

NERC

NORTH AMERICAN ELECTRIC
RELIABILITY CORPORATION

Exploring the Role of Transfer Capability

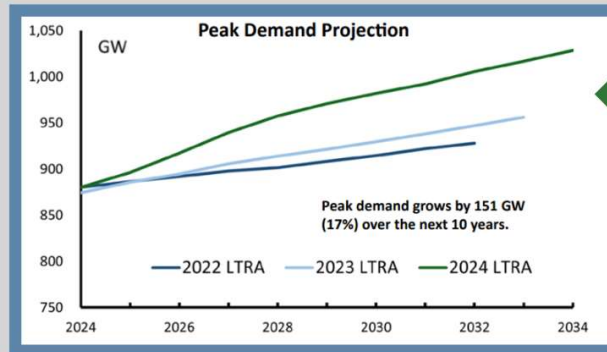
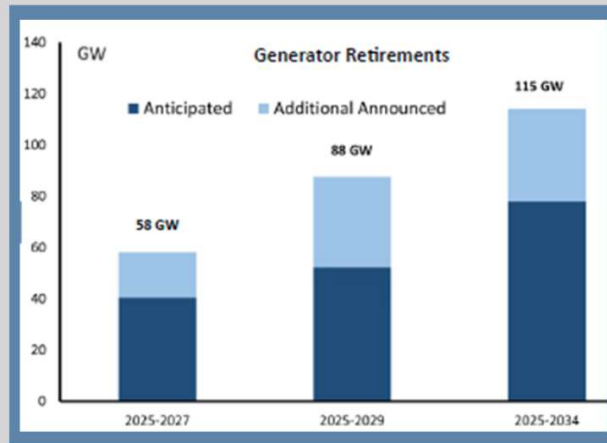
Findings from NERC's Canadian Analysis

Kevin Sherd, Lead Engineer Transmission Assessments (NERC)
Atlantic Canadian Conference on Energy System Modeling

June 18, 2025

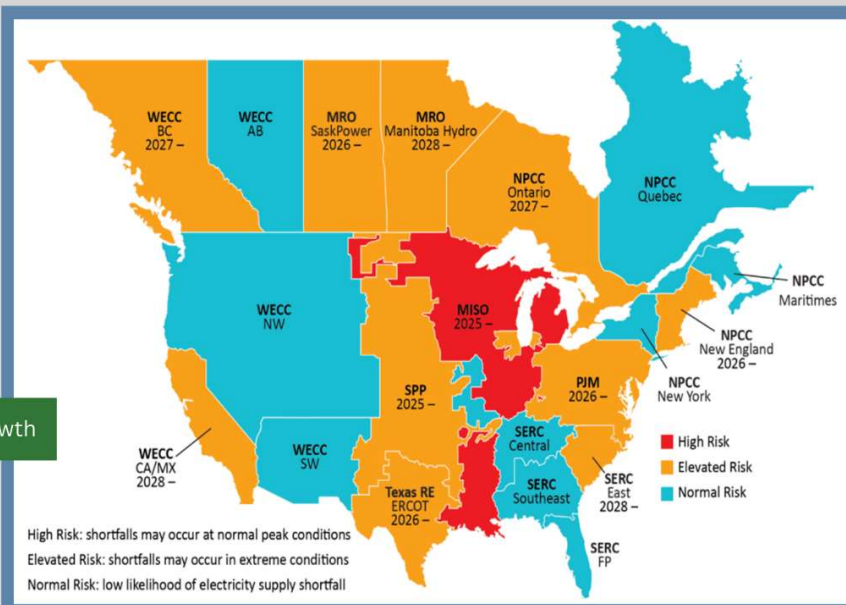
RELIABILITY | RESILIENCE | SECURITY

Across North America: Tighter Resource Margins Means More Reliance on Neighbors



17% growth

2025 –2029 Risk Areas

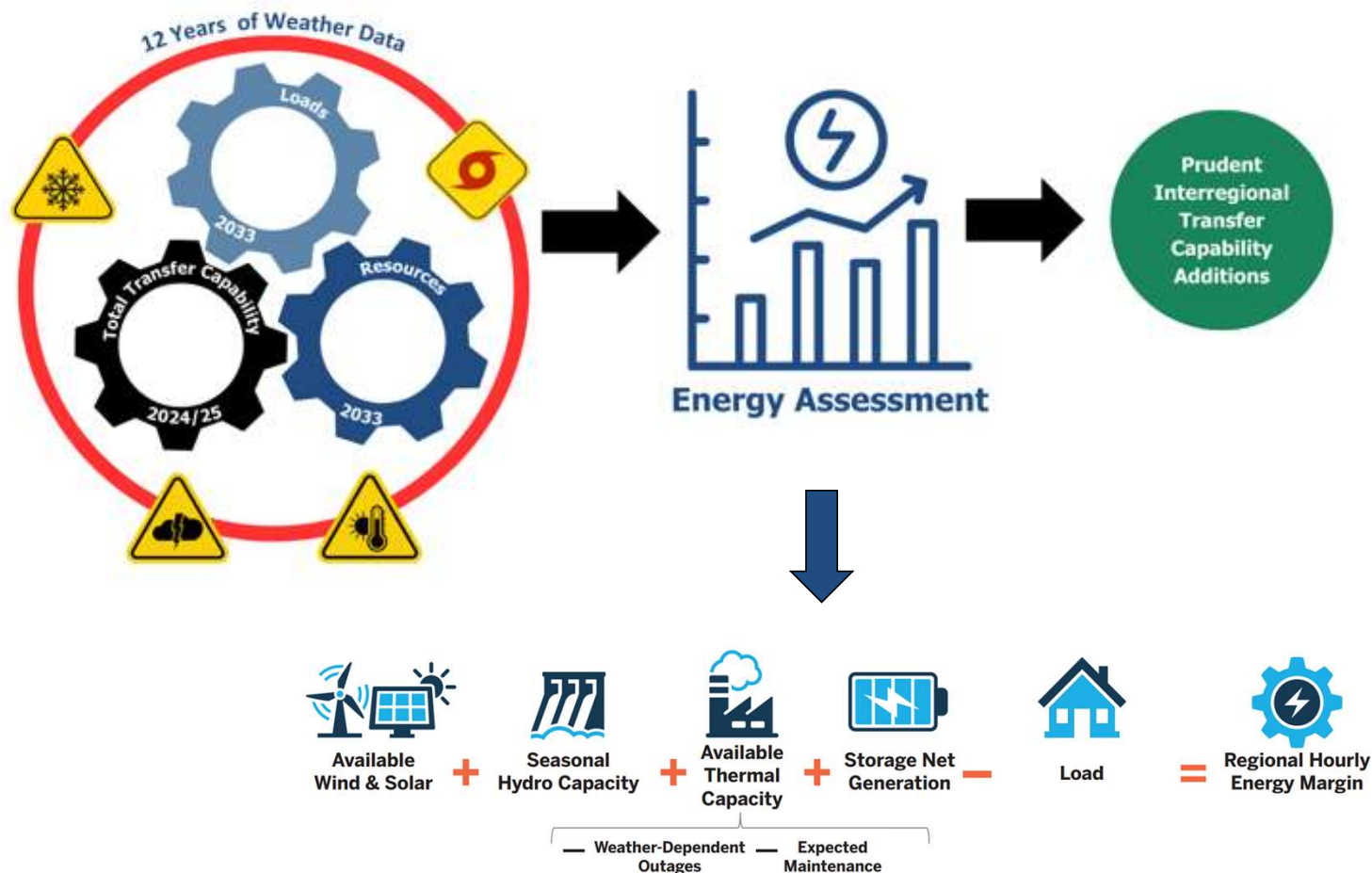


How are we going to address...



without more of this....





The North American system is vulnerable to extreme weather

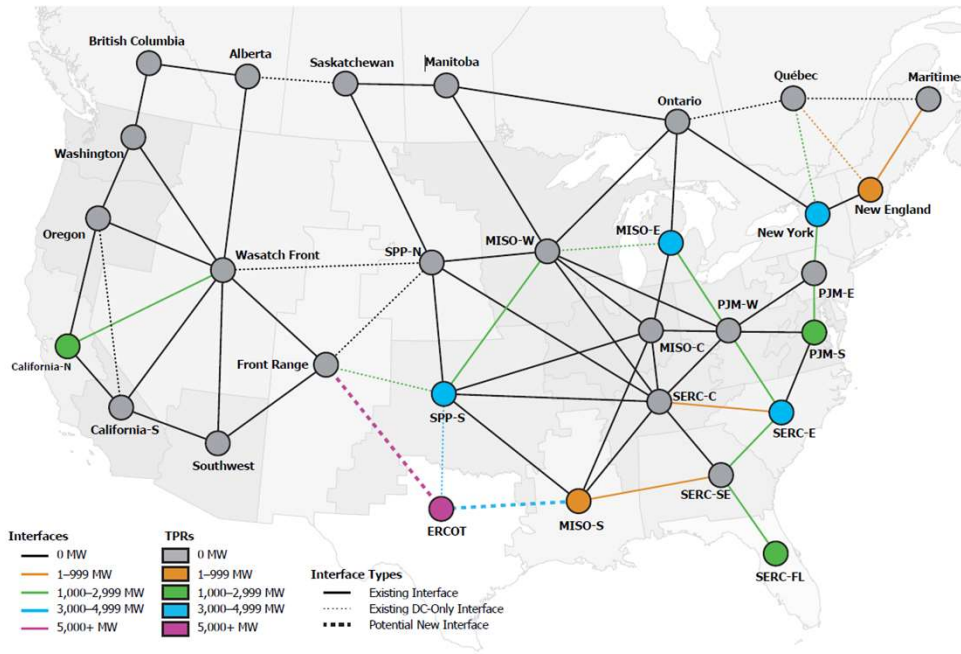
A one-size fits all transfer capability requirement may be ineffective

Increased interregional transmission could mitigate energy deficiencies

Resource assumptions are critical

Transmission upgrades alone will not address all risks

Prudent Addition Recommendations - US



Increasing Energy Deficiency Hours

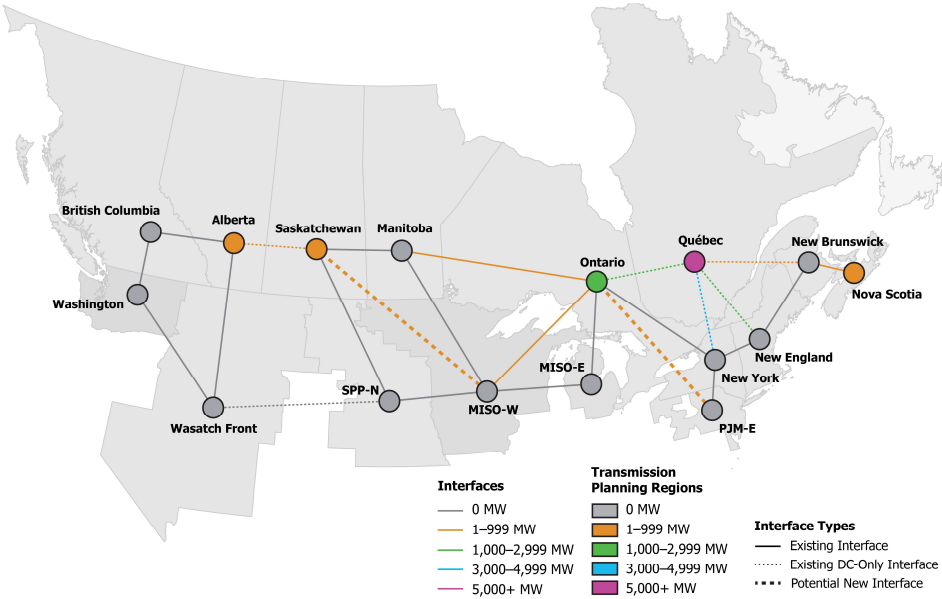
- Energy deficiencies were identified in all 12 weather years studied. Additional 35 gigawatts of transfer capability across the United States was identified as being beneficial for reliability.

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Table ES.1: Recommended Prudent Additions Detail

Transmission Planning Region	Weather Years (WY) / Events	Resource Deficiency Hours	Maximum Deficiency (MW)	Additional Transfer Capability (MW)	Interface Additions (MW)
ERCOT	Winter Storm Uri (WY2021) and nine other events	135	18,926	14,100	Front Range (5,700) MISO-S (4,300) SPP-S (4,100)
MISO-E	WY2020 Heat Wave and two other events	58	5,715	3,000	MISO-W (2,000) PJM-W (1,000)
New York	WY2023 Heat Wave and seven other events	52	3,729	3,700	PJM-E (1,800) Québec (1,900)
SPP-S	Winter Storm Uri (WY2021)	34	4,137	3,700	Front Range (1,200) ERCOT (800) MISO-W (1,700)
PJM-S	Winter Storm Elliott (WY2022)	20	4,147	2,800	PJM-E (2,800)
California North	WY2022 Heat Wave	17	3,211	1,100	Wasatch Front (1,100)
SERC-E	Winter Storm Elliott (WY2022)	9	5,849	4,100	SERC-C (300) SERC-SE (2,200) PJM-W (1,600)
SERC-Florida	Summer WY2009 and Winter WY2010	6	1,152	1,200	SERC-SE (1,200)
New England	WY2012 Heat Wave and two other events	5	984	700	Québec (400) Maritimes (300)
MISO-S	WY2009 and WY2011 summer events	4	629	600	ERCOT (300) SERC-SE (300)
TOTAL				35,000	

Prudent Addition Recommendations - Canada



- An additional 12-14 GW of transfer capability may enhance energy adequacy during extreme weather.

Transmission Planning Region	Weather Years (WY) / Events	Resource Deficiency Hours	Maximum Deficiency (MW)	Additional Transfer Capability (MW)	Interface Additions (MW)
Nova Scotia	All 12 weather years studied	641	582	500	New Brunswick (500)
Québec	Cold weather in WY2023 and eight other years	379	10,374	10,300	New York (4,200) Ontario (2,600) New England (2,600) New Brunswick (900)
Saskatchewan	Heat wave in three weather years and cold weather in WY2013	57	543	500	MISO-W (500)
Alberta	Cold weather in WY2022 and two other years	33	764	600	Saskatchewan (600)
Ontario	Heat wave in WY2011 and four other years	23	3,083	1,600	PJM-E (900) MISO-W (400) Manitoba (300)
TOTAL				13,500	



Questions and Answers

The full Canadian Analysis report can be found [here](#)