

Statement of Dennis D. Kramer
Senior Director of Transmission Policy and Stakeholder Relations
Ameren Services Company
on Behalf of the MISO Transmission Owners

Managing Transmission Line Ratings Technical Conference
Docket No. AD19-15-000

Panel 5: Discussion of Transparency of Transmission Line Rating Methodologies
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I am Dennis Kramer, Senior Director of Transmission Policy and Stakeholder Relations for Ameren Services Company, and appear today on behalf of the MISO Transmission Owners. The MISO Transmission Owners thank the Commission for holding this Technical Conference on the concept of adjusting transmission line ratings and this panel specifically on how transmission line ratings are established and how to provide adequate transparency to that process.

Transmission line ratings are a significant factor in long-term transmission planning, operation of the Bulk Electric System, and functioning of the organized markets. Transmission owners are responsible for determining the ratings of the equipment using established calculation methods and in compliance with NERC standards and requirements. An important distinction that needs to be drawn is that implementation of adjustable ratings will not alter the transmission system long-term planning horizon requirements as described in NERC reliability and operating standards. The standards establish specific criteria that the transmission owner must satisfy in order to achieve compliance. Adjustable ratings are not applicable when determining the line ratings used in studies and analysis required to demonstrate compliance with these standards.

The ratings that transmission owners determine for their facilities are a major factor in determining how the Bulk Electric System is operated and planned as well as how organized markets function. There are various types of ratings including static, seasonal, emergency, and adjustable. Regardless of the purpose of the rating or the method transmission owners use to determine, the ratings must:

- Maintain public and employee safety;
- Ensure the Bulk Electric System is operated and designed in compliance with NERC standards;
- Not operate equipment in a manner detrimental to its planned lifespan; and
- Be available to parties that depend upon these values for safe and reliable operation of the Bulk Electric System or making decisions that are vital to the success of their business.

Transmission owners typically use very similar methods in calculating line ratings that incorporate a multitude of factors including temperature, wind velocity, angle of wind direction relative to the conductor, solar radiation, and any environmental attribute that may be unique to a line location. These methods are sometimes included in FERC filings such as the annual FERC Form 715 Part 4 filing.

At a high level, the concept of adjustable ratings sounds appealing and relatively simple; adjust line ratings based upon current or near-term environmental conditions (ambient temperature and sometimes wind velocity) to increase the efficiency of energy flow on the Bulk Electric System. The broad implementation of adjustable ratings however is not simple and could be very complex with impacts on multiple existing processes and procedures as well as requiring creation of entirely new policies, requirements, obligations, and capabilities.

For example, transmission control centers use sophisticated software systems to monitor the condition of the transmission grid in the operating horizon to ensure the Bulk Electric System operates in a safe and reliable manner. A necessary input to these systems is the ratings of the transmission lines. In order to continue to provide safe and reliable operations, many of these systems would need to have some level of modification to accept adjusted ratings in the operating horizon.

Transmission line ratings are also essential for the efficient and cost-effective operation of organized markets whether they be real-time, day-ahead, or longer-term, such as FTRs or transmission service requests. In order to take advantage of any temporary adjustment to transmission lines ratings, market operators will need to modify their systems to accept and integrate adjusted ratings. Likewise, many market participants will need to modify systems they use to participate in the markets to integrate this new information.

Also, there is the matter of cost. The needed modifications to processes, procedures, and systems to obtain the potential benefits from implementing adjustable ratings will require financial investment. Therefore, it is important that any implementation of adjustable ratings be focused upon transmission lines where it can provide the most benefit. For adjustable ratings to be cost-effectively implemented, methods must be developed to identify candidate transmission lines and evaluate the benefit that adjustable ratings may provide compared to the implementation cost. Before these investments can be made, it must be determined which entities receive benefits from adjustable ratings and how to equitably assign cost responsibility.

There is no one-size-fits-all path forward and the Commission should recognize the differences in how the transmission system has developed over time because of unique topology, specific system requirements, and differing environmental conditions.

Before any new or modified rules or requirements are considered, it is critical that all aspects of adjustable ratings be identified and fully investigated. This technical conference is a good first step in that process. The MISO Transmission Owners look forward to the exchange of information during this technical conference and future discussions on these topics.