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## A. Introduction

1 **Title:** Transmission Reliability Margin Calculation Methodology

2 **Number:** MOD-008-1

3 **Purpose:** To promote consistent and transparent Transmission Reliability Margin calculation methodologies among Transmission Service Providers, Transmission Planners, and Transmission Operations Planners.

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The drafting team recommends that Transmission Operations Planners should be defined as a new functional model entity for planning periods less than 13 months.

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4.

### Applicability:

4.1. Each Transmission Planner

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4.2. Each Transmission Operations Planner

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4.3. Each Transmission Service Provider

5 **Effective Date:** xxxxxx

## B. Requirements

R1. Transmission Service Providers shall use Transmission Reliability Margin ("TRM") in the calculation of ATCs or AFCs if their respective Transmission Planners and Transmission Operations Planners have reserved capacity on their transmission system for use as TRM.

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R1.1 Transmission Planners and Transmission Operations Planners may reserve zero (0) TRM. However, Transmission Planners and Transmission Operations Planners that reserve zero (0) TRM must document as to why no TRM is needed.

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R2. Transmission Planners and Transmission Operations Planners that reserve TRM must document their methodology for calculating TRM on each posted Contract Path or Flowgate, using one or more of the following components:

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for the

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R2.1. Aggregate Load forecast error (not included in determining generation reliability requirements). Transmission Planners and Transmission Operations Planners must quantify the aggregate load forecast error used and describe how the aggregate load forecast error is used to calculate a TRM value.

R2.2. Load distribution error. Transmission Planners and Transmission Operations Planners must quantify the load distribution error used and describe how the load distribution error is used to calculate a TRM value.

- R2.4 Forecast uncertainty in transmission system topology. Transmission Planners and Transmission Operations Planners must quantify to what degree forecast uncertainty in transmission system topology is used and describe how this quantity is used to calculate a TRM value.
- R2.5 Allowances for parallel path (loop flow) impacts. Transmission Planners and Transmission Operations Planners must quantify the allowances for parallel path (loop flow) impacts and describe how this quantity is used to calculate a TRM value.
- R2.6 Allowances for simultaneous path interactions. Transmission Planners and Transmission Operations Planners must quantify the allowances for simultaneous path interactions and describe how this quantity is used to calculate a TRM value.
- R2.7 Variations in generation dispatch. Transmission Planners and Transmission Operations Planners must quantify variations in generation dispatch and describe how this quantity is used to calculate a TRM value.
- R2.8 Short-term System Operator response (Operating Reserve actions not exceeding a 59-minute window). Transmission Planners and Transmission Operations Planners must quantify short-term System Operator response and describe how this quantity is used to calculate a TRM value.
- R.2.9 Transmission Planners and Transmission Operations Planners must quantify reserve sharing requirements and describe how this quantity is used to calculate a TRM value.
- R3. Transmission Planners and Transmission Operations Planners shall document which of the uncertainties contained in R2.1-R2.9 are accounted for and used to calculate TRM on each posted Contract Path or Flowgate.
- R4. Transmission Planners shall calculate and document a TRM value for the Long-term Planning Horizon at least once a year.
- R5. Transmission Operations Planners shall calculate and document TRM values for the Short-term Planning Horizon at least once a year.
- R6. Transmission Service Provider shall post TRM calculation methodology on OASIS (or its successor).
- R7. Transmission Service Provider shall post calculated TRM values on OASIS (or its successor).
- R8. The Transmission Service Provider shall use the same components and assumptions in calculating TRM as it uses with its published planning criteria. A TRM value is considered consistent with published planning criteria if the same components that comprise TRM are also used in the planning criteria. The methodology used to determine and apply TRM does not have to involve the same mechanics as the planning process, but the same uncertainties must be considered and any simplifying assumption explained.
- R9. Transmission Service Providers, Transmission Planners, and Transmission Operations Planners shall use the components of uncertainty from R2.1 through R2.9 solely to calculate TRM and

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not the calculation of CBM.

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## C. Measures

M1. Each Transmission Service Provider, Transmission Planner, and Transmission Operations Planner shall have and provide upon request the methodology (either electronic or hard copy) as defined in Requirements R1, R2, and R3.

M2. Each Transmission Planner shall have and provide upon request the values (either electronic or hard copy) as defined in Requirement R4.

M3. Each Transmission Operations Planner shall have and provide upon request the values (either electronic or hard copy) as defined in Requirement R5.

M4. Each Transmission Service Provider shall have evidence that it has posted its TRM methodology and value(s) on its OASIS (or its successor) as defined in Requirements R6 and R7.

M5. Each Transmission Service Provider shall have evidence that it has used the same components and assumptions in calculating TRM as it uses with its published planning criteria as defined in Requirement R8.

M6. Each Transmission Service Providers, Transmission Planners, and Transmission Operations Planners shall have evidence that the components of uncertainty in R2.1 to R2.8 used in the calculation of TRM are not used in the calculation of CBM, as defined in Requirement R9.

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M2. Transmission Service Provider shall have evidence that it has determined TRM values for various time horizons using its documented procedures. ¶

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## D. Compliance

### 1. Compliance Monitoring Process

#### 1.1. Compliance Monitoring Responsibility

Regional Reliability Organizations shall be responsible for compliance monitoring.

#### 1.2. Compliance Monitoring and Reset Time Frame

One or more of the following methods will be used to verify compliance:

- Self-certification (Conducted annually with submission according to schedule.)
- Spot Check Audits (Conducted anytime with up to 30 days notice given to prepare.)
- Periodic Audit (Conducted once every three years according to schedule.)
- Triggered Investigations (Notification of an investigation must be made within 60 days of an event or complaint of noncompliance. The entity will have up to 30 days to prepare for the investigation. An entity may request an extension of the preparation period and the extension will be considered by the Compliance Monitor on a case-by-case basis.)

The Performance-Reset Period shall be 12 months from the last finding of noncompliance.

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**1.3. Data Retention**

Each Transmission Service Provider, Transmission Planner, and Transmission Operations Planner shall have current, in-force documents available as evidence of compliance as specified in each of the Measures.

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If an entity is found non-compliant the entity shall keep information related to the non-compliance until found compliant or for two years plus the current year, whichever is longer.

Evidence used as part of a triggered investigation shall be retained by the entity being investigated for one year from the date that the investigation is closed, as determined by the Compliance Monitor.

The Compliance Monitor shall keep for 3 years the last periodic audit report and all requested and submitted subsequent compliance records.

**1.4. Additional Compliance Information**

None.

**2. Levels of Non-Compliance:**

2.1. Level 1: Does not post its methodology for TRM on OASIS (or its successor)

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2.2. Level 2: Has not provided upon request its methodology and values for TRM.

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2.3. Level 3: Does not use the same components and assumptions in calculating TRM as it uses with its published planning criteria

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Does not calculate TRM in accordance with the prescribed schedule.

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2.4. Level 4: Does not calculate TRM in accordance with the posted methodology.

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Does not have a TRM methodology.

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**1.1. Compliance Monitoring Responsibility**

Compliance Monitor: ERO.

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**1.2. Compliance Monitoring Period and Reset Timeframe**

xxxxxx

**1.3. Data Retention**

None specified.

**1.4. Additional Compliance Information**

None.

**2. Levels of Non-Compliance**

**2.1. Level 1:** xxxxx

**2.2. Level 2:** xxxxxx.

**2.3. Level 3:** xxxxx.

**2.4. Level 4: xxxx**

**E. Regional Differences**

1. None identified.

**Version History**

Version	Date	Action	Change Tracking
0	April 1, 2005	Effective Date	New

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R2.3 Variations in facility loadings due to balancing of generation within a Balancing Authority Area. Transmission Planners and Transmission Operators must quantify to what degree variations in facility loadings due to balancing of generation within a Balancing Authority is used and describe how this quantity is used to calculate a TRM value.

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Transmission Operator

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for various time horizons (use these time horizons from ATC/AFC calculations) on each posted Contract Path or Flowgate.

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R3.1. Transmission Planners and Transmission Operators that separately calculate TRM for each of the uncertainties

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included in R2.1 – R2.8 must document why this method was chosen.

R3.1.1 Transmission Service Providers shall use the largest of the TRM value calculated in R3.1 in ATC/AFC calculations.

R3.2. Transmission Planners and Transmission Operators that calculate TRM using two or more uncertainties

included in R2.1 – R2.8 must document why this method was chosen.

R3.2.1 Transmission Service Providers shall use the TRM value calculated in R3.2 in ATC/AFC calculations.

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for year one (months one (1) through twelve (12))

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The entity that should be responsible for R5 should be the
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