

2022 Long-Term Reliability Assessment

The LTRA identifies reliability trends, emerging issues, and potential risks to the bulk power system over a 10-year horizon.

High Risk

Anticipated reserves fall below Reference Margin Levels, and energy risks exist in normal peak demand conditions during one or more years:

California-Mexico

The addition of new resources and retention of key generators is alleviating near-term capacity shortages, but energy risks persist. Variable resource output and changing demand could cause energy shortfalls that range from 1–10 hours.

MISO

A projected shortfall of 1,300 MW occurs next summer and continues to grow throughout the 10-year assessment period as coal, nuclear, and natural gas generation retire faster than replacement resources are connecting.

Ontario

A reserve margin shortfall of 1,700 MW begins in 2025 and continues to grow throughout the 10-year assessment period due to generation retirements and lengthy planned nuclear maintenance outages.

Elevated Risk

Reserves meet resource adequacy criteria, but the risk of energy shortfalls exists in severe hot or cold weather (90/10 extreme event):

U.S. Northwest and Southwest

The risk of energy shortfalls from wide-area, long-duration heat events are expected to increase. Coal and natural gas generation retirements and lower amounts of hydro availability threaten reliability over the next 10 years. With high reliance on energy transfers, wide-area severe weather poses an increased risk to electricity supplies and transmission network impacts.

New England

Texas

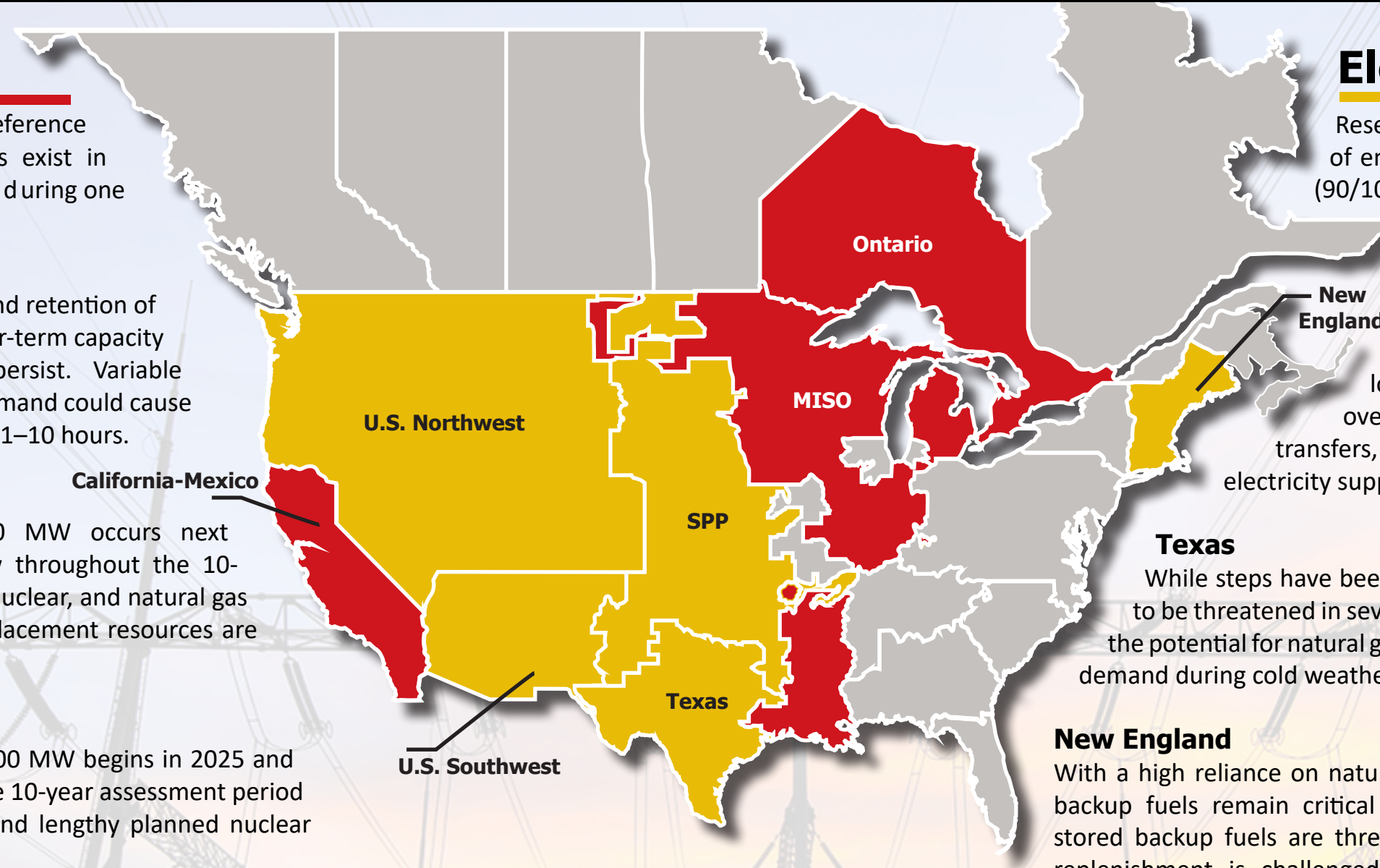
While steps have been taken since Winter Storm Uri, reliability continues to be threatened in severe winter weather conditions by generator outages, the potential for natural gas supply disruptions, and abnormally high electricity demand during cold weather.

New England

With a high reliance on natural gas generation, liquefied natural gas and stored backup fuels remain critical to reliability over the next 10 years. Units with stored backup fuels are threatened by market conditions. Fuel availability and replenishment is challenged in severe winter weather. Over the long-term, infrastructure contingencies become reliability risks during any time of the year.

SPP

Energy shortfalls are likely during low-wind, high demand periods.



Key Trends

Retirements

More than 88 GW of generating capacity is confirmed for retirement over the assessment period (similar to the 10-year projection in the 2021 LTRA) with an additional 22 GW of generators that could retire within the next five years. It is critical that the pace of generator retirements be managed until solutions are in place that can continue to meet energy needs and provide essential reliability services.

Demand Growth

For the first time in recent years, electricity peak demand projections are increasing. Adoption of electric vehicles and other energy transition programs will significantly influence demand.

Flat Transmission Growth

Transmission development projections remain near the five-year averages and less than 15% of projects are driven by new resource integration. Large-scale regional projects are needed to interconnect the volume of wind and solar generation in development and meet regional demand.

Integration of Inverter-Based Resources

More than 70% of new generation in development is solar, wind, and hybrid-battery, making reliable integration of new resources paramount.

Growth in Distributed Energy Resources

Solar photovoltaic distributed energy resources are projected to reach more than 80 GW by the end of this 10-year assessment, a 25% increase in projection since the 2021 LTRA.