Integrating Dynamic Ratings into PJM Operations

Problem / Opportunity Statement

In accordance with PJM's reliability mission, FERC NOPR RM 20-16-000[1], equipment owner deployment of dynamic rating systems for their facilities within the PJM footprint and to support transparency to PJM members, the incorporation of supporting language is necessary in PJM governing documents to ensure the efficient and reliable operation and use of equipment dynamic rating systems in various aspects of Operations, Markets and Planning. Opportunities driving this effort include reliability and economic benefits[2,3] associated with dynamic rating technology.

While these benefits are compelling, careful planning is necessary to efficiently and safely incorporate automated dynamic rating systems into PJM's Real-time Assessment, Operational Planning Analysis and Day-Ahead Market system. In support of transparency as well as the efficient and reliable use of these dynamic ratings systems, governing document language related to this effort should focus on the facility notification requirements, technical implementation and incorporation of the resultant real-time and forecasted ratings for use within the impacted PJM systems.

Manual language regarding the technical implementation of dynamic rating systems should align with existing rating change processes and associated governing language where possible, and deviate only where the application of such systems varies. This language should provide guidance for PJM and its members in the responsibilities of the equipment owner and PJM in the establishment and use of dynamic ratings for PJM tariff facilities. Additionally, this language should include link monitoring and data quality requirements necessary to ensure reliable use of dynamic ratings. Over time the language should evolve to normalize best practices as experience with the technology deepens.

Education

Discussions related to this opportunity should build upon recent stakeholder education provided in the March 30, 2021 [Operating Committee Special Session on DYNAMIC RATING Education](). Additionally, the following stakeholder presentations may be referenced:

1) https://pjm.com/-/media/committees-groups/forums/emerging-tech/2020/20200827/20200827-item-05-dynamic-line-ratings.ashx
2) https://pjm.com/-/media/committees-groups/forums/emerging-tech/2020/20201113/20201113-item-03c-Dynamic Rating-impacts.ashx
3) https://pjm.com/-/media/committees-groups/forums/emerging-tech/2021/20210111/20210111-item-03-Dynamic Rating-market-efficiency.ashx
4) https://pjm.com/-/media/committees-groups/committees/teac/2020/20201223-special/20201223-item-04-emergent-technologies-modeling-overview.ashx

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[1] https://www.federalregister.gov/documents/2021/01/21/2020-26107/managing-transmission-line-ratings

[2] https://watttransmission.files.wordpress.com/2017/11/genscape-cigre-gotf-whitepaper-2017.pdf

[3] https://www.linevisioninc.com/wp-content/uploads/2020/11/CIGRE-GOTF-2018-NGN-PJM-AEP-LineVision-Final.pdf