



**FERC TECHNICAL CONFERENCE: MANAGING TRANSMISSION LINE RATINGS
DOCKET No. AD19-15**

PANEL 2: DLR AND AAR IMPLEMENTATION BENEFITS AND CHALLENGES

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My name is Chad Thompson and I am the Senior Manager of Operations Support for ERCOT. In this role, I am responsible for outage coordination, next-day studies and engineering support for ERCOT's real-time operations.

ERCOT began using Ambient Temperature-Adjusted dynamic line Ratings (AAR) in 2005. These ratings are used in both ERCOT's real-time network analyses (e.g. State Estimator, Real-Time Contingency Analysis, etc.) and its off-line operational study tools. Additionally, ERCOT's forward-market applications also consider dynamic ratings.

The ERCOT Network Operations Model includes nearly 7,000 transmission lines which are 60kV and higher voltage. Approximately two-thirds of these nearly 7,000 transmission lines are dynamically rated.

For a line to be dynamically rated, Transmission Service Providers (TSPs) submit a network model update request to ERCOT which includes a static table of temperature-adjusted ratings at 5 degree Fahrenheit increments. ERCOT incorporates model update requests through its weekly network model database loads. The dynamic rating update requests can also be implemented in real-time as needed. The temperature in the table is compared to the temperature in the ERCOT weather forecast for the region where that line is located, and the corresponding rating is used for that study or real-time condition. TSPs have the option to use the static table for their real-time ratings or provide a telemetered rating value as calculated by their systems to ERCOT directly. ERCOT will use the telemetered value first, and default back to the static table in the event the telemetry is interrupted.

As a result of this implementation, ERCOT has observed a decrease in real-time congestion, as additional transmission capacity on these lines is available during off-peak periods. In 2010, ERCOT published an article in the *IEEE Power & Energy Magazine*, which illustrated some of the congestion benefits that AARs can provide. By making dynamic line rating information available to market participants, the increased awareness of the additional capacity of these lines can help market participants make more informed financial decisions with respect to perceived transmission congestion.

AARs do have some challenges; however those challenges are very similar to those observed on non-dynamically rated lines. For example, when a dynamically rated line is upgraded, the TSP may fail to update the rating information in the network model or in the TSP's ICCP telemetry for the line. So long as the telemetered value's data quality is good, and no model change is requested, there is no indication to ERCOT that the rating is no longer correct. When these discrepancies are discovered, ERCOT quickly works with the TSP to correct the model, but significant congestion may have occurred on this line in real-time.



Another issue is related to lines that have joint- or co-ownership. For their own reasons, a TSP may rate its portion of a line different from the other TSP that owns that same line. ERCOT uses the most conservative of the ratings that are provided, and this has caused some confusion among ERCOT market participants in the past with regards to which rating is correct.

Overall, ERCOT has experienced significant benefit to its implementation of AARs. ERCOT is pleased to be part of this panel and to share further details of its experience with AARs. I would be happy to answer any questions you may have.