



# **PJM Transmission Reliability Margin Methodology**

## **I. Purpose**

The inherent uncertainties in the projected system conditions used to calculate Available Transfer Capability (ATC) can result in unreliable transmission system operations. To ensure the integrity of the transmission system, an amount of transmission transfer capability will be set aside to provide a reasonable level of assurance that the interconnected transmission network will be secure. This capability is known as the Transmission Reliability Margin (TRM). TRM accounts for the inherent uncertainties in system conditions and its associated effects on ATC calculations and the need for operating flexibility to ensure reliable system operation as system conditions change.

## **II. Scope**

This document describes the method of how TRM is determined.

## **III. Methodology**

PJM as a Transmission Provider (TP) uses the following methods to determine TRM relative to the flowgate (FG) rating:

1. TRM shall be set to 2% of the FG rating for all PJM owned flowgates that are included in the AFC/ATC calculation except as noted below
2. TRM shall be set to 5% of the FG rating for all PJM owned flowgates that had Transmission Loading Relief (TLR) issued in the 12 months prior to the TP's annual TRM re-evaluation and/or are Interconnection Reliability Operating Limits (IROLs) located in PJM Manual 37: Reliability Coordination.
3. TRM may be set to 5% of the FG rating for PJM owned flowgates that were bound constrained (i.e. flowgate where the limiting facility is defined as a flowgate and may need to go off-cost) in the 12 months prior to TP's annual TRM re-evaluation.
4. During times of unusual circulation "loop flow" or other operating conditions, PJM may set a larger TRM on specific flowgates on the path(s) where loop flow occurs than indicated in steps 1, 2 and 3 above.
5. Aside from steps 1, 2 and 3 above, PJM may set TRM on specific flowgates to account for aggregate load forecast error, load distribution error, variations in facility loadings due to balancing of load and generation within a control area, forecast uncertainty in system topology, allowances for parallel path loop flow impacts,



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allowances for simultaneous path interactions, variations in generation dispatch, and short-term Operator Response/Operating Reserves.

6. For external flowgates, PJM uses the TRM values provided by the flowgate owner for the PJM AFC/ATC calculations in accordance with applicable agreement with such entities.

### **IV. Availability of TRM to the Market**

The TP uses TRM in all AFC/ATC calculations. The TP includes TRM in the calculation to provide a reasonable level of assurance that the interconnected transmission network will be secure. TRM is not scheduled against or explicitly used for the delivery of energy. It is preserved as a reliability margin to reflect the uncertainty of the operation of the electric system. The TRM, CBM and ratings for flowgates in PJM's AFC process are posted at <http://www.pjm.com/etools/oasis/atc-information.html> under "PJM Transmission Reliability Margin Methodology" link.