



**Tri-State Generation & Transmission Association, Inc.**  
Transmission Reliability Margin Implementation Document  
(TRMID)

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**April 2015**

## 1. PURPOSE

The Transmission Reliability Margin Implementation Document (TRMID) provides for the documentation of required information as specified in the NERC Standard MOD-008-1.

## 2. DEFINITION

The Transmission Reliability Margin (TRM) is the amount of transmission transfer capability necessary to provide reasonable assurance that the interconnected transmission network will be secure. A TRM accounts for the inherent uncertainty in system conditions and the need for operating flexibility to ensure reliable system operation as system conditions change.

## 3. REQUIREMENTS

NERC Standard MOD-008-1, Transmission Reliability Margin Calculation Methodology, requires that each Transmission Operator prepare and keep a current TRMID.

NAESB OASIS Standard 001-13.1.5 requires that a TRMID be posted under the ATC Information Link on the Transmission Provider's OASIS.

## 4. IMPLEMENTATION

### 4.1 Identification of Paths Allocated TRM

In FERC Order 890, FERC notes the acceptable uses of TRM, which include the use for automatic sharing of reserves. The allocation of TRM is further supported in MOD-008-1, as stated in R2 of the standard. Tri-State Generation and Transmission Association (TSGT) has allocated TRM for the use of automatic sharing of reserves and may change its policy regarding the use of TRM as needed.

#### 4.1.1 Accommodate Transmission Service Requirements

To accommodate Transmission Service requirements for reserve sharing requirements, TSGT has allocated TRM on the paths shown in Table 1-A below. The TSGT does not allocate capacity for TRM for any of the other uses of the transmission system as allowed in MOD-008-1, R1.1.

<b>Table 1-A: List of TSGT Paths with TRM Allocated</b>			
<b>Reserve Sharing Group</b>	<b>POR</b>	<b>POD</b>	<b>TRM MW</b>
SRSG	PEGS	AMBROSIA230	40
SRSG	FOURCORNE345	SJ345	60
SRSG	PYGS	HIDALGO115	80

TSGT allocates TRM capacity for the delivery and receipt of reserves associated with the Southwest Reserve Sharing Group (SRSG). TSGT does not allocate TRM capacity for the Rocky Mountain Reserve Group (RMRG), as allowed by the FERC ruling on RMRG Docket No. ER13-874-000.

## **4.2 Calculation and TRM Allocation Methodology**

TSGT works in conjunction with its Network Integration Transmission Service (NITS) customers to utilize the sharing matrices. These matrices' are used by the respective reserve sharing groups to determine the megawatt amounts the customer is to provide in response to a contingency. The customer also determines which Network Resources they will respond with. The response megawatt values are applied to accurately allocate TRM on TSGT's system.

### **4.2.1 Specific Calculation Derivation for TRM – SRSG**

The SRSG obligations are primarily based upon the load levels of participants, rather than responding to the largest contingency in the group. As such, the reserve obligations can vary on an hourly basis. Based upon resource availability and production costs, the Tri-State Power Marketing (TSPM) determines how their reserve obligations will be met, delivered and points of delivery. Once TSPM determines how to respond, TSPM requests TSGT to model the chosen transmission path. In addition, TSPM requests TSGT to allow for the appropriate amount of TRM to deliver the reserve response.

### **4.2.2 Conditions Under Which the Transmission Provider Uses TRM**

TSGT uses TRM to set aside capacity to deliver reserve obligations of its NITS customers. When the loss of a generation resource occurs (which resides within the reserve sharing group's footprint), the members of the reserve sharing group respond by delivering replacement energy to the deficient member. TRM is reserved to ensure sufficient transmission capacity exists to deliver the replacement energy requirement to the insufficient entity. A contingency can occur at any time, so TSGT does not release TRM for non-firm use to ensure its availability for reserve activations.

## 4.3 TRM Calculation Time Periods

Due to the nature of reserve activations, there is an inherent inconsistency surrounding events that would trigger activation. Because of this unpredictability, there is a need for transmission capacity to be available immediately; TSGT does not release unscheduled TRM for use as non-firm capacity. The calculations for all time periods decrease the Available Transfer Capability (ATC), for both firm and non-firm capacity.

### 4.3.1 Same-day and Real-time (Scheduling Horizon)

The Scheduling Horizon is defined as “a specified number of hours extending past the current hour”. For the TSGT, the OASIS Scheduling Horizon is “equal to the current hour, plus an additional eight (8) hours”. TRM is calculated utilizing the reserve group matrices, as described in Section 4.2. The TSGT does not recalculate the reserve sharing group requirements and obligations on a same-day and/or real-time basis as reserve activations cannot be forecasted. The full amount allocated for TRM use is deducted from the firm ATC calculation, on a same-day and real-time basis. Unscheduled TRM is not posted back to the ATC calculation for non-firm ATC.

### 4.3.2 Day-Ahead and Pre-Schedule (Operating Horizon)

The Operating Horizon is defined as “a specified number of hours extending past the end of the Scheduling Horizon”. For TSGT, the OASIS Operating Horizon is “equal to the end of the Scheduling Horizon, plus an additional 168 hours”. TRM is calculated utilizing the reserve group matrices as described in Section 4.2. TSGT does not recalculate the reserve sharing group requirements and obligations on a day-ahead and/or pre-schedule basis as reserve activations cannot be forecasted. The full amount allocated for TRM use is deducted from the firm ATC calculation on a day-ahead and pre-schedule basis. Unscheduled TRM is not posted back to the ATC calculation for non-firm ATC.

### 4.3.3 Beyond Day-Ahead and Pre-Schedule (Planning Horizon)

The Planning Horizon is defined as “a specified number of days extending past the end of the Operating Horizon”. For TSGT, the OASIS Planning Horizon is “equal to the end of the Operating Horizon, plus an additional 3650 days (10 years)”. TRM is calculated utilizing the reserve group matrices as described in Section 4.2. TSGT does not recalculate the reserve sharing group requirements and obligations on a planning horizon basis, unless a change is made to the matrices. A change to the matrices must determine that the obligation or information is received from the respective reserve group and there are changes to the receipt and delivery points for future activations. The full amount

allocated for TRM use is deducted from the firm ATC beyond the day-ahead and pre-schedule time frames. Unscheduled TRM is not posted back to the ATC calculation for non-firm ATC.

#### **4.4 Demonstration of “No-Double Counting” of Contingency Outages When Performing CBM and TRM Calculations**

As TSGT does not allocate for a Capacity Benefit Margin (CBM), and the value for CBM is set to zero (0) for all ATC calculation methodologies, TSGT does not include any components of CBM within the TRM capacity allocation.

#### **4.5 Dissemination of TRM Allocation Information**

TSGT will disseminate TRM allocation information in accordance with NERC MOD Standard 008-01 as requested and within 30 calendar days, as described in the Standard.

##### **4.5.1 Written Request for Underlying Documentation**

Upon the written request from a Transmission Service Provider, Reliability Coordinator(s), Planning Coordinator(s), Transmission Planner, or Transmission Operator(s) for the underlying documentation that TSGT uses to determine TRM, TSGT will make the documentation available (if any) to any of the functions listed in MOD-008-1, R3. TSGT will follow the specified Data Request Procedures: DATA-002, to provide the requested data.

## **5. REVIEW OF TRM VALUES**

### **5.1 Review of Calculated and Allocated TRM Values**

TSGT will review its calculated and allocated values for TRM at least once every thirteen (13) months, and/or as required. TSGT will maintain a record of the assessment and any changes made.

## **6. NOTIFICATION OF TRM VALUES**

### **6.1 Notification to Transmission Service Providers and Transmission Planner(s)**

TSGT will notify the defined Transmission Service Providers and Transmission Planner(s) no more than seven (7) calendar days after a TRM value is initially established or is subsequently changed. The TRM values are always known by the TSGT Transmission Service Provider (TSP); the Transmission Operator (TOP) and TSP functions are administered by the same group within TSGT. Along with applicable

information, TSGT will notify the following parties of any establishment or change to a TRM value:

Entity	Contact Information	Neighbor	TOP	TSP	TP	RC	PC(PA)
Tri-State Generation and Transmission Association, Inc.	Doug Reese, Operations Support Manager 303.254.3676 <a href="mailto:dreese@tristategt.org">dreese@tristategt.org</a>  Blane Taylor, Senior Manager Power Systems Planning 303.254.3659 <a href="mailto:btaylor@tristategt.org">btaylor@tristategt.org</a>  Ryan Walter Reliability Compliance Analyst 303.254.3722 <a href="mailto:ryawal@tristategt.org">ryawal@tristategt.org</a>		X	X	X		

## 7. ACRONYMS AND DEFINITIONS USED IN THIS DOCUMENT

**ATC-** Available Transfer Capability: A measure of the transfer capability remaining in the physical transmission network for further commercial activity over and above already committed uses. It is defined as Total Transfer Capability less Existing Transmission Commitments (including retail customer service), less a Capacity Benefit margin, less a Transmission Reliability Margin, plus Postbacks, plus counterflows.

**CBM** -Capacity Benefit Margin: The amount of firm transmission transfer capability preserved by the transmission provider for Load-Serving Entities (LSEs), whose loads are located on that Transmission Service Provider’s system, to enable access by the LSEs to generation from interconnected systems to meet generation reliability requirements. The transmission transfer capability preserved as CBM is intended to be used by the LSE only in times of emergency generation deficiencies.

**FERC** – Federal Energy Regulatory Commission

**NAESB** – North American Energy Standards Board

**NERC**- North American Electric Reliability Corporation

**NITS**- Network Integrated Transmission Service

**OASIS** – Open Access Same Time Information System

**RMRG** – Rocky Mountain Reserve Group

**SRSG** – Southwest Reserve Sharing Group

**TOP**- Transmission Operator

**TRM**- Transmission Reliability Margin: The amount of transmission transfer capability necessary to provide reasonable assurance that the interconnected transmission network will be secure. TRM accounts for the inherent uncertainty in system conditions and the need for operating flexibility to ensure reliable system operation as system conditions change.

**TRMID**- Transmission Reliability Margin Implementation Document

**TSGT** – Tri-State Generation and Transmission Association

**TSP** – Transmission Service Provider

**TSPM** – Tri-State Power Marketing