

B O N N E V I L L E
P O W E R A D M I N I S T R A T I O N



**Transmission Reliability Margin
Implementation Document
Version 6
(MOD-008-1)**

**Bonneville Power Administration
Transmission Services**

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1 I. Purpose

2 This Transmission Reliability Margin Implementation Document (TRMID) addresses the
3 requirements of North American Electric Reliability Corporation (NERC) Reliability Standard
4 MOD-008-1 (Transmission Reliability Margin Calculation Methodology). This TRMID applies to
5 TRM calculations through month 13.

6 II. Definitions

7 All capitalized terms used in this TRMID are contained in NERC's Glossary of Terms used in
8 NERC Reliability Standards.

9 III. Transmission Reliability Margin Calculation Methodology

10 This section describes how BPA implements the requirements of MOD-008-1.

11 Components of Uncertainty

12 BPA uses the following components of uncertainty to establish TRM on its **Northern Intertie**
13 **Total N>S and S>N Paths (MOD-008-1 R1.1):**

- 14 ○ Variations in generation dispatch (including, but not limited to, forced or
15 unplanned outages, maintenance outages and location of future generation).
- 16 ○ Inertial response and frequency bias.

17 BPA uses the following component of uncertainty to establish additional TRM on its **Northern**
18 **Intertie Total S>N Path (MOD-008-1 R1.1):**

- 19 ○ Allowances for simultaneous path interactions.

20 BPA uses the following component of uncertainty to establish TRM on its **West of Garrison**
21 **E>W Path (MOD-008-1 R1.1):**

- 22 ○ Variations in generation dispatch (including, but not limited to, forced or
23 unplanned outages, maintenance outages and location of future generation).

24 BPA does not maintain TRM on any other of its Paths.

25 BPA does not maintain Capacity Benefit Margin (CBM) on any of its ATC Paths, and therefore
26 does not include any of the components of CBM in its TRM calculations. (MOD-008-1 R2)

27 **Allocating TRM values across the Northern Intertie Path**

28 To calculate TRM for the Northern Intertie Path due to variations in generation dispatch and
29 inertial response and frequency bias, BPA's Transmission System Operations organization
30 conducted a post event analysis in 2013. The results of this analysis are validated every 13
31 months based on operating experience and the capacity amount that has proven sufficient
32 and effective to mitigate such uncertainty in the past. (MOD-008-1 R1.2)

33 BPA's Transmission System Operations studies have shown that there is an interaction
34 between flows on the Northern Intertie S>N path and flows on the California-Oregon Intertie
35 N>S and North of Hanford N>S paths. In order to mitigate the uncertainty that results from
36 this path interaction, BPA has established an additional TRM on the Northern Intertie Total
37 S>N when the Total Transfer Capability on this path is above 2000MW. (MOD-008-1 R1.2)

38 The amount of TRM BPA incorporates is based upon the results of the technical analyses
39 provided by Transmission System Operations. The final decision as to whether or not to
40 market any of the TRM as non-firm, up to its maximum value, is made by Transmission
41 Marketing and Sales.

42 Currently, BPA applies the TRM due to variations in generation dispatch and inertial response
43 and frequency bias to its firm and non-firm ATC calculation across the Northern Intertie Total
44 N>S and S>N Paths. BPA applies the TRM that is the result of allowances for simultaneous
45 path interactions to the firm ATC calculation only across the Northern Intertie Total S>N Path.
46 (MOD-008-1 R1.2)

47 **Allocating TRM values across West of Garrison E>W**

48 BPA's Transmission System Operations studies have identified uncertainty across the West of
49 Garrison E>W Path due to variations in generation dispatch. In order to mitigate the
50 uncertainty that results from this, BPA has established a TRM when the Total Transfer
51 Capability on this path is above 2000MW. (MOD-008-1 R1.2)

52 The amount of TRM BPA incorporates is based upon the results of the technical analyses
53 provided by Transmission System Operations. The final decision as to whether or not to
54 market any of the TRM as non-firm, up to its maximum value, is made by Transmission
55 Marketing and Sales.

56 Currently, BPA applies the TRM due to variations in generation dispatch to the firm ATC
57 calculation across the West of Garrison E>W Path. (MOD-008-1 R1.2)

58 **TRM for Each Time Period**

59 BPA uses the same TRM calculation described above for the same day and real-time, day-
60 ahead and pre-schedule, and beyond day-ahead and pre-schedule, up to thirteen months
61 ahead time periods. (MOD-008-1 R1.3, MOD-008-1 R1.3.1, MOD-008-1 R1.3.2 and MOD-008-1
62 R1.3.3)

63 BPA establishes TRM values in accordance with its TRMID at least once every 13 months.
64 (MOD-008-1 R4)

65 **Sharing TRM**

66 The results of BPA's Transmission System Operations' TRM studies are shared electronically
67 with BPA's Transmission Planner and Transmission Service Provider no more than seven
68 calendar days after they are completed. (MOD-008 R5)

69 **IV. TRMID Requests**

70 BPA makes its TRMID available on its website for all interested parties. If requested, BPA will
71 make available the underlying documentation used to determine its TRM, in the format used
72 by BPA, to Transmission Service Providers, Reliability Coordinators, Planning Coordinators,
73 Transmission Planners and Transmission Operators who make a written request. BPA will
74 supply this information no more than 30 calendar days after receiving the request (MOD-008-1
75 R3). Requests for this documentation should be sent to nercatcstandards@bpa.gov.

76

77 **V. Version History**

TRMID Revision History			
Version	Date Revised	Description of Changes	Prepared by
1.0	02/13/2012	BPA TRMID FINAL	L. Trolese
2.0	2/12/2013	P. 3 lines 20-22: Updated the components used to establish TRM to Variations in Generation Dispatch and Inertial Frequency. P. 3 lines 27-34: Updated BPA’s practice for Establishing TRM values across the Northern Intertie Path.	L. Wickizer
3.0	1/3/2016	P.3 lines 23-25: Updated BPA’s practice for Establishing TRM values across the Northern Intertie Path S>N P.4 lines 39-48: Added establishing TRM values across the Northern Intertie Path S>N. P. 4 lines 62-69: Updated BPA’s practice for System Operations analyzing and providing TRM value.	L. Proctor
4.0	9/6/2016	P4. Lines 37-45: Clarified section describing the TRM across Northern Intertie S>N due to simultaneous path interactions; added line numbers and page numbers, among other minor formatting adjustments.	M. Olczak
5.0	10/12/2018	Clarification and simplification of BPA’s TRMID document. BPA’s TRM methodology and calculations have not changed.	M. Olczak
6.0	08/14/2019	P3. Lines 20-23 and P4. Lines 47 - 57: TRM information for the West of Garrison E>W path has been incorporated into the document	M. Olczak