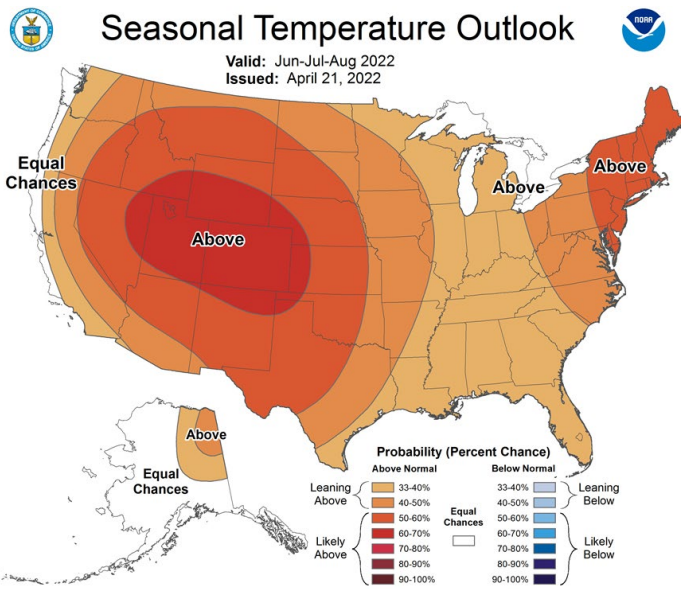
2022 Summer Reliability Assessment

John Moura, Director, Reliability Assessment and Performance Analysis
MRO Board of Directors Open Meeting
June 23, 2022

RELIABILITY | RESILIENCE | SECURITY

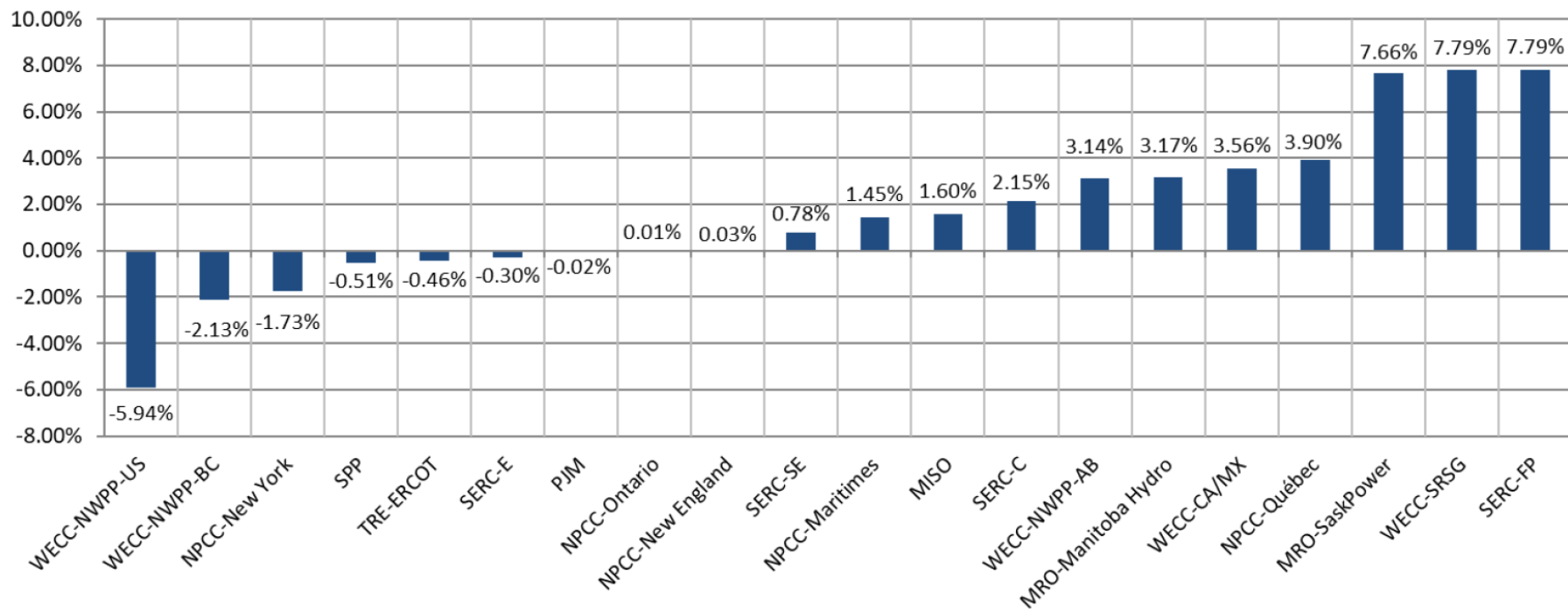


- Drought conditions create heightened reliability risks
- High temperatures are key driver of peak electricity demand

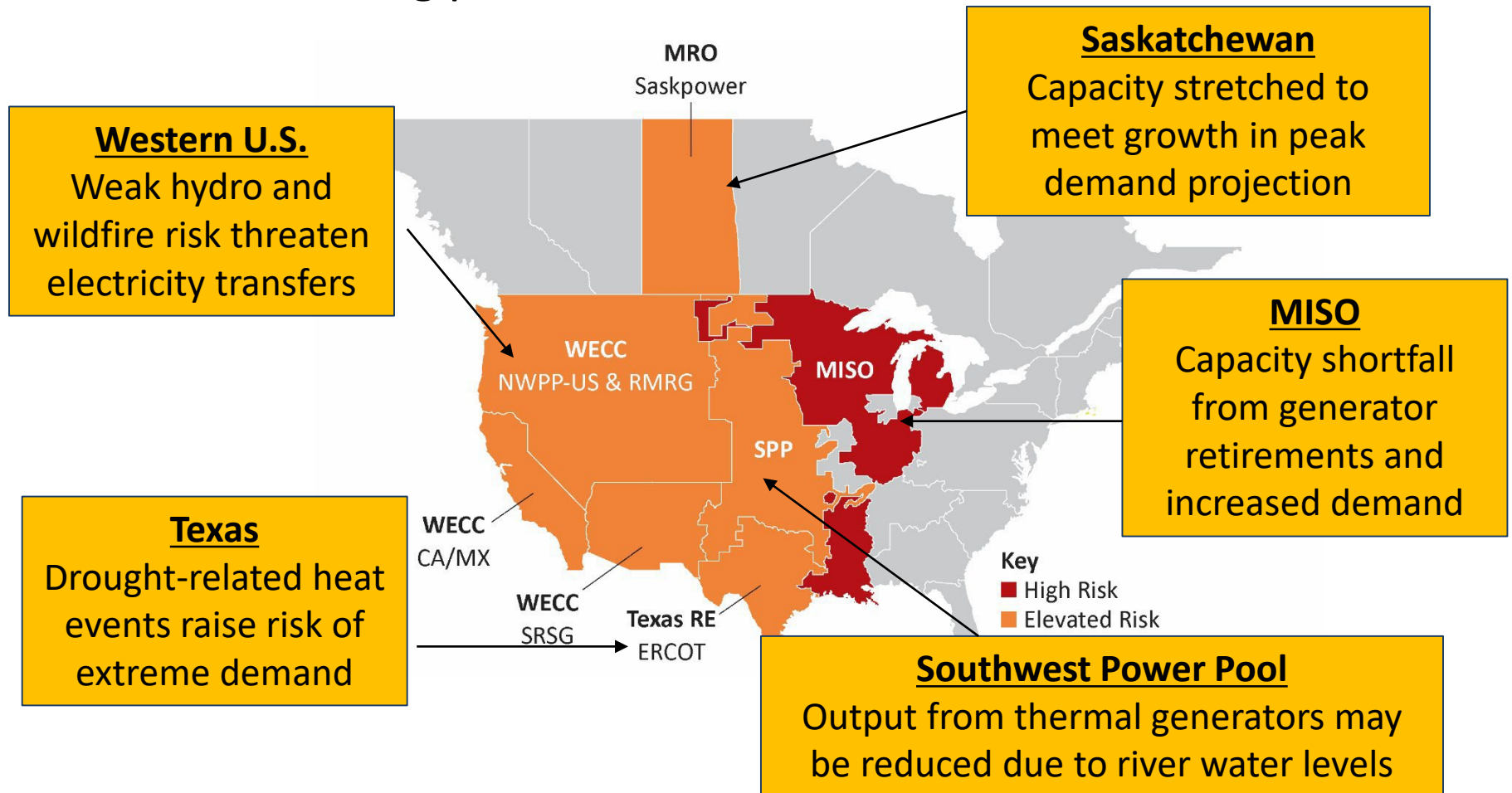


3-Month Temperature Outlook (U.S. National Weather Service, Environment and Climate Change Canada) and April North American Drought Monitor (NADM)

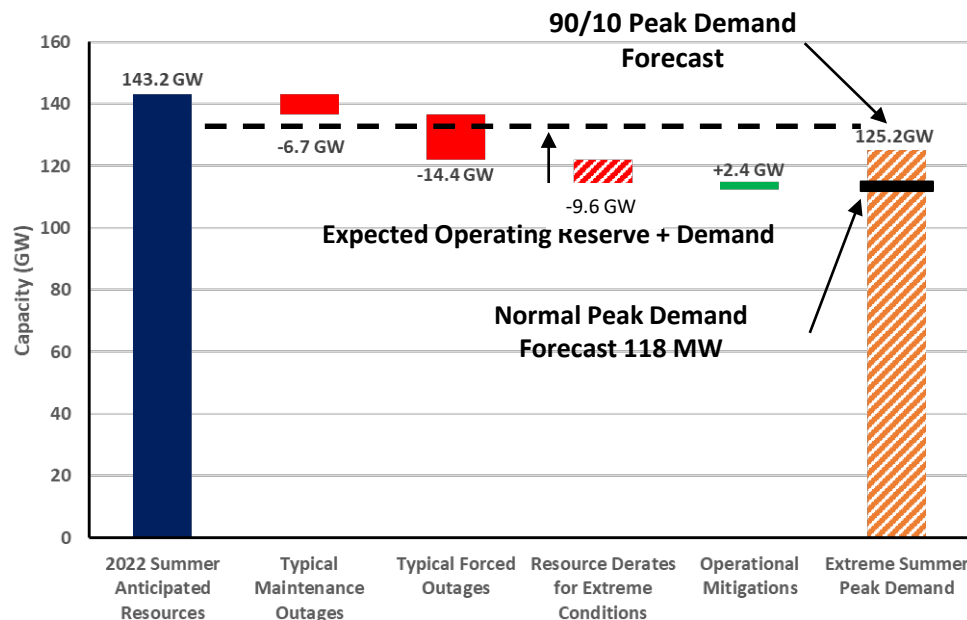
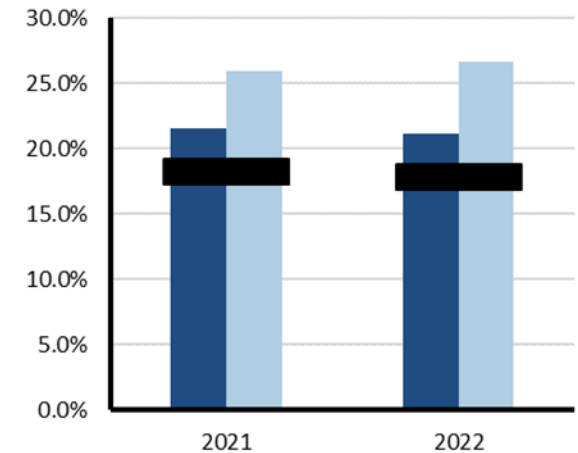
Peak Demand Increase Since Last Summer



- Parts of North America are at **elevated** or **high** risk of energy shortfalls during peak summer conditions

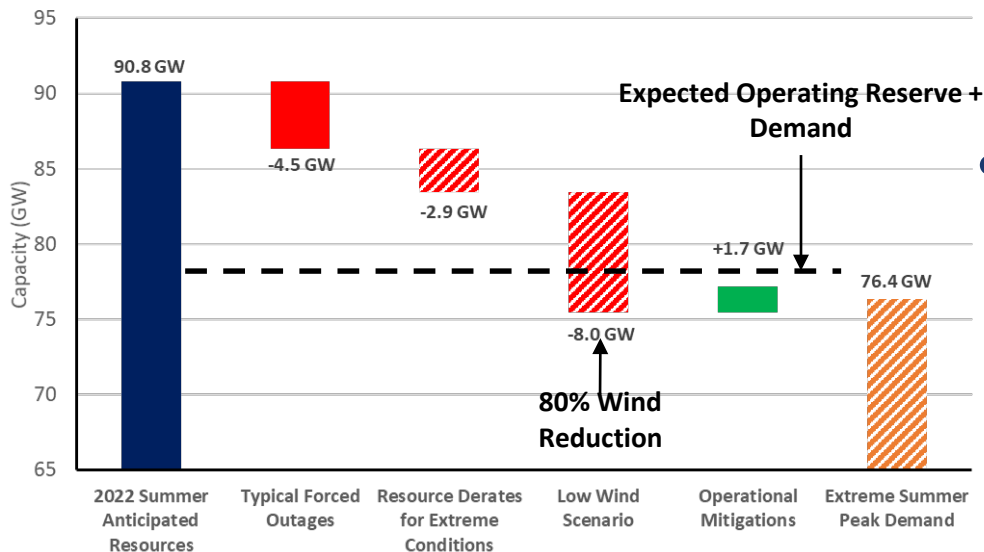
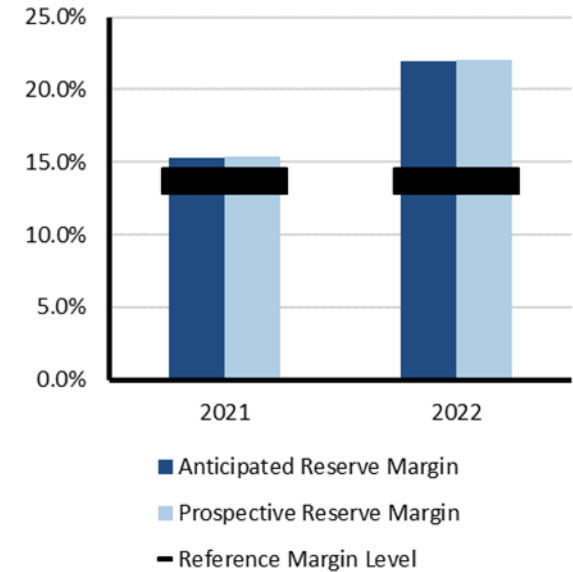


- Generation capacity declined 2.3% since 2021 resulting in lower reserve margin
- North and central areas at risk of reserve shortfall in extreme temperatures, high generation outages, or low wind



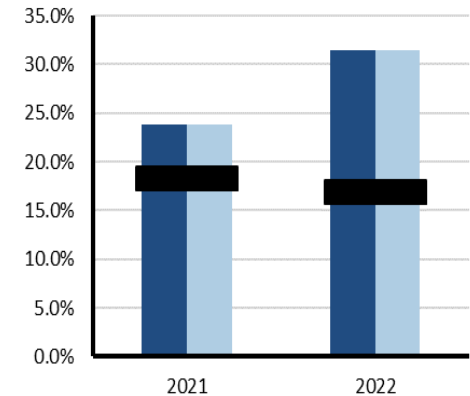
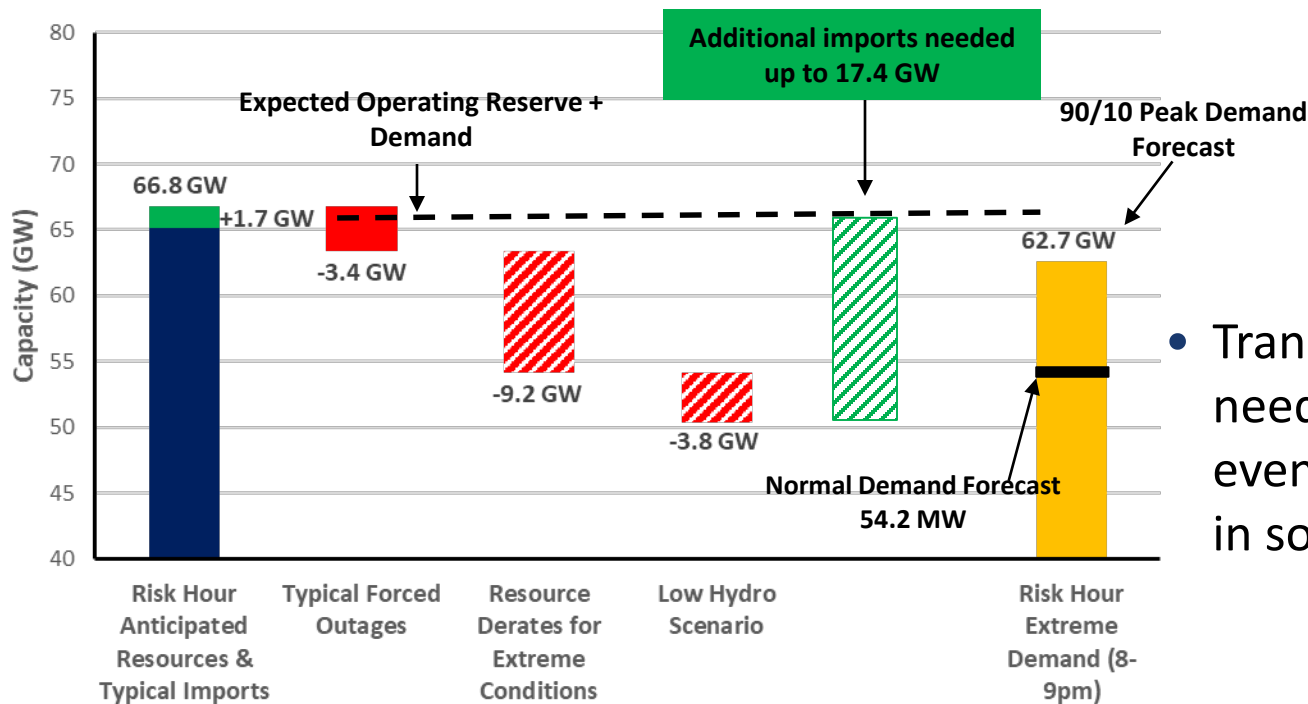
- Some risk of insufficient operating reserves at normal peak demand

- Extreme drought in Texas can cause wide-area heat events and extreme demand
- Extreme demand, low wind, and high thermal generation outages could lead to emergency procedures and load shedding



- Transmission projects needed to reliably integrate new resources being monitored for delays

- Output from hydro generators affected by widespread drought and low snowpack
- Risk of insufficient supply of electricity for transfer to support system balancing during extreme conditions



CAMX Reserve Margins

- Transfers into CAMX are needed in afternoon and evening to offset decline in solar PV output

- Supply chain issues and commissioning challenges on new resource and transmission projects
- Electricity and other critical infrastructure sectors face added cyber security threats in current geopolitical situation
- Unexpected tripping of solar photovoltaic (PV) resources during grid disturbances continues to be a reliability concern
- Active late-summer wildfire season anticipated in Western U.S. and Canada



Questions and Answers