NERC
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

Interregional Transfer Capability Study (ITCS)

Strengthening Reliability Through the Energy Transformation

Frequently Asked Questions

May 2024

Background

Congress passed the Fiscal Responsibility Act of 2023, which includes a provision for NERC to conduct a study on the reliable transfer of electric power between neighboring transmission planning areas. NERC, in consultation with the Regional Entities, will analyze the amount of power that can be moved or transferred reliably from one area to another area of the interconnected transmission systems by way of all transmission lines between the areas.

The study must be filed with the Federal Energy Regulatory Commission (FERC) within 18 months of enactment of the bill—**December 2, 2024**. A public comment period will occur when FERC publishes the study in the Federal Register. After submittal, FERC must provide a report to Congress within 12 months of closure of the public comment period with recommendations (if any) for statutory changes.

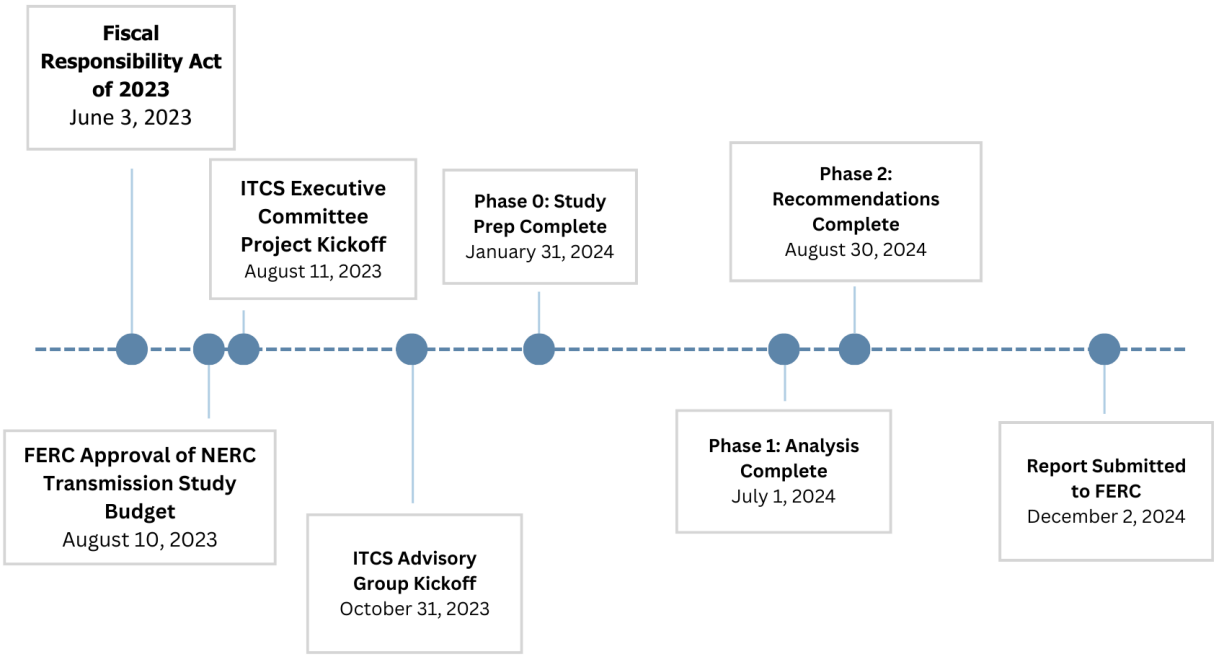
Critical Impact

- Transmission adequacy is at the very core of the future of reliability. As the grid transitions, we must also transition.
- The rapidly changing resource mix requires greater access and deliverability of resources to maintain reliability—particularly during extreme weather and environmental conditions. This challenge will continue to grow if not addressed in a timely, well-considered manner and in conjunction with work being done on extreme weather and environmental conditions.
- Transfer capability is a critical measure of the ability to address energy deficiencies from areas that have available energy. Measuring the transfer capability will be a key topic in future assessments toward understanding energy risks.
- This study will inform and benefit transmission efforts now and in the future, addressing a primary need.
- The ability to support advanced studies like the congressionally mandated ITCS links to NERC's three-year plan, falling within the scope of our four focus areas—**Energy, Security, Agility, and Sustainability**.
- NERC has consistently stressed the need for more transmission to support the energy transformation in our reliability assessments. This capability is not, and should not be, a one-time effort. It is simply too important to our industry and will only become more so in the future.
- NERC recognizes that a strong, flexible transmission system that is capable of coping with a wide variety of system conditions is necessary for the reliable supply and delivery of electricity.

Project Goals and Objectives

- Conduct a comprehensive study of interregional transfer capability across the United States and Canada to assess the need for additional transfer capacity.
- Provide reliable and data-driven recommendations for prudent additions to the amount of electric power that can be moved or transferred between neighboring areas.
- Recommend approaches to achieve and maintain the identified transfer capability and any recommended additional transfer capability.
- Engage stakeholders and gather inputs from the Regional Entities, industry, and a special stakeholder Advisory Group to ensure a comprehensive and inclusive study.

Project Schedule



Frequently Asked Questions

Study Timeline and Scoping

When will the study results be published?

- An Overview Report providing further background, context, and study details will be published in June 2024.
- The ITCS Part 1 will detail the total transfer capability between neighboring transmission planning regions and is scheduled to be published in August 2024.
- The ITCS Parts 2 and 3, which identify "prudent" additional transfer capability between neighboring areas to resolve reliability issues in the future, are scheduled to be published in November 2024.
- The Canadian Analysis is intended for publication in Q1 2025.

Will work on related transmission initiatives be slowed down by the ITCS timeline?

NERC will work closely with FERC and the Department of Energy (DOE) on the ITCS while maintaining our independence and has no knowledge of any impact on ongoing projects. Conversely, an independent study could help clear transmission projects experiencing siting gridlock.

How does the ITCS compare to other transmission studies being performed?

NERC is aware of other studies, such as the DOE Transmission Needs Study and the Energy Systems Integration Group (ESIG) Transmission Resilience Project. There are several key distinctions between the ITCS and these studies, including data sources, areas of study, and scope.

Are natural disasters or weather events within the scope of the extreme scenarios portion of the study?

Because NERC is using 12 years of historical data, it will naturally capture extreme weather scenarios during that time frame. However, NERC is not studying natural disasters, such as hurricanes, as part of the ITCS.

Will the study get into the "how" of increasing transfer capability?

This study will recommend prudent additions to transfer capability; however, assessing how to increase transfer capability is outside the scope of the ITCS. Examples of potential projects to increase transfer capability are new ac or dc transmission facilities, upgrades to allow higher ratings, flow control devices, grid-enhancing technologies, or a combination of these.

What is the anticipated outcome of the study?

The ITCS will provide recommendations on prudent additions to transfers based on the study analysis. Findings will be submitted to FERC on or before December 2, 2024.

Will stability be part of the transfer capability study?

The team completed thermal and voltage analyses and accounted for known stability limits; however, due to time constraints, the team does not plan on conducting new stability analyses.

Does the study consider economics?

NERC's mission is to ensure the reliability and security of the grid, and transmission adequacy is at the core of the future of reliability. As such, this highly complex engineering study focuses on analyzing the amount of power that can be moved or transferred reliably from one area to another area of the interconnected transmission systems. Electricity is foundational to our daily lives and those of nearly 400 million residents across North America. This study does not consider factors other than reliability; however, NERC acknowledges that entities must weigh other considerations when making decisions, including those related to economics or public policy.

Study Assumptions

What year is NERC using for the study's base cases?

The study team will consider the current system (2024) and 10-year future planned system (2033) base cases to perform the analysis in Part 1.

Is NERC developing resource portfolios?

NERC will leverage the existing industry portfolios.

How are reliability and resilience defined within the study?

"Reliability" is defined as meeting all NERC Reliability Standards; "resilience" is defined as serving as much load as possible under extreme conditions.

How will the study determine weather-outage projections?

The ITCS will incorporate data from historical events. For 2019–2023, the study team will use historical measured data for load, wind, and solar resources to model future conditions. This option was chosen because the data is recent and strongly reflects current system performance. For 2007–2013, the study team will use synthetic datasets from the National Renewable Energy Laboratory (NREL) and historical weather observations (temperature, wind speed, solar irradiance, etc.) to estimate load and resource availability.

How will storage be studied?

Storage resources will be dispatched to charge during off-peak hours and discharge during on-peak hours.

How is minimum energy margin defined?

"Hourly energy margin" is the available energy capacity based on hourly resource availability and load. NERC will calculate the energy margin every hour for each region.

Are there situations in which building transmission between regions would have no reliability value?

Yes. For example, when comparing New England and New York under extreme cold conditions, additional transfer capability between these two regions may not help as both areas may be affected by the same weather pattern simultaneously.

What is the "valid limit" that will be used in Part 1 of the ITCS?

The limits will be vetted and verified by the Transmission Planner. It should be noted that limits can vary depending on system conditions and underlying assumptions to calculate the limit.

Will sensitivity scenarios be considered?

NERC will consider doing a sensitivity analysis if time permits.

Why were source/sinks developed for the ITCS instead of using FERC Order 1000 or other broader regions?

These source/sinks were developed to analyze the system and assess risks at a more granular level, which may otherwise be masked when using larger regions, such as FERC Order 1000 regions. Nevertheless, transfer capability limits will also be published in the Part I report for the larger FERC Order 1000 regions.

Study Transfers and Prudent Additions

What does it mean to maintain total transfer capability?

"Maintain" is interpreted at a high level, for purposes of the ITCS, as the actions needed to maintain the current and prudent additions to transfer capability. These actions may include identification of resource deficiencies, other reliability considerations such as additional analysis, and/or regulatory requirements.

How are interregional transfers modeled in the study?

In Part I of the study, to calculate current transfer capability, transfers are modeled in the base cases representing typical summer and winter peak conditions. For Part II energy margin and prudent additions analysis, interregional transfers will represent reliability-only transfers under stressed system conditions.

How do you determine prudent additions?

The concept of prudency is not a clearly defined concept in technical system planning. However, a FERC precedent defines prudency as *"a determination of whether a reasonable entity would have made the same decision in good faith under the same circumstances, and at the relevant point in time."*

Over time, FERC has described prudent decisions as:

- Enhancing the ability to restore service
- Achieving significant efficiencies
- Reducing higher costs or time delays
- Making efficient use of resources to ensure reliability of the transmission grid

Since NERC's primary focus is reliability, the study results will be evaluated to analyze potential transfer capability deficits and then recommend additions to transfer capability that are technically prudent to strengthen reliability. Even though NERC's focus is reliability, in the backdrop of recent events such as winter storm Uri, it is evident that the interregional transfer capability's added value goes beyond just reliability to other areas of public importance, such as protection of life, public safety, and national security as safeguarded by a reliable grid.

How will you manage transfers from Canada?

Transfer capabilities into or between areas in the United States will be included in the Part 1 report, including imports from Canada. Transfer capabilities from the United States to Canada or between Canadian provinces will be published in the Canadian Analysis in Q1 2025.

Stakeholder Engagement

Will stakeholders have the opportunity to make formal comments on the ITCS?

The Fiscal Responsibility Act of 2023, in which NERC was directed to conduct this study, requires NERC to consult with each transmitting utility with facilities interconnected with another transmitting utility in a neighboring transmission planning region. NERC has adopted a broader approach to consult with and inform all industry stakeholders (e.g., utilities; Transmission Planners; Planning Coordinators; Transmission Operators; Transmission Owners; state, provincial, and federal regulators; and industry trade groups).

NERC and the Regional Entities highly value the input of stakeholders, including transmitting utilities, and regularly engage with them through targeted meetings, presentations, and regular touchpoints. Regional Entities are regularly engaging with stakeholders through their technical committees regarding the ITCS study progress. Additionally, all transmitting utilities were sent a letter on February 9, 2024, informing them of the study and emphasizing the importance of their input. NERC will send a follow-up letter in Q3 2024 providing all the transmitting utilities with another opportunity to contribute to the study. Other actions include the establishment of the ITCS Advisory Group comprised of industry experts. NERC hosts a monthly meeting with the Advisory Group to provide updates and seek input and feedback. For any additional questions and to provide input, please email the ITCS project team.

A formal comment period will take place once FERC files the report in the Federal Register.

Where can I learn more about the ITCS?

NERC developed an ITCS web page with the latest study scope and progress information, project timelines, and stakeholder engagement opportunities. Also helpful is the ITCS Quarterly Report, detailing the latest activities and progress. NERC will publish the Overview Report in June 2024 which will provide further background, context, and study details.