Maine Transfer Limit Updates

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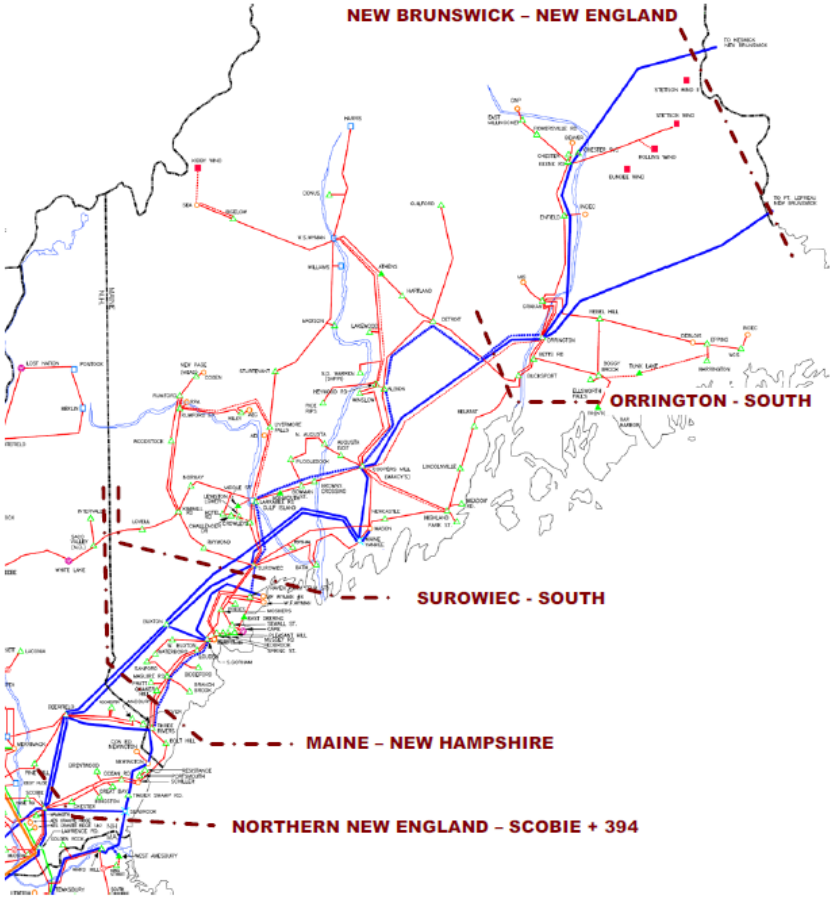
Overview of Today's Presentation

- Today's presentation covers updates to the interface transfer limits on three interfaces in Maine
- This presentation will focus on the impacts on day-to-day operations and transmission planning studies
  - The ISO is working to quickly implement these interface transfer limits in day to day operations
  - Since these interface transfer limits were very recently finalized, the impacts on capacity transfer capability, and any resulting implications for Forward Capacity Market related activities (e.g. calculations of the Installed Capacity Requirement, etc.), will be covered at a future meeting
- Presentation outline:
  - Background on Maine Interfaces
  - New Interface Transfer Limits
  - Implementation and Next Steps
- A short CEII-protected presentation Appendix has also been posted, describing the limiting conditions and contingencies that set each interface's transfer limit

BACKGROUND ON MAINE INTERFACES

Northern New England Interface Definitions

- Northern New England interfaces include:
  - New Brunswick–New England
  - Orrington–South
  - Surowiec–South
  - Maine–New Hampshire
  - Northern New England–Scobie + 394
- These interfaces are shown in dark red at right
- The analysis re-evaluated transfer limits on three interfaces:
  - Orrington–South
  - Surowiec–South
  - Maine–New Hampshire



Current Interface Transfer Limits

Interface	Thermal Limit (MW)	Voltage Limit (MW)	Stability Limit (MW)
New Brunswick–New England	-	-	**1,000**
Orrington–South	2,065	1,440	**1,325**
Surowiec–South	2,580	1,680	**1,500**
Maine–New Hampshire	1,990	**1,900**	**1,900**
NNE–Scobie+394	**3,450**	3,550	3,550

Notes:

- Numbers shown in **red** indicate the most limiting transfer capability on each interface, which must be respected in planning assessments and day-to-day operation
- Voltage and stability limits include operating margin where required
- Thermal limits are dispatch-dependent, and may be higher when winter ratings are in effect
- Voltage limits are dispatch-dependent, and values shown reflect typical limits
- Stability limits are dispatch-dependent, and values shown reflect typical maximum limits

Sources:

- MPRP North–South Transfer Limits Study (November 2012)
- Northern New England–Scobie+394 Interface Update (PAC presentation, February 2017)

Trigger for Re-Analysis of Transfer Limits

- Stability limits on northern New England interfaces were previously set based on Bulk Power System (BPS) classification testing, according to NPCC Document A-10
- In previous versions of NPCC Document A-10, BPS classification was performed with transfers at interface limits
  - Increases in relevant interface limits would have required BPS classification testing at the new limits
  - BPS classification in New England is very sensitive to interface transfers, so testing with higher interface limits likely would have resulted in additional stations being designated BPS
  - BPS classification triggers significant and costly upgrades at existing stations, so increases in interface limits were not possible without significant expenditure
- Due to changes to NPCC Document A-10, transfer limits are now separated from BPS testing
  - Interface limits are now based solely on “design contingencies” – loss of transmission lines, transformers, etc.

Interfaces Analyzed

- Three major interfaces in Maine (Orrington–South, Surowiec–South, and Maine–New Hampshire) were analyzed to determine new thermal, voltage, and stability interface transfer limits
- The New Brunswick–New England and NNE–Scobie+394 interface limits were held at their existing limits to ensure they were simultaneously feasible with the new interface limits
  - The existing 1,000 MW New Brunswick–New England limit was not expected to change as a result of changes in NPCC Document A-10. This limit was established with the addition of the second Maine–New Brunswick 345 kV tie line, and is partially based on system concerns within New Brunswick unrelated to NPCC Document A-10
  - The existing 3,650 MW NNE–Scobie+394 stability limit almost never causes congestion, and is often undercut by thermal limits

Study Assumptions

- The transfer capability was evaluated without the interconnection of QP639 (New England Clean Energy Connect (NECEC)) and QP889 (an Elective Transmission Upgrade associated with QP639)
  - Post-NECEC transfer limits are under evaluation, and will be shared at a later date
- Otherwise, analysis was based on a 2026 system model
  - The power flow model used for this assessment is a model of New England's transmission system for Summer 2026 (excluding NECEC and associated upgrades)
  - Resources with a Capacity Supply Obligation, or an approved contract, or whose System Impact Study has started and have a requested operation date before June 1, 2026, were included
  - ISO-NE Operations Technical Studies also performed analysis with today's transmission topology to confirm that limits are valid today

NEW INTERFACE TRANSFER LIMITS

Summary of Changes in Transfer Capabilities

- Orrington–South Interface: 1,650 MW
  - Limited by stability and steady-state thermal performance
  - 325 MW increase above today's transfer capability
- Surowiec–South Interface: 1,800 MW
  - Limited by stability performance
  - 300 MW increase above today's transfer capability
- Maine–New Hampshire Interface: 2,000 MW
  - Limited by stability and steady-state voltage performance
  - 100 MW increase above today's transfer capability
- New Brunswick–New England and NNE–Scobie+394 limits remain unchanged

Updated Interface Transfer Limits

Interface	Thermal Limit (MW)	Voltage Limit (MW)	Stability Limit (MW)
New Brunswick–New England	-	-	**1,000**
Orrington–South	**1,650**	1,725	**1,650**
Surowiec–South	2,200	2,175	**1,800**
Maine–New Hampshire	2,475	**2,000**	**2,000**
NNE–Scobie+394	**3,450**	3,550	3,550

Notes:

- Numbers shown in **red** indicate the most limiting transfer capability on each interface, which must be respected in planning assessments and day-to-day operation
- Voltage and stability limits include operating margin where required
- Thermal limits are dispatch-dependent, and may be higher when winter ratings are in effect
- Voltage limits are dispatch-dependent, and values shown reflect typical limits
- Stability limits are dispatch-dependent, and values shown reflect typical maximum limits
- All limits based on Transmission Planning analysis of the pre-NECEC Maine system, with additional input from ISO-NE Operations Technical Studies for stability limits

Current vs. Updated Transfer Limits

Interface	Current Transfer Limit (MW)	Updated Transfer Limit (MW)	Difference (MW)
New Brunswick–New England	1,000	1,000	Unchanged
Orrington–South	1,325	1,650	+325
Surowiec–South	1,500	1,800	+300
Maine–New Hampshire	1,900	2,000	+100
NNE–Scobie+394	3,450*	3,450*	Unchanged

* Thermal limit based on summer ratings; voltage/stability limit of 3,550 MW applies during months when winter ratings are in effect.

IMPLEMENTATION AND NEXT STEPS

Implementation of New Transfer Limits

- New limits will be implemented in day-to-day operations, including the day-ahead and real-time energy markets in late June or July
- The revisions to the transfer capabilities will be incorporated into various planning studies and processes, such as:
  - Needs Assessments, Solutions Studies, and the competitive solutions process (for any pre-NECEC analysis)
  - Proposed Plan Application studies for transmission projects with in-service dates before the in-service date of NECEC
  - Interconnection Studies, starting with the Transitional Cluster Study
    - Ongoing System Impact Studies will be completed with the currently effective transfer limits to the extent possible, subject to an evaluation of impacts from the higher transfer limits
- Impacts on Capacity Transfer Limits, and any resulting implications for Forward Capacity Market related activities, will be discussed in future meetings

Questions