DOCKETED	
Docket Number:	22-IEPR-05
Project Title:	Emerging Topics
TN #:	247876
Document Title:	Presentation - Western Assessment of Resource Adequacy and NERC Winter Reliability Assessment
Description:	4.B Branden Sudduth, WECC
Filer:	Raquel Kravitz
Organization:	Western Electricity Coordinating Council (WECC)
Submitter Role:	Public
Submission Date:	12/1/2022 3:22:34 PM
Docketed Date:	12/1/2022

WECC

Western Assessment of Resource Adequacy and NERC Winter Reliability Assessment

December 2, 2022

IEPR Commissioner Workshop on
Western Electricity System Integration

Branden Sudduth

VP, Reliability Planning and Performance Analysis

Western Assessment of Resource Adequacy

- High-level assessment that identifies and characterizes resource adequacy risks
- Assessment footprint
  - Western Interconnection
  - Five subregions
- 10-year, hourly analysis (2023-2032)
- Probabilistic approach
- Energy-based approach
  - Account for variability
  - Complement capacity-based approaches
- Data comes from WECC Balancing Authorities
  - Includes hourly expected demand and resource information

Drivers of Change

Change is creating more variability; increased variability leads to increased risk

Examples of Drivers:
- State and federal energy policies
- Climate and weather changes
- New technology
- Consumer choice changes

Resource Variability Examples
- Variable energy resources (VER)
- Fuel availability, e.g., natural gas

Demand Variability Examples
- Weather
- Customer choice

Increased variability makes predicting and planning more difficult. The system must manage broader range of conditions

Defining Risk in this Assessment

1. Number of hours when there is a risk that demand may not be served (demand-at-risk hours)

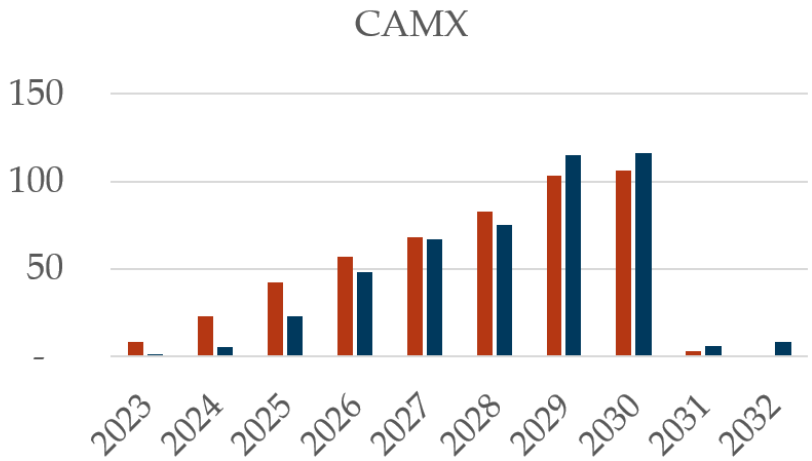
2. Increasing resource and demand variability

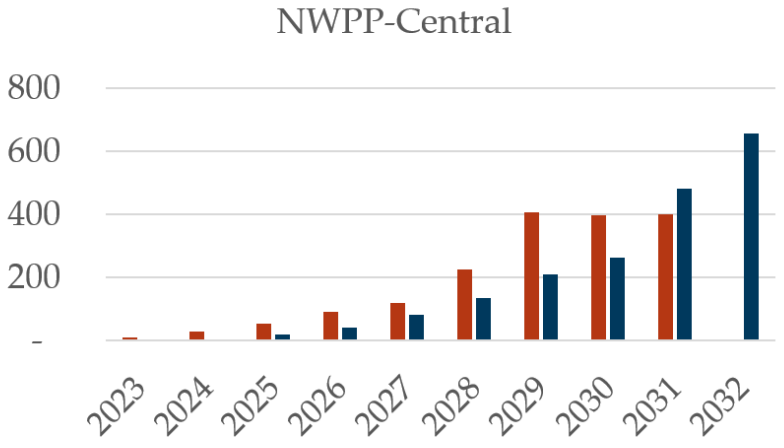
3. Magnitude and frequency of demand-at-risk hours

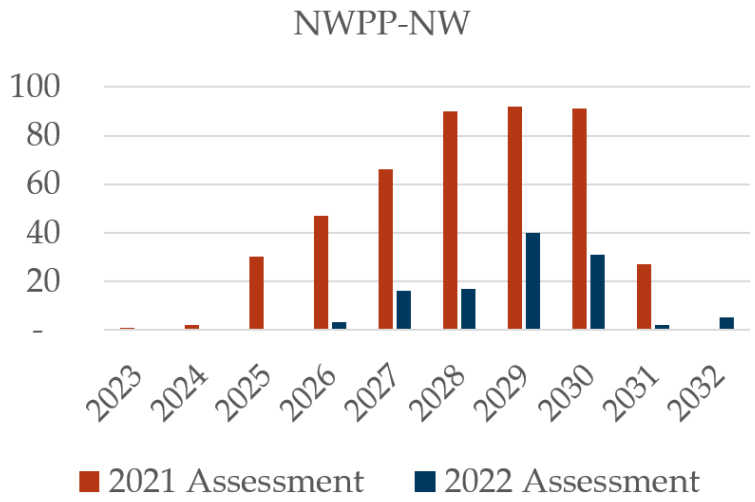
Key Takeaways

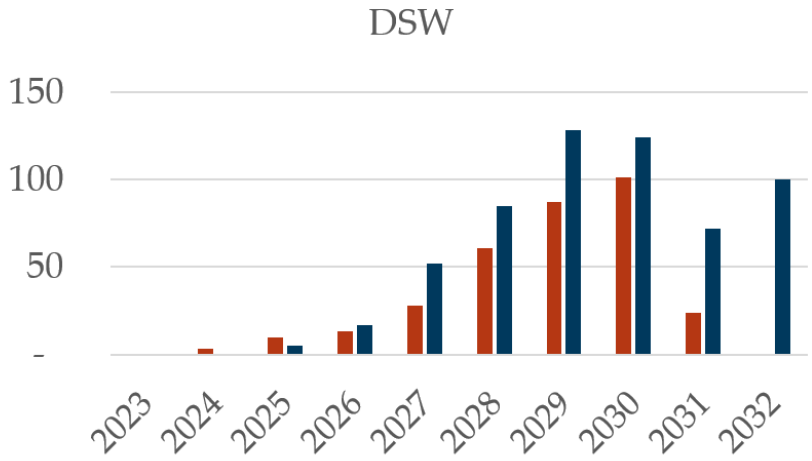
- In the near-term (two to three years), the number of demand-at-risk hours has decreased compared to the 2021 assessment
  - Delayed retirements
  - New or expedited resources
  - Reductions in load forecasts in Pacific Northwest and Northern Rocky Mountains
- After 2025, the number of demand-at-risk hours increases each year through 2032
- Resource and demand variability increase over the next 10 years
- The magnitude and likelihood of resource adequacy risk has increased compared to what the 2021 report found

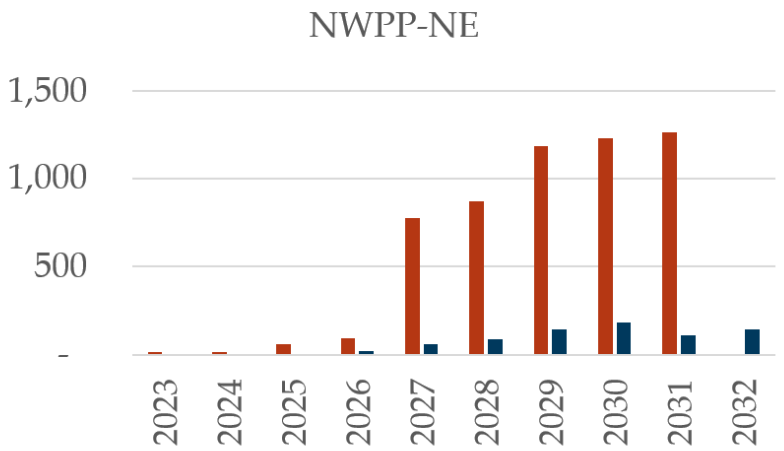
Subregional Demand-at-Risk Results









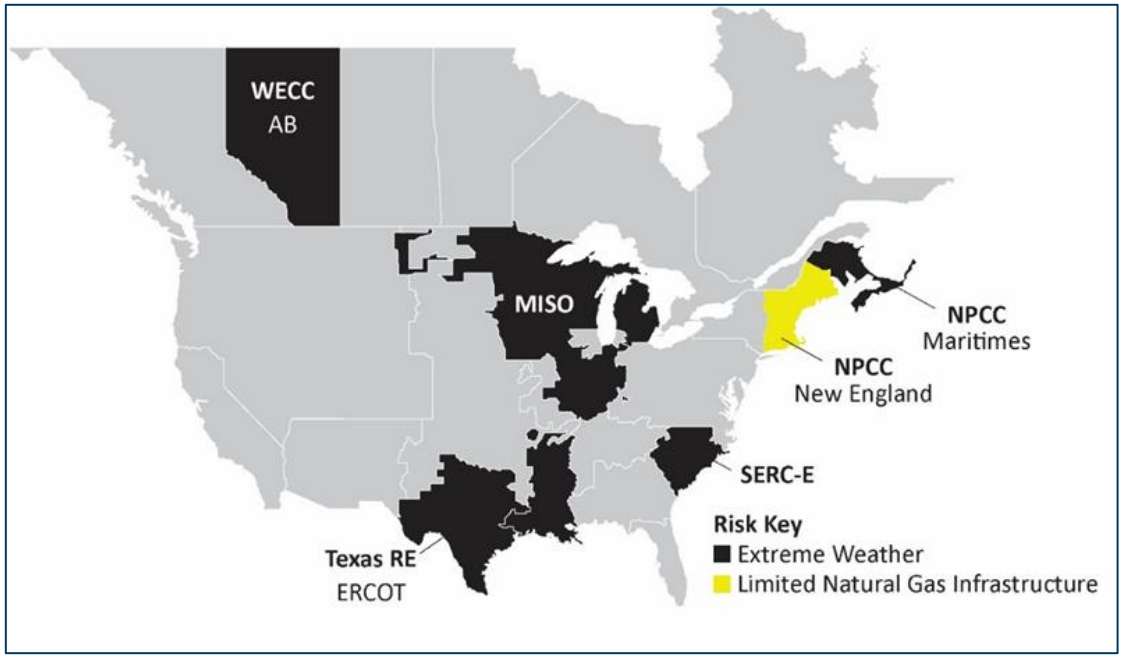


NERC—Winter Reliability Assessment

- NERC's Winter Reliability Assessment Energy Risk Assessment found that:
  - A large portion of North America is at risk of insufficient electricity supplies during peak winter conditions
  - Factors contributing to reliability risks in affected areas include:
    - Higher peak-demand projections
    - Generator retirements
    - Generator vulnerability to extreme weather
    - Fuel supply and natural gas infrastructure limitations
  - Special attention on generator fuel supplies is warranted by current domestic and global energy markets and supply chains

Winter Energy and Capacity Risk Summary

- **Texas**
  - High generator outages, fuel disruption, and volatile demand in extreme cold
- **MISO**
  - 4.2 GW of nuclear and coal plant retirements since last winter
  - Extreme cold impact to generation and fuel
- **Alberta and Maritimes Provinces**
  - Peak electricity demand growth strains tight winter reserve margins
- **SERC East**
  - Lower capacity and growth in demand cause risk of shortfall in extreme cold
- **New England**
  - Natural gas supply infrastructure limitations



Winter Reliability Risk Map

WECC

Electric Reliability and Security for the West

Contact:

Branden Sudduth

bsudduth@wecc.org