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Purpose

Provides guidelines for the use of Transmission Reliability Margins (TRM).

1. Responsibilities

CAISO Transmission Dispatcher **CAISO Generation Dispatcher** **CAISO Manager of Balancing Authority (BA) Operations**	Determine TRM value
CAISO Transmission Dispatcher	Enter TRM into ETCC and SLIC log

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2. Scope/Applicability

2.1 Background

At times, the California ISO (CAISO) must cut the Hour-Ahead Scheduling Process (HASP) market procured transmission schedules on its Interties to alleviate Real-Time (RT) transmission grid issues, such as:

- Uncertainty in Real-Time transmission topology
- Unscheduled Flow, also known as Loop Flow or Parallel Path Flow
- Simultaneous path interactions

To minimize the impact on the market and to reduce hourly schedule cuts from unanticipated system events, the CAISO will implement a Transmission Reliability Margin (TRM) for use on CAISO Interties for the CAISO portion only as outlined below. The use of a TRM allows the market to optimize the interties, rather than face continuous hourly curtailments while providing transparency to market participants via the CAISO's Open Access Same-Time Information System (OASIS) posting. Curtailing awarded schedules negatively affects market participants because they have little recourse in finding alternative sources or sinks of energy. CAISO Operators are also negatively impacted since curtailing schedules increases manual procedures including procurement of imbalance energy to replace curtailed energy schedules. In addition, because Available Transmission Capacity (ATC) calculations are established before the beginning of the operating hour, the CAISO's OASIS data continues to report positive ATC values even when occasional curtailments in real-time have affected market schedules. Market Participants are left unaware that ATC values are actually less than what is reported.

Note: *When RT curtailments are required, the above-mentioned conditions still apply.*

2.2 Scope / Applicability

This procedure explains when and how to use TRM.

3. Procedure Detail

3.1 TRM Value Determination

A TRM value will be determined by the Manager of BA Operations based on input from Transmission, Generation Dispatchers, and the process described in the Transmission Reliability Margin Implementation Document (TRMID).

TRM can be used for the following conditions:

- Uncertainty in Real-Time transmission topology – potential de-rate upon loss of elements).
- Unscheduled Flow – accommodation level for anticipated Western Interconnection Unscheduled Flow Mitigation Plan (WIUFMP).
- Simultaneous path interaction – potential de-rate amount from Non-CAISO path.

3.2 TRM Instructions

For Unscheduled Flow purposes TRM can be implemented in one (1) hour increments only for the next applicable HASP. If conditions require immediate action in the current hour, curtail schedules using the Curtailment Tool in the Interchange transaction scheduler.

For uncertainty in Real-Time transmission topology and Simultaneous path interaction TRM can be implemented for the hours the condition is expected.

The use of TRM is communicated in OASIS in the Current Transmission Usage display. A Grid Messaging System (GMS) message is not required for the use of TRM as it is just a tool used for mitigating an actual or possible constraint.

3.2.1 Uncertainty in Real-Time Transmission Topology

Take the following actions when uncertainty in transmission system topology is forecasted due to uncontrollable threats to the system. These threats and uncertainties may include but are not limited to fires, storms, actual and/or potential structural damage to transmission facilities.

CAISO Transmission Dispatcher
1. If there is uncertainty about the availability of certain transmission system resources, prior to HASP, • **Enter** the determined TRM value in the ETCC. *Example: If an ATC path is rated at 1000 MW during system intact, and, as a result of approaching fires, there is an uncertainty of full availability due to a potential Forced Outage that may derate the ATC path by 200 MW to a new rating of 800 MW, then the CAISO would utilize up to 200 MW of TRM values for the time period during which that uncertainty exists.* 2. **Enter** TRM into SLIC log.

3.2.2 Unscheduled Flow

Allowances for parallel path (loop flow) impacts. This TRM is only applicable to the PACI.

CAISO Transmission Dispatcher
1. If the CAISO forecasts that projected loop flow and schedules will be sufficient to trigger a Step 2 or higher of the Western Interconnection Unscheduled Flow Mitigation Plan (WIUFMP) for that path, prior to HASP, • The CAISO **may enter** the determined TRM value in ETCC. 2. **Enter** TRM into SLIC log.

3.2.3 Simultaneous Path Interactions

Allowances for simultaneous path interactions.

Note: *The CAISO generally does not limit the TTC of an ATC Path due to the simultaneous interaction with another path. The impact of the interaction between multiple ATC Paths might be accounted for with nomograms enforced in Real-Time, either in an automated manner through market systems or manually through monitoring by operations staff, to ensure there are no violations of the System Operating Limit. There are, however, a number of CAISO ATC Paths that have simultaneous interactions with non-CAISO ATC Paths.*

CAISO Transmission Dispatcher
1. If one or more CAISO ATC Paths become constrained due to interactions with another non-CAISO ATC Path, prior to HASP, • **Enter** the determined TRM value in ETCC. ***Note:*** *If an ATC Path within CAISO is found to be dependent on other ATC Paths, then the amount of TRM value assigned should be no greater than the impact of its interaction with the non-CAISO ATC Path:* 2. **Enter** TRM into SLIC log.

4. Supporting Information

Operationally Affected Parties

Shared with the Public.

References

Resources studied in the development of this procedure and that may influence some steps taken herein include but are not limited to:

CAISO Tariff	
Desktop Procedure	GOT-014 Transmission Reliability Margin
NERC Standards	
Other References	Transmission Reliability Margin Implementation Document (TRMID) Available Transfer Capability Implementation Document (ACTID)

Definitions

Unless the context is otherwise indicated, any word or expression defined in the Master Definitions Supplement to the CAISO Tariff shall have that meaning when capitalized in this Operating Procedure.

The following additional terms are capitalized in this Operating Procedure when used as defined below:

ATC	Available Transmission Capacity (=Hourly TTC-TRM Total-CBM)
TRM	Transmission Reliability Margin
TTC	Total Transfer Capability

Version History

Version	Change	Date
3.1	Section 2.1: Minor update to OASIS references. Section 3.1 and 3.2.2: Updated WIUFMP references. Section 3.2: Updated TRM Instructions.	5/07/20
3.2	Periodic Review: Updated from ISO to CAISO and spelled out first instance. Replaced “Dispatcher” with “Desk” in Responsibilities section. Replaced instance of Reliability messaging system with Grid Messaging System (GMS). Minor edits in Section 5 for procedures consistency.	4/27/23
3.3	Replaced Generation or Transmission “Desk” with Generation or Transmission “Dispatcher". Replaced Shift Manager with Manager of Real-Time Operations.	9/11/23
3.4	Replaced Manager of Real-Time Operations with Manager of Balancing Authority (BA) Operations. Minor formatting and grammar edits and removed history prior to five years.	10/23/25
3.5	Periodic Review: Minor formatting only, no content changes.	5/01/26

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5. Periodic Review Procedure

Review Criteria & Incorporation of Changes

There are no specific criteria for reviewing or changing this document, follow instructions in CAISO Operating Procedure 5510.

Frequency

Every three (3) Years.

Appendix

No references currently.