



FERC Order 881's Impact on Transmission Planning

Planning Advisory Committee

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Purpose

- To discuss the future use of a new assumed ambient temperature for equipment ratings in winter peak Needs Assessments and solutions development



Disclaimers

- There is a significant amount of work that remains to be completed prior to the implementation date
- Today's presentation is the current state of affairs and this may change as work progresses
- Today's discussion is not about how rating information will be conveyed to the ISO
- Today's discussion is not about changes to Operations
- Today's discussion does not consider transmission facilities that provide Local Network Service under Schedule 21



Background

- On December 16, 2021, FERC issued Order No. 881, its Final Rule on [Managing Transmission Line Ratings](#)
- The Final Rule was the result of November 19, 2020 NOPR examining both Ambient Adjusted Ratings (AARs) and Dynamic Line Ratings (DLRs)
- Compliance filings were due July 12, 2022; New England's was accepted on [June 15, 2023](#), subject to an additional compliance filing, which was accepted on [December 12, 2023](#)
- Implementation is required by July 12, 2025



Background, cont.

- Order No. 881 requires that two types of ratings must be calculated
 - AARs – hourly ratings applicable to transmission lines
 - In addition to using appropriate temperatures, the impact of the sun (day vs. night) must also be taken into account
 - AARs are required to be available for temperatures from 10F above the highest historical high temperature to 10F below the lowest historical low temperature
 - Applicable only in Operations timeframe
 - Seasonal ratings – applicable to all transmission equipment
 - The number of seasons could be different in different areas of the country, but the order requires a minimum of 4 seasons
 - Used in operations in the event that AARs become unavailable, for equipment to which AARs do not apply, and Outage Coordination studies



Progress to Date

- There are currently two parallel efforts
 - EMS/IT – primarily discussing the means of transferring information to the ISO for its use
 - Development of the Limited Exchange Portal (LEP) to accept facility ratings, which will remove ratings from the NX application
 - Transmission Planning update to [Planning Procedure 7 \(PP7\)](#) – Procedures for Determining and Implementing Transmission Facility Ratings in New England
 - PP7 provides the general assumptions to be used in the calculation of facility ratings
 - As part of the effort to implement AARs, other assumptions are being reviewed
 - » Potential changes resulting from climate change
 - » Consideration of industry standards and guidelines, such as assumed wind direction

Applicability

- The Order is specific to Transmission Lines and therefore, not all elements that are described in PP7 will require an AAR
- Order No. 881 defines Transmission Line Rating as the maximum transfer capability of a transmission line, computed in accordance with a written Transmission Line Rating methodology and consistent with Good Utility Practice, considering the technical limitations on conductors and relevant transmission equipment (such as thermal flow limits), as well as technical limitations of the Transmission System (such as system voltage and stability limits). **Relevant transmission equipment may include, but is not limited to, circuit breakers, line traps, and transformers.** (emphasis added)
- Equipment Owners may, using Good Utility Practice, determine that a specific piece of equipment is not affected by ambient temperature and take an exception on that piece of equipment



Seasonal Ratings - Planning

- In Order 881 the Commission declined to require any changes to Planning ratings
- Currently, Transmission Planning uses the two seasonal ratings that are available for performing Needs Assessments and solutions development, summer and winter
 - Summer assumes 100F ambient temperatures
 - Winter assumes 50F ambient temperatures
 - Under Order 881 the winter ambient temperature assumption will change (next slide)



Planning Ratings Under Order 881

- For summer peak load conditions, the ISO will continue to use 100F data
- However, Planning will use line rating assumptions for winter peak load cases that are expected to more closely align with the 90/10 winter peak load temperature
 - At colder temperatures, as the temperature drops, load tends to increase
 - This trend is expected to continue with the electrification of heating
 - 90/10 winter peak load is based on an ambient temperature of ~6F
 - Today, peak load is studied using 50F facility ratings
 - Using an additional 20F dataset will allow for ratings more consistent with conditions that drive the load being studied
 - Must ensure that ratings are based on temperatures equal to or above the temperature assumed for 90/10 load
 - Because assessments are based on snapshots of conditions, need to be conservative to ensure that reliability is ensured at warmer temperatures
 - 50/50 winter peak load is based on an ambient temperature of ~11F

Next Steps

- PP7 is currently being discussed with the TOs and is expected to be brought to the Reliability Committee (RC) in Q3 of 2024
- Please send comments regarding the use of 20F ratings for winter peak Needs Assessments and solution development to pacmatters@iso-ne.com by May 29, 2024

Questions

