NARUC

National Association of Regulatory Utility Commissioners

Gas and Electricity Committees Joint Meeting

Jan. 13, 2025

AGENDA

1. Welcome
   Electricity Committee Chair Kim Duffley, North Carolina
2. Presentation: 2024 Long-Term Reliability Assessment
   Suzanne Edwards, Principal Analyst, Reliability Assessments, NERC
3. Q&A/discussion
4. NARUC updates: Winter Policy Summit
   NARUC staff
5. Other business

NERC
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

2024 Long-Term Reliability Assessment

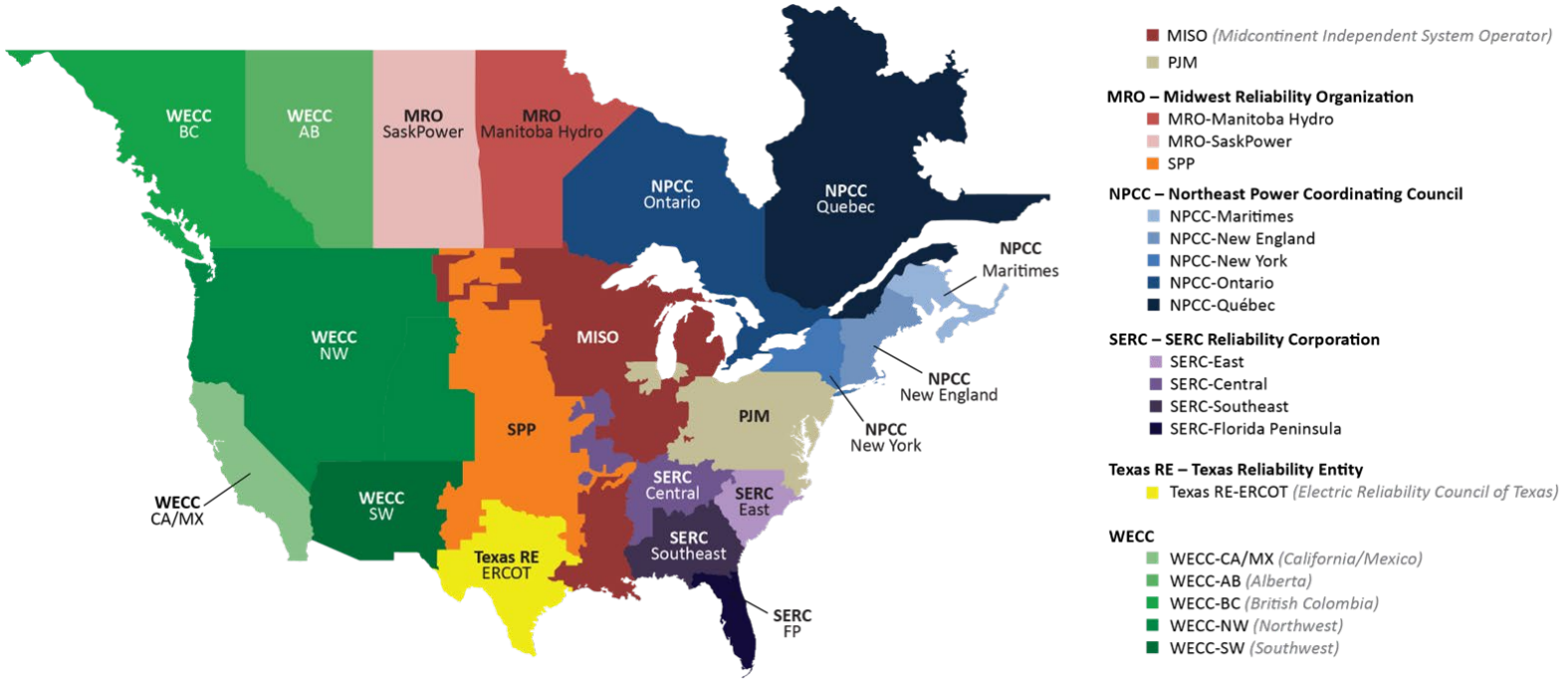
Suzanne Edwards, Principal Analyst, Reliability Assessments

NARUC Presentation

January 13, 2025

Long-Term Reliability Assessment (LTRA)

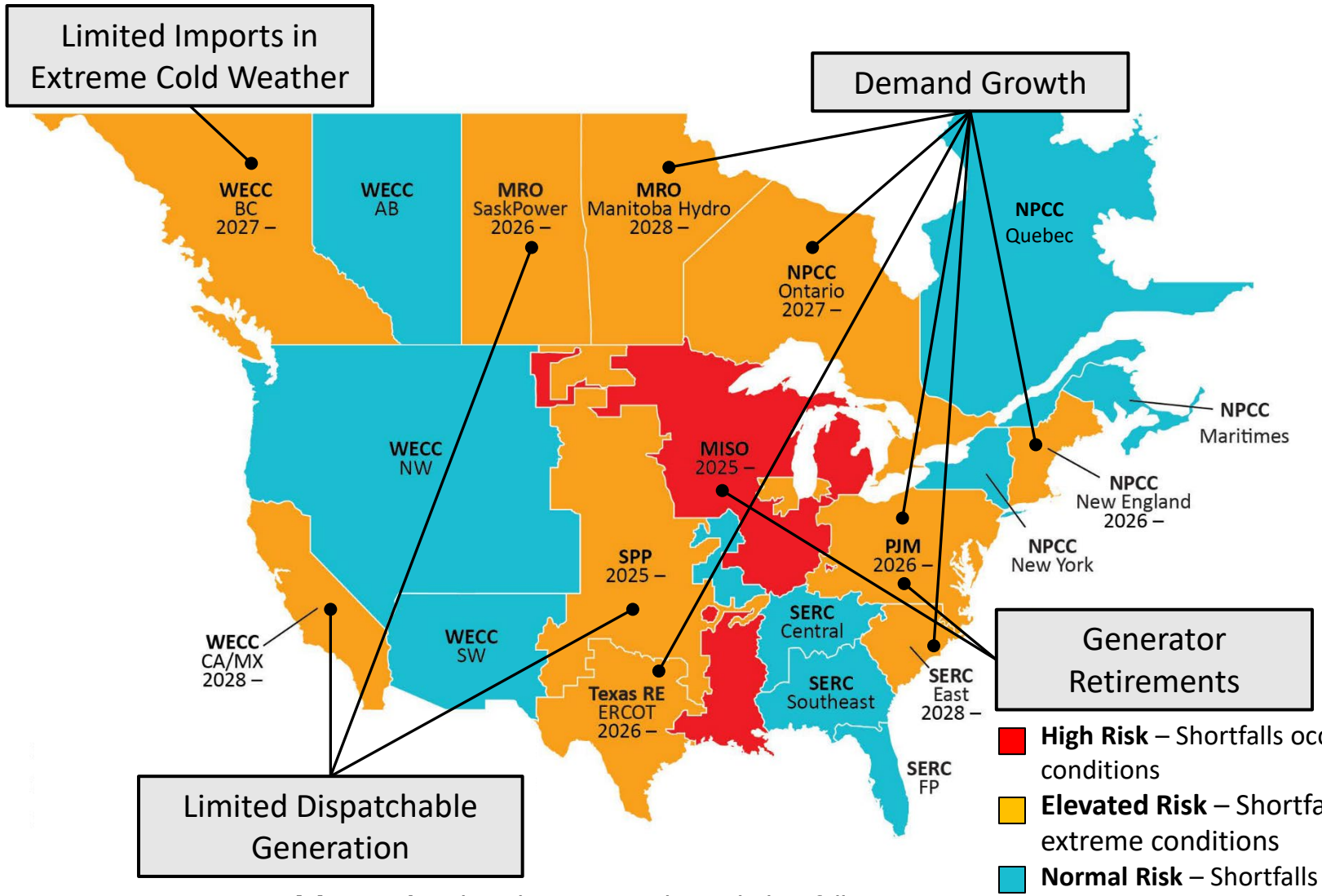
- 10-year assessment of resource capacity and energy risks
- Uses industry's demand and generation forecasts and transmission projections
- Coordination and review with Region Entities and stakeholders
- Includes emerging issues that can impact future reliability



Key Findings

- **Assessment** Over half of North America is at risk of energy shortfalls over the next 10 years
- **Assessment** Projected generator retirements remain at high levels and accelerate the need for resources
- **Trend** Demand growth is rising rapidly driven by electrification, data centers, and industrial load
- **Trend** Projections of future resources reflect slower rate of additions
- **Trend** Transmission development is increasing, with more projects in planning

Increasing Energy Risks Over The Next 5 Years



Risk Map | with Risk Drivers and Initial Shortfall Years

High Risk – Shortfalls occurring in normal peak conditions

Elevated Risk – Shortfalls occurring in extreme conditions

Normal Risk – Shortfalls not expected under studied conditions

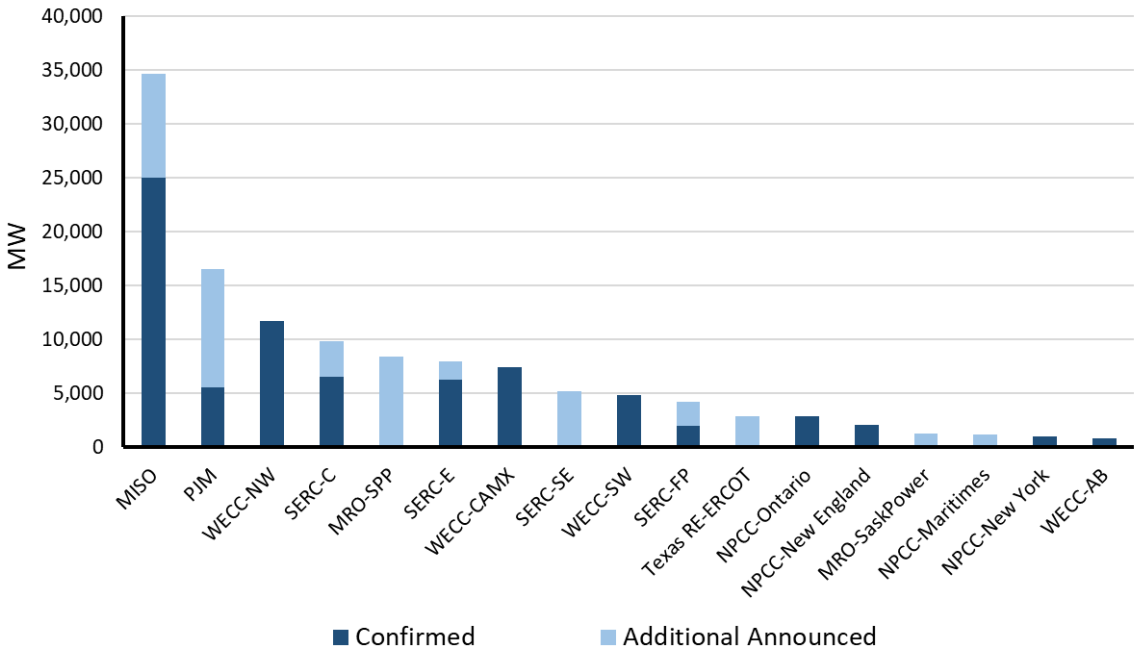
Assessment Inputs:

- Probabilistic Assessment (Studied Years 2026 and 2028)
- Planning Reserve Margins (2025 through 2029)

Risk determination based on established resource adequacy criteria (1-day-in-10 years) and NERC-National Academy of Engineering Workshop Report criteria for load-loss and unserved energy

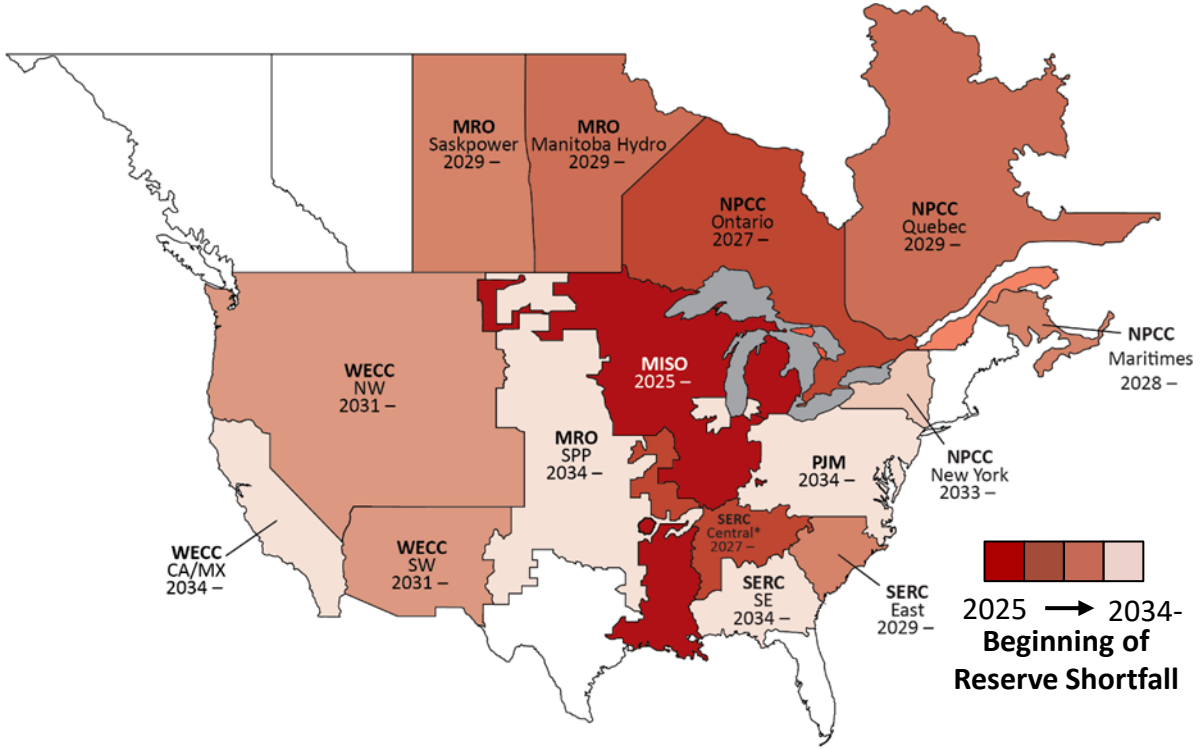
More Resources Are Needed To Meet Expected Retirements

- Areas are projected to fall short of reserve margin requirements as generation retirements continue at rapid pace
- Generator retirements through 2034 (thermal): 78 GW confirmed + 37 GW announced



Fossil-fired and Nuclear Generator Retirements by 2034

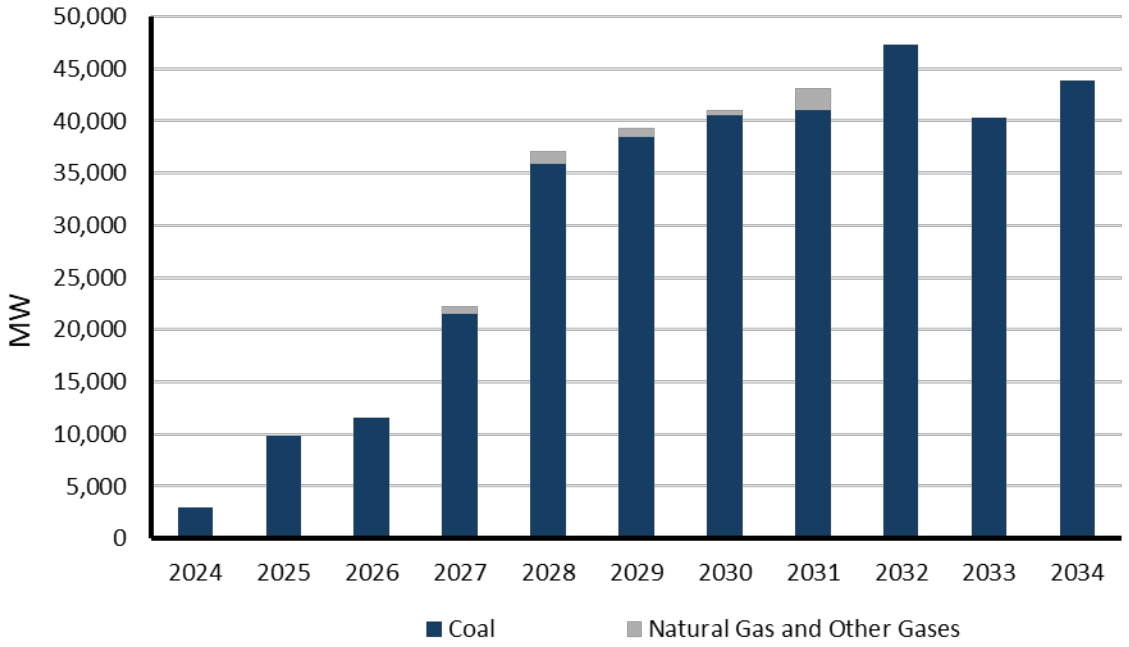
Source: Energy Ventures Analysis, Inc and LTRA Data



Reserve Margin Shortfall Projections Over the 10-Year Period

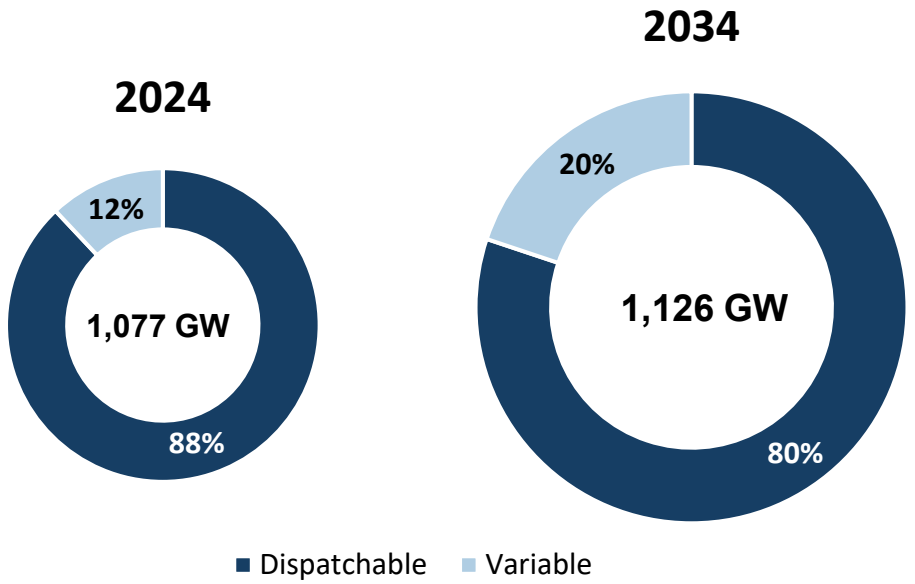
More Resources Are Needed To Meet Expected Retirements

- Additional potential generator retirements through 2034 is largely comprised of coal-fired power
- With the vast majority of retirements (confirmed and additional) being dispatchable resources, the projected resource mix presents reliability challenges



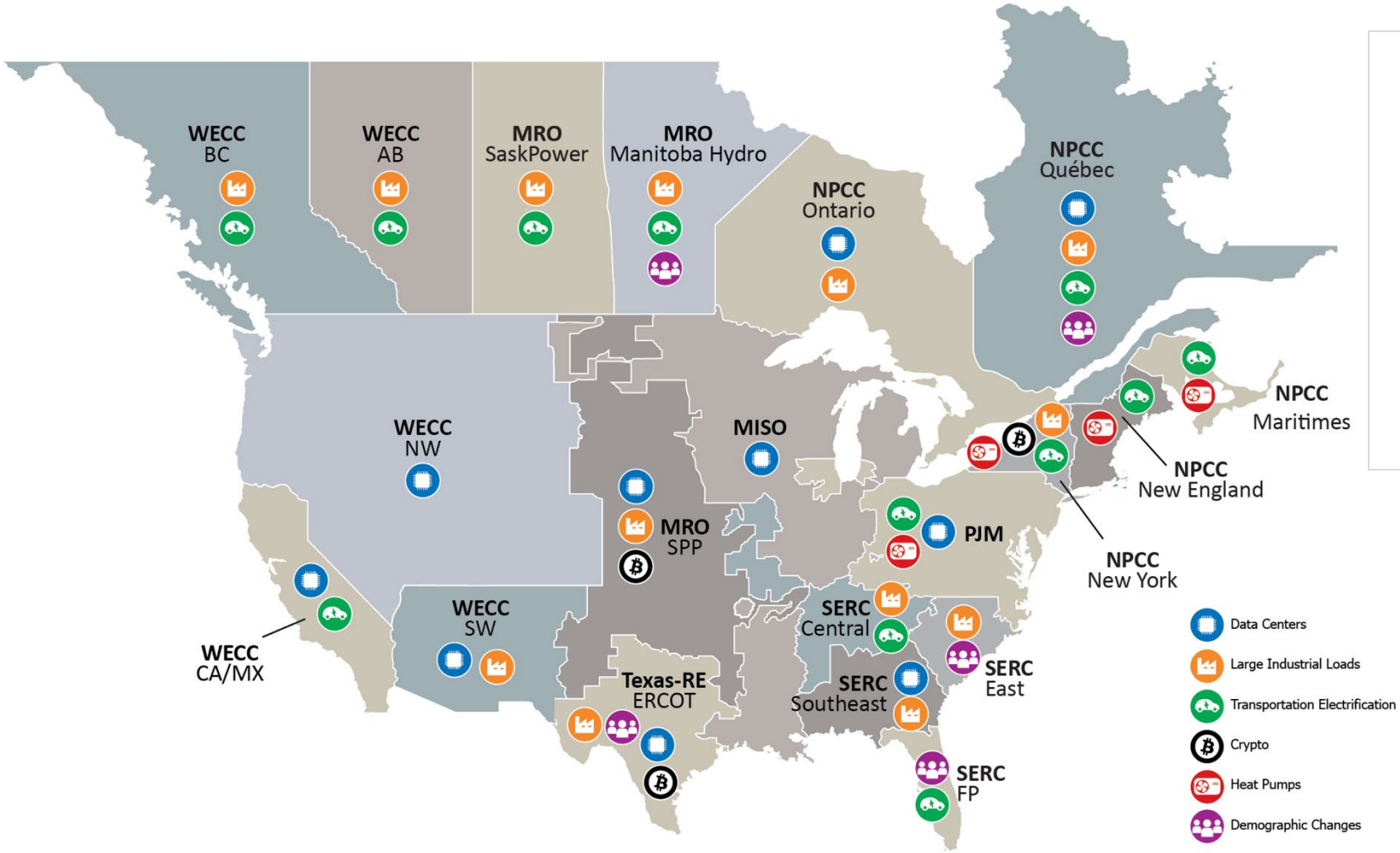
Additional Announced Generator Retirements by Fuel

Source: Energy Ventures Analysis, Inc and LTRA Data

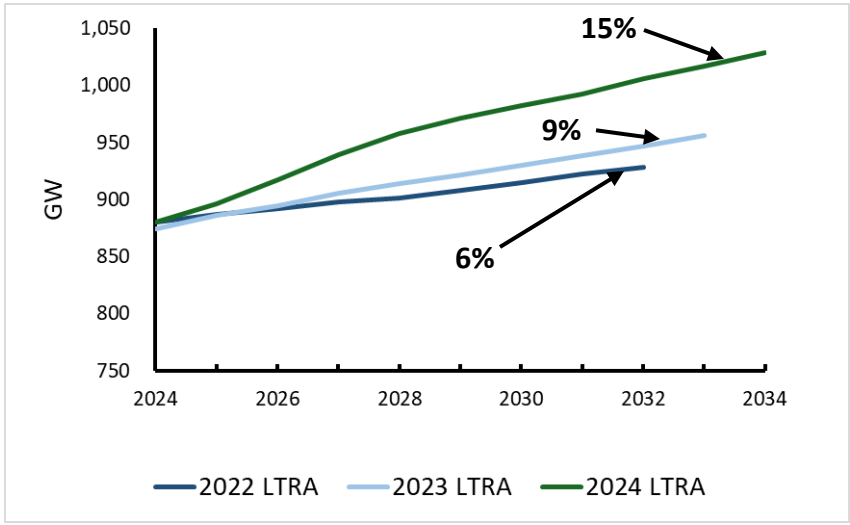


North America Total Generation Capacity in 2024 and 2034

Demand Growth Is Accelerating



Demand Growth Drivers



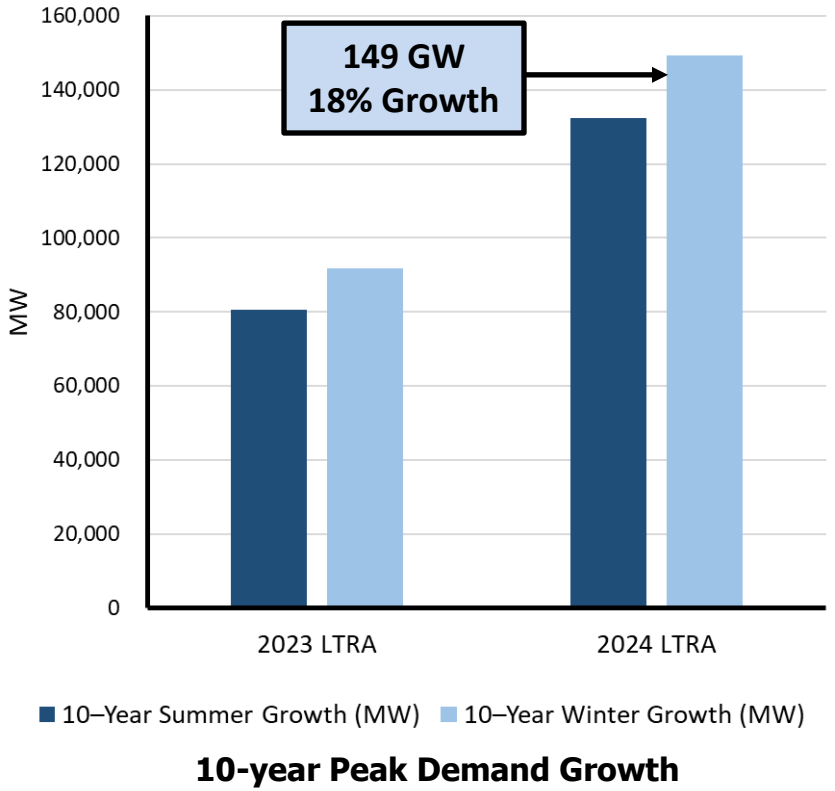
10-year BPS Summer Peak Demand Growth

With 10-year Growth From Previous LTRA

Demand Growth | Winter Is Outpacing Summer

- Winter peak demand continues to rise faster than summer peak demand
- This trend is driven by electrification and increasing amounts of solar PV distributed energy resources
- In 10 of 14 summer-peaking assessment areas: winter demand growth rates > summer growth

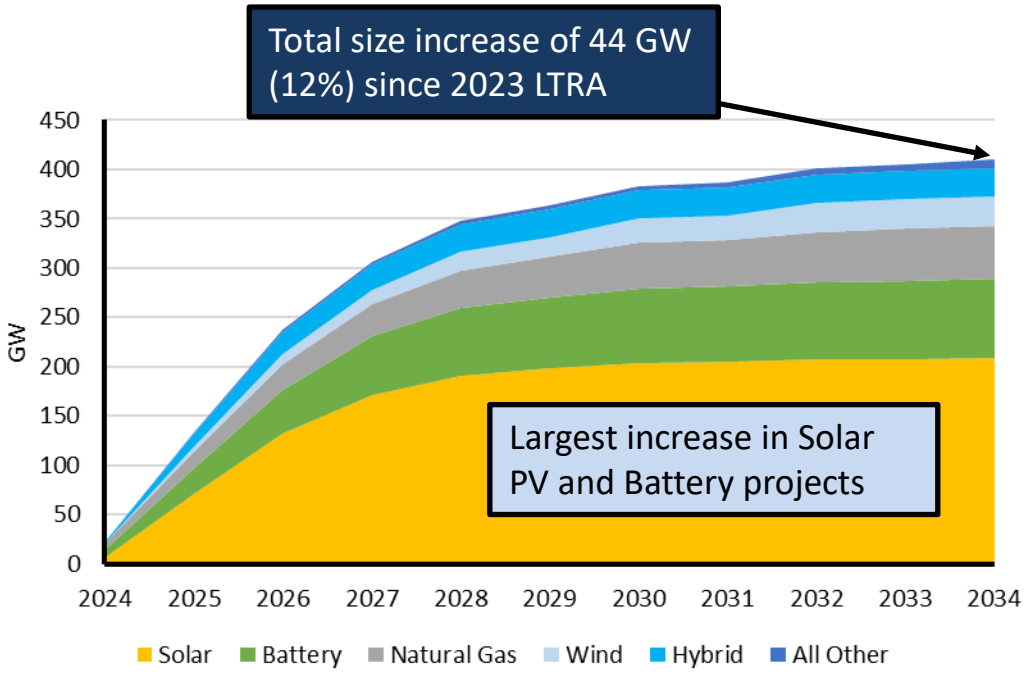
- **Resource planning must increasingly focus on winter fuel and energy risks, generator performance, and load forecasting**



10-year Peak Demand Growth

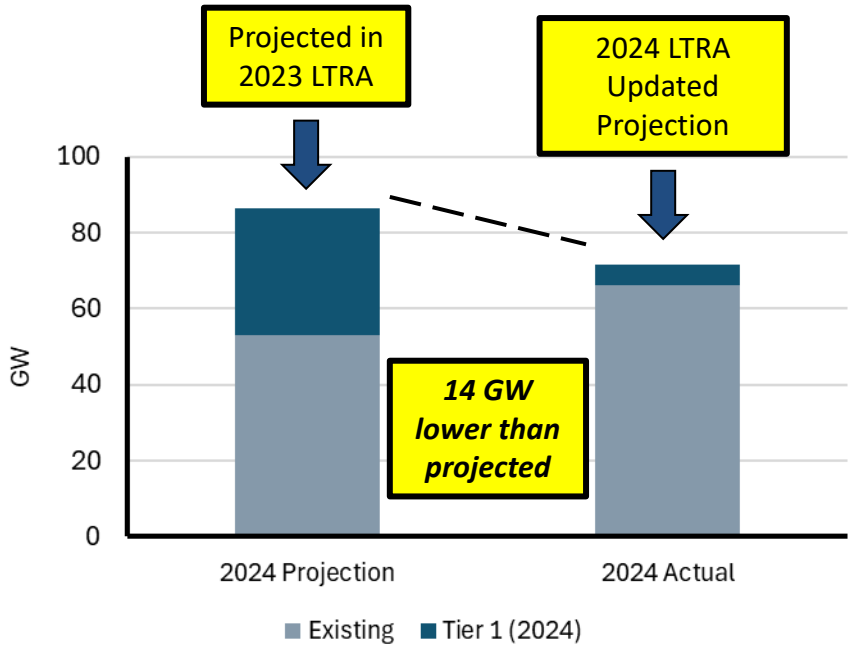
Resources Projections Reflect Slower Rate of Additions

- Resources in the interconnection process continue to grow



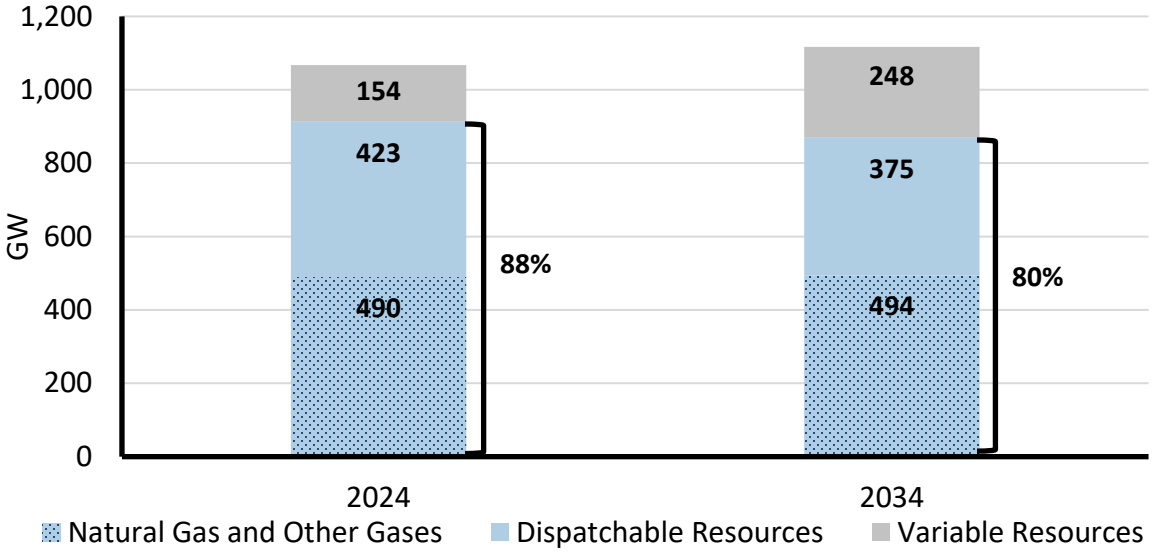
Resources in Interconnection Process
Tier 1 (Signed Agreements) and Tier 2 (Processing)

- Project delays and cancellations are causing resource growth to fall short of projections



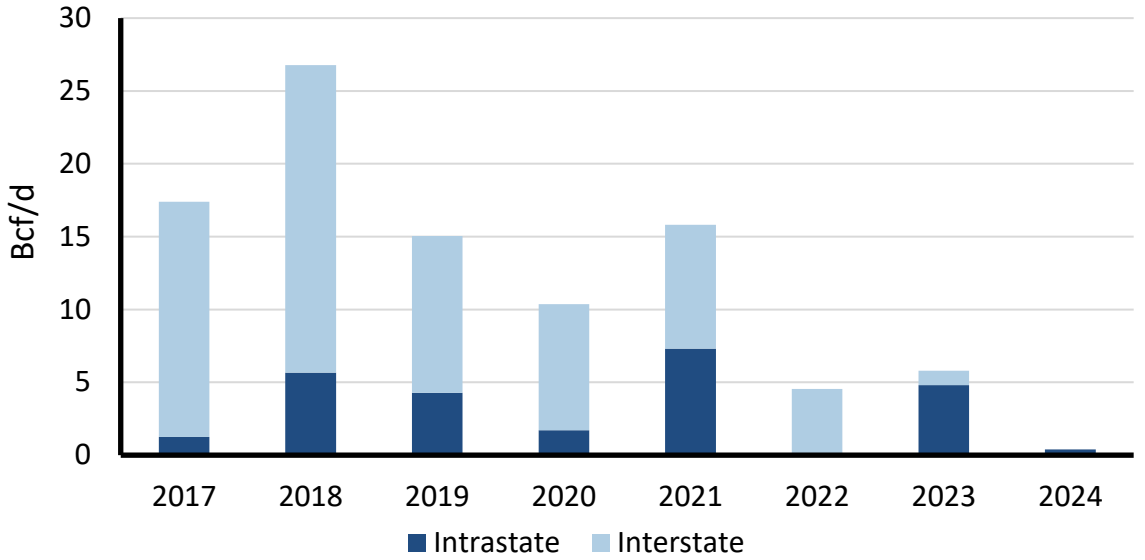
Solar On-Peak Capacity | prior-year projection v. current year actual

Criticality of Natural Gas Intensifies



2024-2034 Change in Natural Gas and Dispatchable Capacity

- Natural gas' share of the dispatchable resource capacity mix rises from 52% to 55% over the next 10 years as dispatchable resources overall decline, largely due to coal retirements.

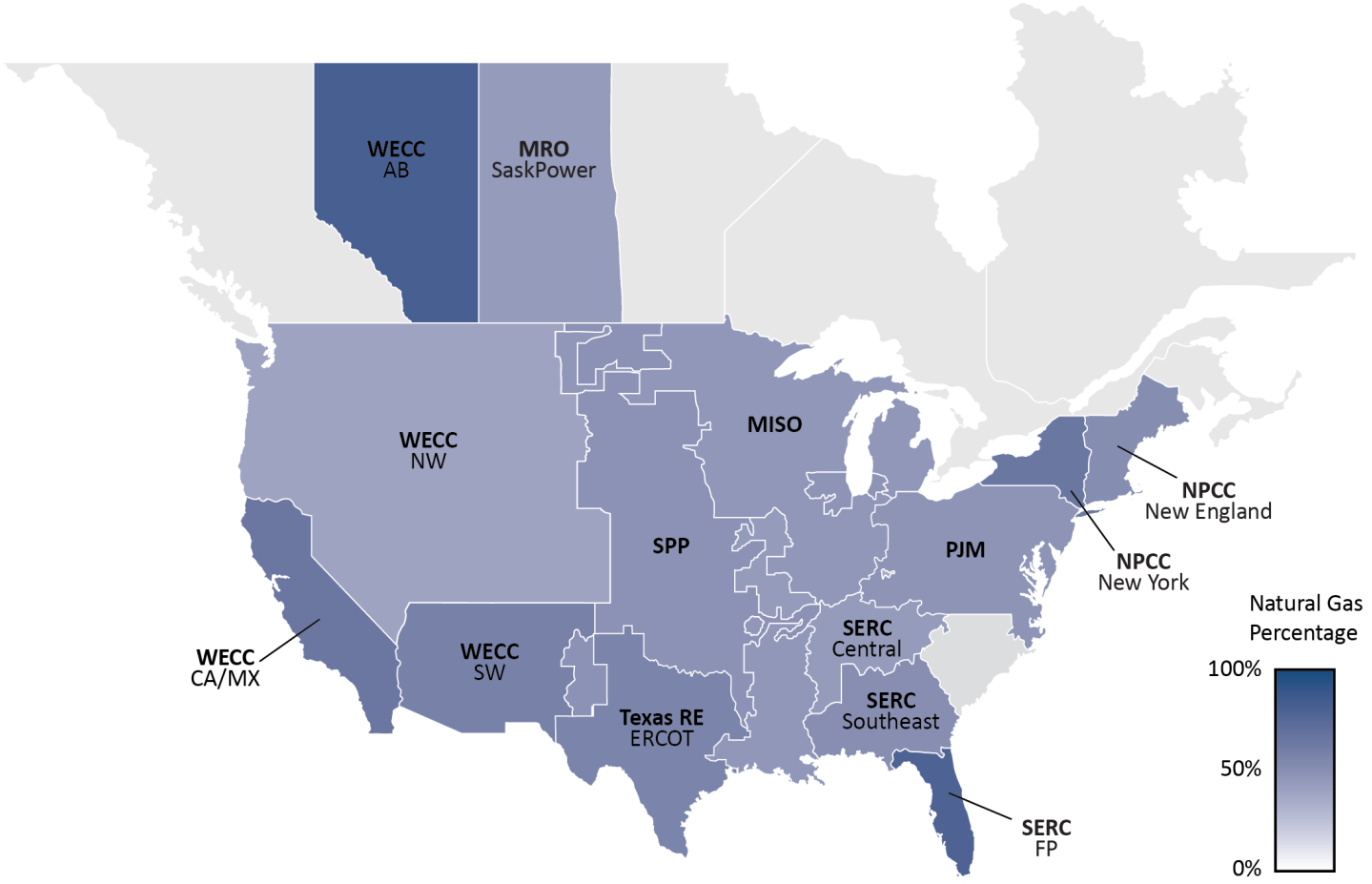


U.S. Pipeline Expansion Projects

Source: U.S. Energy Information Administration

- Nearly 14 Bcf/d worth of gas pipeline projects planned in the U.S., not designated to serve LNG export demand, have been approved or are under construction. Of those projects, roughly 9 Bcf/d are located within Texas and nearly 3 Bcf/d is planned to expand exports to Mexico.

Criticality of Natural Gas Intensifies (Continued)

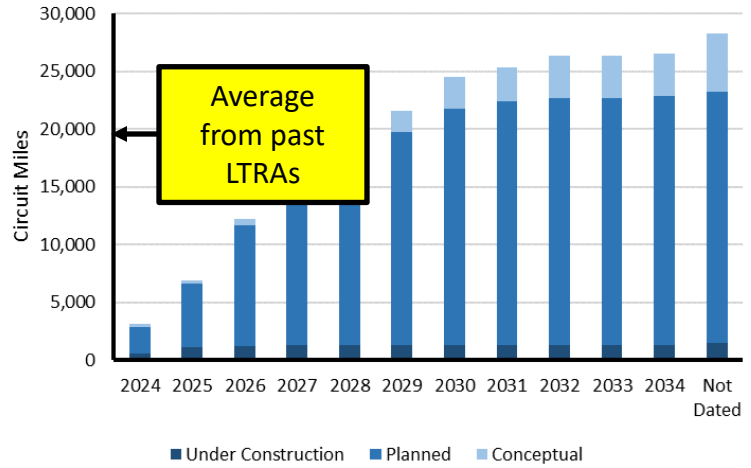


Note: Areas with less than 35% natural gas are shown in light grey.

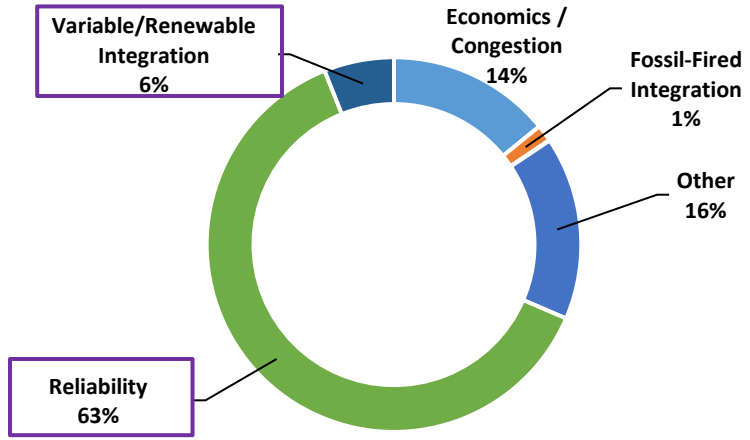
	Natural-Gas-Fired Generation	
	Peak Winter Capacity	Contribution to Total Winter Resource Mix
MISO	62.3 GW	45%
MRO-SaskPower	2.4 GW	43%
NPCC-New England	15.0 GW	51%
NPCC-New York	24.5 GW	66%
PJM	84.4 GW	47%
SERC-Central	22.0 GW	43%
SERC-Florida Peninsula	49.8 GW	80%
SERC-Southeast	31.9 GW	50%
SPP	29.9 GW	48%
Texas RE-ERCOT	55.3 GW	57%
WECC-AB	13.9 GW	83%
WECC-CA/MX	37.8 GW	65%
WECC-NW	33.6 GW	39%
WECC-SW	18.1 GW	58%

Transmission Development Is Increasing

- **Increase in transmission development:** Miles of transmission in-development have risen vs. past LTRA average
- Miles of new transmission projects *under construction* have not increased
- Siting and permitting issues continue to delay projects (affects over 1,200 miles of transmission)
- Assessment areas report significant investment in transmission development including projects to increase transfer capability



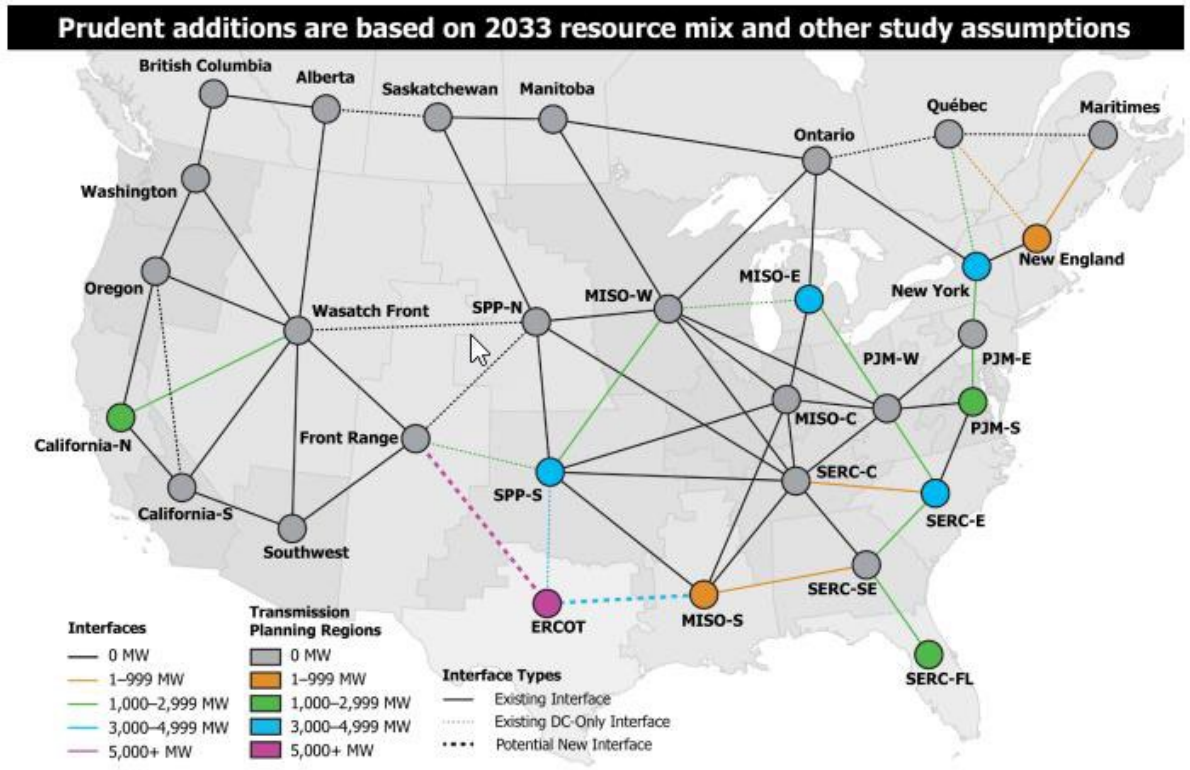
2024 LTRA Cumulative Transmission Projects >100 kV



2024 LTRA Transmission Project Primary Driver

Increasing Transfer Capability Can Reduce Energy Shortfalls

- NERC Interregional Transfer Capability Study (ITCS) finding: **additional 35 GW transfer capability in the U.S. would improve energy adequacy in extreme weather**
- Transmission alone will not resolve all identified shortfalls → supply resources are needed
- ITCS recommendations to planners include considering all options to address system needs:
  - Transmission and transfer capability
  - Local generation and storage
  - Demand side management



ITCS Prudent Additions to Transfer Capability

NERC performed the ITCS to meet the requirements of the Fiscal Responsibility Act of 2023. Study information and results can be found on NERC's ITCS Webpage

Emerging Issues

Data Centers and Large Industrial Load	Growth in large load parcels like data centers and industrial facilities pose various challenges for system planners and operators.
Battery Energy Storage Systems (BESSs)	Poor visibility of BESSs' state-of-charge poses risks for operators who expect energy available for dispatch.
Electric Vehicles and Electric Load	With increased adoption of Electric Vehicles (EVs) there is a need to understand the impact of battery charging on system performance.
Energy Drought	More reliance on wind, solar, and hydro resources in the resource mix has the potential to expose the electricity system to supply shortages under abnormal weather patterns.

Recommendations

Resource planners, market operators, and regulators| **carefully manage generator deactivations**

NERC and Regional Entities| **improve the LTRA with energy metrics, consistent methods, and wide-area energy analysis**

Regulators and Policymakers| **streamline siting and permitting to remove barriers to resource and transmission development**

Regulators, industry, and gas industry| **implement a framework for addressing reliability needs of the interconnected energy system**

ISOs/RTOs, regulators| **continue steps to ensure sufficient Essential Reliability Services**

Questions and Answers

NARUC WINTER POLICY SUMMIT: FEB. 23 – 26, WASHINGTON DC

- Gas Committee business meeting w/ speakers from CSIS
- Gas Committee panels:
  - Spurring Economic Development by Extending Natural Gas Service (Staff Subcommittee on Gas)
  - Supporting Recycling and Energy Reliability with Biogas
  - Economic Regulation and the Global Climate: Commissioner and Stakeholder Perspectives
  - Peering into the Future: Planning Prudent Investments in Gas and Electric Infrastructure

NARUC WINTER POLICY SUMMIT

- Electricity Committee Business meeting with 2 vignettes on *Multi-Benefit Technology Investments to Improve Customer Service and Engagement*
- *Electricity Committee Panels:*
  - *Staff Subcommittee on Electricity– Interactive Power Market Simulation (open to Commissioners & Commission Staff only)*
  - *All Hands on Deck: Navigating Resource Adequacy in an Evolving Energy Landscape*
  - *Shifting Sands: Outlooks on The Supreme Court's Overturn of Chevron*
  - *The Scoop: Political Outlook for Energy in 2025 and Beyond*

- ** Connect with Chair Duffley if you plan to write an Electricity Committee resolution, draft resolutions due to Brad by February 10th*

INVITATION FROM THE CRITICAL INFRASTRUCTURE COMMITTEE

Classified One-Day Read-In Threat Brief | *Wednesday, Feb. 26 | 1:00 – 4:30 pm ET*

The brief will be conducted by DOE and FBI and will be presented at the Department of Energy headquarters. NARUC will provide transportation to DOE and return; buses load after the General Session concludes. Boxed lunches will be provided. This requires a one-day security clearance, which requires registration. Please note, NARUC staff will be calling you to confirm and will request additional information for the one day read in.

Open to commissioners and staff only, with priority to members of the Critical Infrastructure Committee. Attendance is limited.

Register:
https://maxxwww.naruc.org/forms/meeting/MeetingFormPublic/view?id=26E59200000001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