



FERC Technical Conference on Managing Line Ratings: AD19-15 Panel 5

Transparency of Transmission Line Rating Methodologies

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Transparency and Administering an AAR Requirement

- Additional transparency regarding rating methodologies is essential for administering an AAR requirement.
- MISO has very little information on TO rating methodologies, limiting elements, or other inputs to the rating calculations.
 - ✓ This would make it impossible for MISO to administer and oversee compliance with a requirement to provide AARs and utilize ratings in a reasonable manner.
 - ✓ If FERC issues a requirement, it should include the submission of rating methodologies and relevant data to the RTO.
- As the market monitor for MISO, we are responsible for monitoring for the withholding of transmission, which can occur by submitting understated ratings.
 - ✓ Hence, we need the same information as the RTO to carry out our function and help enforce the AAR requirement.

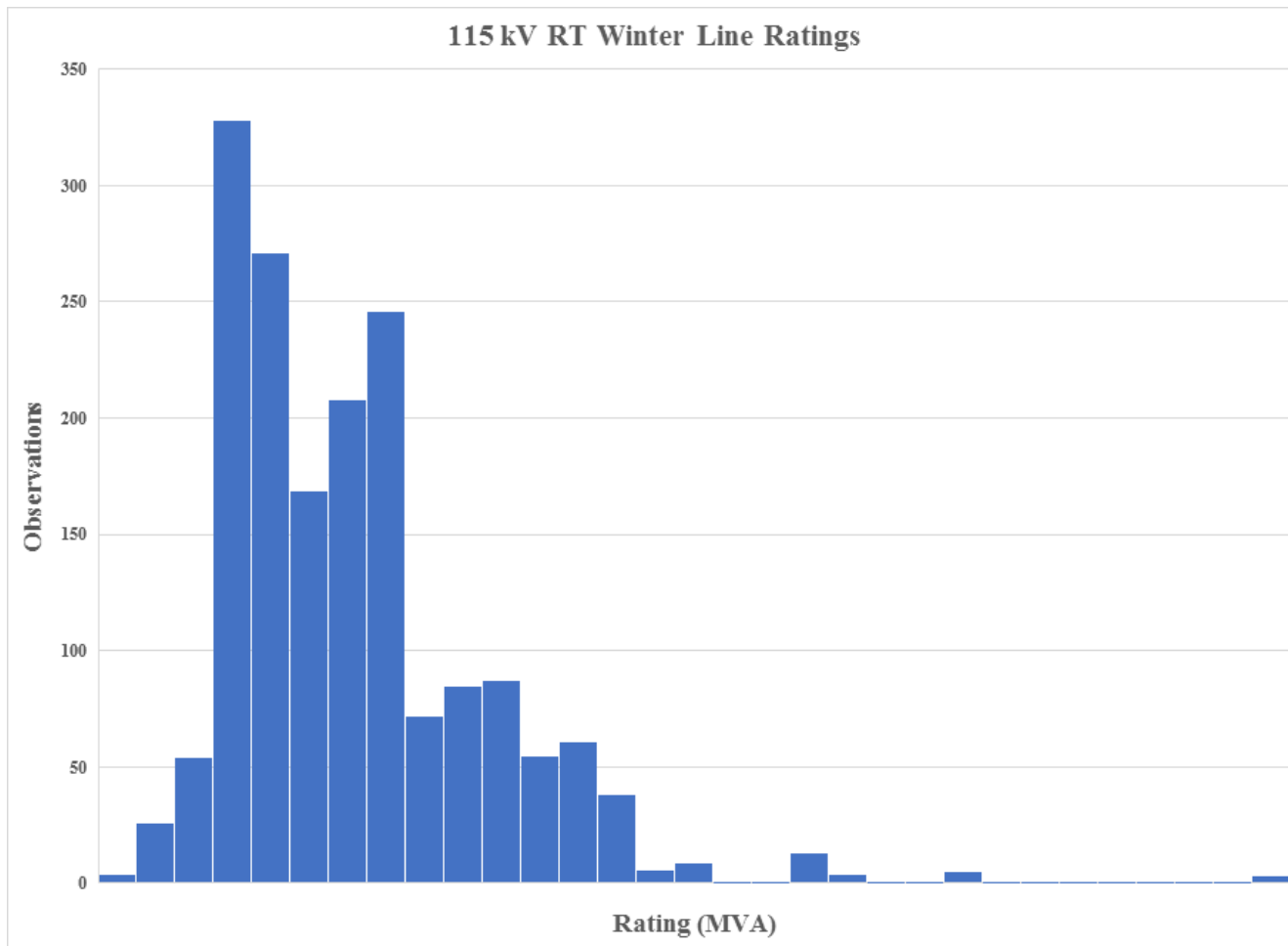


Monitoring for Physical Withholding

- The MISO Tariff tasks the IMM with monitoring and implementing mitigation measures for physical withholding of transmission facilities.
- To determine if the ratings are based on verifiable technical reasons, the IMM needs access to:
 - ✓ the methodologies and assumptions, and
 - ✓ The calculation detail associated with the limiting elements that set the ratings on the branch.
- To support monitoring, rating methodologies limiting elements and next most limiting should be broadly available.
- Calculation details can be made available upon request through the course of investigations of cases where ratings appear overly conservative and are causing congestion.



Variance in Transmission Line Ratings





Reasons for Variance in MISO

- The limiting element in the rating of a transmission facility is varied.
 - ✓ Maximum design conductor operating temperature (70-140 °C) depending on the type of conductor
 - ✓ Conductor sag limitations
 - ✓ Substation equipment
- Some ratings are based on voltage or stability rather than thermal limits.
- Ratings in MISO vary widely
 - ✓ 63% of the B ratings (used as emergency 1- hour ratings) are the same as the A ratings (normal continuous).
 - ✓ 30% of the winter ratings are the same as the summer ratings even though winter worst case assumptions are generally less limiting than summer worst case assumptions.
 - ✓ 9% of the ratings are AAR.
- There is a lot of differences between the ratings methodologies used by the transmission owners. Some use nameplate, others use tested values.



Need For Transparency

- Priority for applying DLR should be given to facilities expected to provide significant congestion relief benefits.
 - ✓ Transmission Owners are responsible for ratings and can determine the potential rating increases from DLR;
 - ✓ But input from the RTO/ISO and IMM is needed to translate rating changes to current and future congestion relief benefits.
- Should implementation of AARs be a requirement, independent oversight is needed to ensure that the requirement is being met.
- A process similar to establishing consultative reference levels for generation resources can be used for transmission facilities.
 - ✓ Ratings are organized by the characteristics of limiting elements.
 - ✓ Validations are done through automated processes and
 - ✓ Additional documentation is required for outliers.