

Announcement

NERC's ITCS Canadian Analysis Finds Grid Increasingly Vulnerable

April 29, 2025

WASHINGTON, D.C. – NERC has published its [Interregional Transfer Capability Study \(ITCS\) Canadian Analysis](#) of transfer capability between transmission planning regions (TPR) and the reliability benefits of enhancing cross-provincial and cross-border transmission. The analysis, which complements NERC's [ITCS Final Report](#) published last year, found that Canadian systems are increasingly vulnerable to extreme weather and transmission limitations. It also identified the potential for energy inadequacy in all of the 12 weather years studied and found that enhancing transmission interfaces could reduce the likelihood of energy deficits during extreme conditions. A [Report Summary](#) of the ITCS Canadian Analysis scope and findings can be found on NERC's [ITCS](#) web page.

"The Canadian Analysis, combined with the U.S. analysis that was completed last year, provides a complete picture of the crucial role that interregional transfer capability across Canada plays in assuring the reliability and resilience of the interconnected North American grid," said Jim Robb, NERC's president and chief executive officer. "This is an unprecedented and vital assessment aimed at identifying additional reliability benefits from increased transfer capability."

The study was conducted using a common approach and a consistent set of assumptions. Stakeholder engagement was fundamental to ensuring a comprehensive and inclusive study. An Advisory Group was formed, which included regulators, industry trade groups, and transmitting utilities, to ensure that all stakeholders were represented.

"The Canadian and U.S. electric systems are highly dependent on each other," said John Moura, NERC's director of reliability assessments and performance analysis. "This analysis shows where targeted improvements to transmission infrastructure could further leverage Canada's significant generation resources to support reliability and resilience across the North American bulk power system."

NERC's annual seasonal and long-term assessments have consistently identified the need for more transmission, as well as a strategically planned resource mix, to address the ongoing electrification of the economy, including the growing transportation sector, industrial loads, and data centers. More frequent extreme weather events further compound the challenge. These factors emphasize the importance of adequate and informed planning at a broad interregional level to support future grid reliability and resilience.



CONTACT:
Communications@nerc.net

www.nerc.com



The ITCS Canadian Analysis demonstrates an opportunity to optimize energy reserve use across multiple TPRs and shows how transmission can maximize the use of resources, including energy-limited storage and demand response. Further, the analysis highlights the ongoing importance of holistic transmission and resource planning, as increasing transfer capability without surplus energy would be inefficient.

Key Findings:

- Observed transfer capability is generally higher between Canada and the United States but relatively lower between provinces.
- Reliability risks are highly dependent on regional weather conditions. The import capability that could be beneficial during extreme conditions varies significantly across the country. An additional 12–14 GW of transfer capability may be an effective vehicle to strengthen energy adequacy under extreme conditions.
- More recent industry forecasts, reflected in NERC’s [2024 Long-Term Reliability Assessment](#) data, generally resulted in considerable improvement, particularly in Ontario and Québec, as resource projections catch up to demand forecasts. Ongoing studies will capture the impacts of future forecast changes.
- A broad set of solutions, including transmission, local resources, demand-side, and storage, should be considered. A diverse and flexible approach allows tailored solutions specific to each province’s vulnerabilities, risk tolerance, economics, and policies.

While the ITCS Canadian Analysis offers valuable insights to explore reliability under extreme conditions, its findings are foundational for further discussions and informing any future regulatory action. NERC encourages enhanced collaboration between Planning Coordinators, careful alignment with federal and provincial policies, and consistent stakeholder engagement to effectively assess, refine, and execute strategies.

“It is important to maintain a continued understanding of the interdependence of the U.S. and Canadian grid systems. The need for continued collaboration and insight is more important than ever as we plan for future risks,” said Saad Malik, NERC’s manager of transmission assessments.

More information about the ITCS Canadian Analysis is provided on [NERC’s website](#).

###

Electricity is a key component of the fabric of modern society and NERC, as the Electric Reliability Organization, serves to strengthen that fabric. The vision for the ERO Enterprise, which is comprised of NERC and the six Regional Entities, is a highly reliable and secure North American bulk power system. Our mission is to assure the effective and efficient reduction of risks to the reliability and security of the grid.