

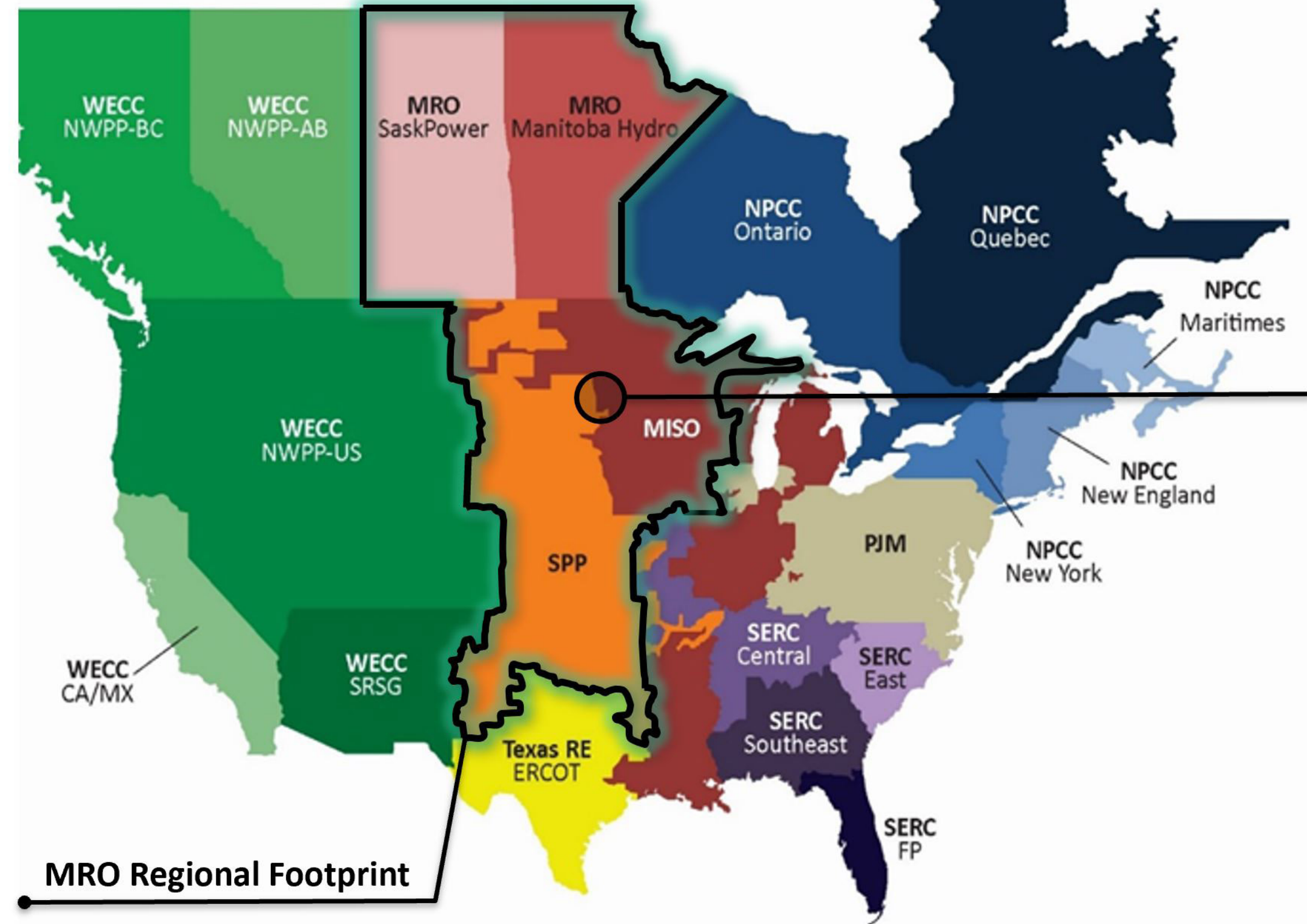


# 2023 Regional Winter Assessment

A comprehensive evaluation of resource and transmission system adequacy, emerging trends, and projected reliability concerns for the bulk power system in MRO's regional footprint for the upcoming winter season.

## Key Findings

### NERC Assessment Areas



**+6.9%** **Saskatchewan Power**  
**HIGH RISK**

Insufficient capacity to meet operating reserve requirements under normal peak-demand with typical maintenance and forced outages. Extreme winter conditions, combined with large generation forced outages, will likely require emergency response efforts.

**+13.2%** **Manitoba Hydro**  
**LOW RISK**

Resources are sufficient to meet reserve margin requirements under normal and extreme winter conditions.

**+8.3%** **Midcontinent ISO (MISO)**  
**MEDIUM RISK**

Sufficient capacity to meet forecasted seasonal peak load with typical maintenance and forced outages. Extreme winter conditions may result in insufficient energy to serve anticipated peak demand and require emergency response efforts.

**+7.2%** **Southwest Power Pool (SPP)**  
**MEDIUM RISK**

Resources are sufficient to meet reserve margin requirements under normal demand for the 2023-2024 winter season. Extreme weather may result in insufficient energy to meet anticipated winter peak demands and could require emergency response efforts.

## Reliability Trends

- Generation forced outage rates are increasing as a result of component fatigue and an aging fleet, due in part to higher penetrations of intermittent resources that cause conventional generation to cycle more.
- Human error-related misoperations attributed to as-left personnel errors, design errors, incorrect settings, and logic errors saw significant improvement over previous seasons.

## Recommendations

- Industry:**
- Review NERC alerts related to cold weather preparedness and participate in MRO's voluntary Generator Winterization Program.
  - Maintain situational awareness of unplanned generation outages and low wind forecasts and employ operating mitigations when needed during extreme weather conditions.
  - Assess and develop new and better methods to evaluate supply adequacy, especially when a significant amount of generation capacity has an intermittent fuel source that is difficult to forecast.
- State and Provincial Regulatory Agencies:**
- State and provincial regulators should assist grid operators prior to, and during, the winter season by supporting requested environmental and transportation waivers, as well as public appeals for electric load and natural gas conservation.