

Redline showing the changes PJM is proposing to make to the Commission-proposed *pro forma* Tariff, Attachment M language issued in Order No. 881

June 9, 2022 Operating Committee Meeting

ATTACHMENT M LOCATION TBD

Thermal Transmission ~~Line~~Facility Ratings

General:

The Office of the Interconnection and the Transmission ~~Provider~~Owners will implement Thermal Transmission ~~Line~~Facility Ratings on the ~~transmission lines~~Transmission Facilities over which ~~it~~the Office of the Interconnection provides Transmission Service, as provided below.

Definitions:

The following definitions apply for purposes of this Attachment:

- (1) “Thermal Transmission ~~Line~~Facility Rating” means the maximum transfer capability of a ~~transmission line~~Transmission Facility, computed in accordance with a written Thermal Transmission ~~Line~~Facility 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.
- (2) “Ambient-Adjusted Rating” (AAR) means a Thermal Transmission ~~Line~~Facility Rating that:
 - (a) Applies to a time period of not greater than one hour.
 - (b) Reflects an up-to-date forecast of ambient air temperature across the time period to which the rating applies.
 - (c) Reflects the absence of solar heating during nighttime periods, where the local sunrise/sunset times used to determine daytime and nighttime periods are updated at least monthly, if not more frequently.
 - (d) Is ~~calculated~~evaluated at least each hour, if not more frequently.

- (3) “Seasonal ~~Line~~Facility Rating” means a Thermal Transmission ~~Line~~Facility Rating that:
- (a) Applies to a specified season, where seasons are defined by the ~~Transmission Provider~~Office of the Interconnection to include not fewer than four seasons in each year, and to reasonably reflect portions of the year where expected high temperatures are relatively consistent.
 - (b) Reflects an up-to-date forecast of ambient air temperature across the relevant season over which the rating applies.
 - (c) Is ~~calculated~~evaluated annually, if not more frequently, for each season in the future for which Transmission Service can be requested.
- (4) “Near-Term Transmission Service” means Transmission Service which ends not more than 10 days after the Transmission Service request date. When the description of obligations below refers to either a request for information about the availability of potential Transmission Service (including, but not limited to, a request for ATC), or to the posting of ATC or other information related to potential service, the date that the information is requested or posted will serve as the Transmission Service request date. “Near-Term Transmission Service” includes any Point-To-Point Transmission Service; and Network ~~Resource designations, or secondary service~~Integration Transmission Service where the start and end date of the designation or request is within the next 10 days.
- (5) “Emergency Rating” means a Thermal Transmission ~~Line~~Facility Rating that reflects operation for a specified, finite period, rather than reflecting continuous operation. An Emergency Rating may assume an acceptable loss of equipment life or other physical or safety limitations for the equipment involved.

System Reliability:

Use of a Temporary Conditional Thermal Transmission Facility Ratings to Ensure the Safety and Reliability of the Transmission System:

If the Office of the Interconnection or Transmission ~~Provider~~Owner reasonably

determines, consistent with Good Utility Practice, that the temporary conditional use of a Thermal Transmission LineFacility Rating different than would otherwise be required by this Attachment is necessary to ensure the safety and reliability of the Transmission System, then the Office of the Interconnection or Transmission ProviderOwner may use such ~~an alternate~~ a temporary conditional rating. The ~~Transmission Provider~~ entity that makes this determination must document in ~~its~~ the Office of the Interconnection's database of Thermal Transmission LineFacility Ratings and Thermal Transmission LineFacility Rating methodologies on OASIS or another password-protected website, as required by this Attachment, the use of an alternate Thermal Transmission LineFacility Rating under this paragraph, including the nature of and basis for the ~~alternate~~ temporary conditional rating, the date and time that the alternate rating was initiated, and (if applicable) the date and time that the alternate rating was withdrawn and the standard rating became effective again.

Obligations of ~~Transmission Provider~~ the Office of the Interconnection:

The ~~Transmission Provider~~ Office of the Interconnection will have the following obligations:

The ~~Transmission Provider~~ Office of the Interconnection must use AARs as the relevant Thermal Transmission LineFacility Ratings when performing any of the following functions: (1) evaluating requests for Near-Term Transmission Service; (2) responding to requests for information on the availability of potential Near-Term Transmission Service (including requests for ATC or other information related to potential service); or (3) posting ATC or other information related to Near-Term Transmission Service to the ~~Transmission Provider's~~ Office of the Interconnection's OASIS site or another password-protected website.

The ~~Transmission Provider~~ Office of the Interconnection must use AARs as the relevant Thermal Transmission LineFacility Ratings when determining whether to curtail (under section 13.6) Firm Point-To-Point Transmission Service or when determining whether to curtail and/or interrupt (under section 14.7) Non-Firm Point-To-Point Transmission Service if such curtailment and/or interruption is both necessary because of issues related to flow limits on ~~transmission~~ lines Transmission Facilities and anticipated to occur (start and end) within 10 days of such determination. For determining whether to curtail or interrupt Point-To-Point Transmission Service in other situations, the ~~Transmission Provider~~ Office of the Interconnection must use Seasonal LineFacility Ratings as the relevant Thermal Transmission LineFacility Ratings.

The ~~Transmission Provider~~Office of the Interconnection must use AARs as the relevant Thermal Transmission ~~Line~~Facility Ratings when determining whether to curtail (under section 33) or redispatch (under sections 30.5 and/or 33) Network Integration Transmission Service or secondary service if such curtailment or redispatch is both necessary because of issues related to flow limits on ~~transmission lines~~Transmission Facilities and anticipated to occur (start and end) within 10 days of such determination. For determining the necessity of curtailment or redispatch of Network Integration Transmission Service or secondary service in other situations, the ~~Transmission Provider~~Office of the Interconnection must use Seasonal ~~Line~~Facility Ratings as the relevant Thermal Transmission ~~Line~~Facility Ratings.

The ~~Transmission Provider~~Office of the Interconnection must use Seasonal ~~Line~~Facility Ratings as the relevant Thermal Transmission ~~Line~~Facility Ratings when evaluating requests for and whether to curtail, interrupt, or redispatch any Transmission Service not otherwise covered above in this section (including, but not limited to, requests for non-Near-Term Transmission Service or requests to designate or change the designation of Network Resources or Network Load), when developing any ATC or other information posted or provided to potential customers related to such services. The ~~Transmission Provider~~Office of the Interconnection must use Seasonal ~~Line~~Facility Ratings as a recourse rating in the event that an AAR otherwise required to be used under this Attachment is unavailable.

The ~~Transmission Provider~~Office of the Interconnection must use uniquely determined Emergency Ratings for contingency analysis in the operations horizon and in post-contingency simulations of constraints. Such uniquely determined Emergency Ratings must also include separate AAR ~~calculations~~ for each Emergency Rating duration used.

~~In developing~~Any forecasts of ambient air temperature for AARs and Seasonal ~~Line~~Facility Ratings, ~~developed by the Office of the Interconnection or the Transmission Provider must develop such forecasts~~Owner must be developed consistent with Good Utility Practice and on a non-discriminatory basis.

Postings to the Office of the Interconnection's OASIS or another password-protected website: The ~~Transmission Provider~~Office of the Interconnection must maintain on the password-protected section of its OASIS page or on another password-protected website a database of Thermal Transmission ~~Line~~Facility Ratings and Thermal Transmission ~~Line~~Facility Rating methodologies. This database must be accessible to the Market Monitoring Unit. The database must

include a full record of all Thermal Transmission LineFacility Ratings, both as used in real-time operations, and as used for all future periods for which Transmission Service is offered. Any postings of temporary alternate Thermal Transmission LineFacility Ratings or exceptions used under the System Reliability section above or the Exceptions section below, respectively, are considered part of the database. The database must include records of which Thermal Transmission LineFacility Ratings and Thermal Transmission LineFacility Rating methodologies were in effect at which times over at least the previous five years, including records of which temporary alternate Thermal Transmission LineFacility Ratings or exceptions were in effect at which times during the previous five years. Each record in the database must indicate which ~~transmission-line~~Transmission Facility the record applies to, and the date and time the record was entered into the database. The database must be maintained such that users with OASIS access or access to the password-protected website can view, download, and query data in standard formats, using standard protocols.

Sharing with other Commission-Approved Regional Transmission ~~Providers: The Transmission Provider~~Organizations or Independent System Operators: The Office of the Interconnection must share, upon request ~~by any from another Commission-approved Regional Transmission Provider Organization or Independent System Operator~~ and in a timely manner, the following information:

- (1) Thermal Transmission LineFacility Ratings for each period for which Thermal Transmission LineFacility Ratings are ~~calculated~~evaluated, with updated ratings shared each time Thermal Transmission LineFacility Ratings are ~~calculated~~evaluated, and
- (2) Written Transmission LineOwner Thermal Transmission Facility Rating methodologies used ~~to calculate the~~in arriving at the Thermal Transmission LineFacility Ratings in (1) above.

Exceptions: Where the Transmission ~~Provider~~Owner determines, consistent with Good Utility Practice, that the Thermal Transmission LineFacility Rating of a ~~transmission line~~Transmission Facility is not affected by ambient air temperature or solar heating, the Office of the Interconnection and Transmission ~~Provider~~Owner may use a Thermal Transmission LineFacility Rating for that ~~transmission-line~~Transmission Facility that is not an AAR or Seasonal LineFacility Rating. Examples of such a ~~transmission line~~Transmission Facility may include (but are not limited to): (1) a ~~transmission line~~Transmission Facility for which the technical transfer capability of the limiting conductors and/or limiting transmission equipment is not dependent on ambient air temperature or solar heating; or (2) a ~~transmission-line~~Transmission Facility whose

transfer capability is limited by a Transmission System limit (such as a system voltage or stability limit) which is not dependent on ambient air temperature or solar heating. The ~~Transmission Provider~~entity that makes this determination must document in ~~its~~the Office of the Interconnection's database of Thermal Transmission ~~Line~~Facility Ratings and Thermal Transmission ~~Line~~Facility Rating methodologies on OASIS or another password-protected website any exceptions to the requirements contained in this Attachment initiated under this paragraph, including the nature of and basis for each exception, the date(s) and time(s) that the exception was initiated, and (if applicable) the date(s) and time(s) that each exception was withdrawn and the standard rating became effective again. If the technical basis for an exception under this paragraph changes, then the Transmission ~~Provider~~Owner must update the relevant Thermal Transmission ~~Line~~Facility Rating(s) in a timely manner. The Transmission ~~Provider~~Owner must reevaluate any exceptions taken under this paragraph at least every five years.