

**UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION**

**Preventing Undue Discrimination)
and Preference in Transmission)
Service)**

**Docket No. RM05-17-000
and
Docket No. RM05-25-000**

**REQUEST OF THE
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION
FOR EXTENSION OF TIME FOR COMPLIANCE FILING
IN RESPONSE TO PARAGRAPH 223 OF ORDER NO. 890**

The North American Electric Reliability Corporation (“NERC”) hereby requests a five-month extension of time, from Monday, December 10, 2007 to Friday, May 9, 2008, to submit the revised standards required by paragraph 223 of the Commission’s Order No. 890.¹ In support of this request, NERC states as follows:

In Order No. 890,² the Commission directed public utilities working through NERC to modify reliability standards regarding Available Transfer Capability (ATC) by December 10, 2007. The Commission repeated that direction in Order No. 693.³ NERC and the industry stakeholders serving on the standards drafting team have worked diligently and have made considerable progress in addressing a number of the Commission’s directives. However, because of the complexity of the task and the remaining issues to be resolved, NERC will be unable to meet the deadline set in Order No. 890. Accordingly, NERC requests an extension of time to complete the remaining

¹ *Preventing Undue Discrimination and Preference in Transmission Service*, FERC Stats. & Regs. ¶ 31,241 at PP 141 and 223 (2007) (“Order No. 890”).

² *Id.*

³ *Mandatory Reliability Standards for the Bulk-Power System*, 118 FERC ¶ 61,218, FERC Stats. & Regs. ¶ 31,242 (2007) (“Order No. 693”), *order on reh’g, Mandatory Reliability Standards for the Bulk-Power System*, 120 FERC ¶ 61,053 (2007) (“Order No. 693-A”).

activities necessary to deliver a high-quality set of reliability standards that addresses the directives contained in Order Nos. 693 and 890.

NERC describes below (1) the current status of the project and the efforts undertaken to date, (2) the remaining activities and schedule needed to achieve quality standards that are responsive to the Commission's directives, and (3) NERC's explanation of the need for the extension of time.

CURRENT STATUS AND BACKGROUND

In April 2005, NERC formally began its efforts to revise its existing reliability standards related to ATC. These efforts were initiated based on the work of the Long-Term ATC/AFC Task Force, a group working under the now-retired NERC Market Interface Committee with the charge of developing a long-term strategy for addressing concerns with ATC coordination and accuracy. Since that time, the Commission has issued a Notice of Inquiry, a Notice of Proposed Rulemaking, and ultimately Order No. 890 related to the ATC standards. Throughout these developments, the NERC standards drafting team has been working to discuss the relevant issues, draft language in support of industry needs, and ensure that its efforts comply with the intentions and directives of the Commission. In 2006, the NERC standards drafting team assigned to the ATC work held nineteen formal meetings or conference call working sessions. To date in 2007, the team has held sixteen such meetings or sessions. In addition, the teams have had several informal calls and gatherings of smaller work teams between meetings.

On June 13, 2007, NERC filed, concurrently with the North American Energy Standards Board (NAESB), a status report on the ATC development effort. Since then, the standards drafting team has continued to meet extensively in order to respond the

Commission's Order, as described in Attachment 1. NERC received 94 sets of comments from industry participants during the first posting of the complete set of ATC-related standards in June 2007 that led to numerous and, in some cases, significant improvements to the drafted standards.

The latest complete drafts of the ATC-related standards have been posted for a 45-day comment period beginning on October 30, 2007 and are included as Attachment 2. Previous posted versions have only included the "requirements" components of the proposed reliability standards. This posting includes all necessary measures and compliance elements, including Violation Risk Factors and Violation Severity Levels, and this comment period will be the first opportunity for industry participants to provide their opinions on these areas.

The reliability standards being developed for ATC in response to Order No. 890 directives belong to the "Modeling, Data, and Analysis (MOD)" family of NERC reliability standards. These standards focus on the development of various methods for analyzing the bulk power system to identify reliability concerns that require mitigation. The specific MOD standards being written or enhanced in response to Order No. 890 are as follows:

MOD-001: Available Transfer Capability. This standard serves as the foundation of the detailed ATC methodology standards. MOD-001 requires the selection of one or more methodologies, specifies that ATC be calculated using those methodologies on a fixed schedule for specific timeframes, requires the development and maintenance of an "Implementation Document," which will serve a detailed overview of each transmission service provider's (TSP's) processes for determining ATC, defines the base requirements

for the handling of counterflows; and specifies the required items for data exchange to be used in support of reliable, coordinated calculation of ATC.

MOD-004: Capacity Benefit Margin (CBM). This standard provides detail regarding CBM based on the new requirements specified in Order No. 890. This standard represents a significant departure for many industry participants from how CBM is currently handled. MOD-004 requires the development and maintenance of an “Implementation Document,” which will serve as a detailed overview of each TSP’s processes for determining CBM, specifies how a load serving entity (LSE) or group of LSEs may request CBM, defines how a TSP must process such a request and set CBM based on that request, and sets forth the process for scheduling CBM.

MOD-008: Transmission Reliability Margin (TRM). MOD-008 describes how TSPs may attempt to quantify uncertainty and account for risk. To a large extent, the details of this standard are limited to defining the categories of risk a TSP may consider, specifying the documentation requirements associated with TRM (in the form of an “Implementation Document”), and requiring that TRM may not be scheduled upon except as part of an intra-hour reserve sharing effort.

MOD-028: Area Interchange Methodology⁴ and MOD-029: Rated System Path methodology. These two standards reflect current practice for much of North America today, and provide the details of how ATC is determined using these methodologies. The Area Interchange methodology (also referred to as the Network Response ATC methodology) is primarily used in the southeastern part of the United States, although it is used in the Midwest in some cases as well. The Rated System Path methodology is

⁴ North American Electric Reliability Council. 1995. *Transmission Transfer Capability – A Reference Document for Calculating and Reporting the Electric Power Transfer Capability of Interconnected Electric Systems*. Pages A-6 through A-20.

used exclusively in the Western Interconnection. Both standards have the same general format, and discuss how to set up models and assumptions, how to calculate Total Transfer Capability, how to determine Existing Transmission Commitments, and how to determine ATC.

MOD-030: Flowgate Methodology.⁵ Like MOD-028 and MOD-029, MOD-030 provides the specific details for determining ATC. However, unlike the other two reliability standards, MOD-030 utilizes the concept of flowgates to determine ATC. This standard begins with a description of how to select flowgates for consideration, then continues with specifications for how to set Total Flowgate Capability, how to determine the impacts of Existing Transmission Commitments, how to determine Available Flowgate Capabilities, and how to convert a flowgate capability to a path-based transfer capability.

In addition to the modifications to, or creation of, the above standards, the standards drafting team intends to retire Reliability Standards MOD-002, MOD-003, MOD-005, MOD-006, MOD-007, MOD-009, FAC-012, and FAC-013, as their content is either being moved to NAESB Business Practice Standards or wholly incorporated into the other NERC reliability standards mentioned previously.

REMAINING ACTIVITIES AND SCHEDULE

The activities remaining include responding to industry comments following the close of the 45-day comment period, a pre-ballot review period of thirty days, subsequent ballot (or ballots, if necessary) to determine industry consensus, and NERC Board of Trustee approval.

⁵ North American Electric Reliability Council. 1996. *Available Transfer Capability Definitions and Determination – A Framework for Determining Available Transfer Capabilities of the Interconnected Transmission Networks for a Commercially Viable Electricity Market*. Appendix A.

Although the standards drafting team has made significant progress on the ATC-related standards, NERC will not meet the December 10, 2007 deadline specified in Order No. 890. In the June 13, 2007 status report filed with the Commission, NERC provided a set of scheduling milestones. Below is an updated version of these milestones.

NERC PROCESS MILESTONES	ORIGINAL DATES			NEW DATES		
	NERC ATC Standards	NERC CBM Standards	NERC TRM Standards	NERC ATC Standards	NERC CBM Standards	NERC TRM Standards
First Draft Complete	February 14, 2007	May 25, 2007		February 14, 2007	May 25, 2007	
First Draft Comment Period	February 15 - March 16	May 25 - June 25		February 15 - March 16	May 25 - June 25	
Second Draft Complete	May 25, 2007	July 20, 2007		May 25, 2007	October 30, 2007	
Second Draft Comment Period	May 25 - June 25	July 21 - September 3		May 25 - June 25	October 30 - December 14	
Third Draft Complete	July 20, 2007	N/A		October 30, 2007	N/A	
Third Draft Comment Period	July 21 - September 3	N/A		October 30 - December 14	N/A	
Posting for Balloting	September 18, 2007			February 1, 2008		
Balloting Complete	November 19, 2007			April 18, 2008		
Board Approval Complete	November 30, 2007			May 7, 2008		
Compliance Filing	December 10, 2007			May 9, 2008		

The schedule presented above is based on the NERC's current understanding and expectations for the course ahead. However, because the NERC standard development process is an open, stakeholder-based process, there are variables to the schedule that are important to consider when discussing the status of the standards.

NEED FOR EXTENSION

NERC expects to require an additional five months to complete the ATC-reliability standards development effort. The principal reason for this request for additional time is to adequately address the multitude of complex issues being discussed and to allow industry participants the opportunity to fully vet and vote these more structured sets of ATC-standards, now that the second drafts of the standards have been made available for review. Additionally, the philosophical variations between the users of the various methodologies have proven to be challenging to understand and consider by the members of the standards drafting team. The team has taken a significant amount of time to ensure, as the details of each methodology are discussed and vetted among the team, that all members of the team (not just the users of a particular methodology) are in agreement that the standards as written are reliable and technically sound.

Another factor contributing to the need for more time is the number of insightful comments NERC received on the initial draft of the standards. In response to the May 25, 2007 posting, NERC received 94 sets of comments on the proposed standards. The drafting team's original project schedule projected that only one month would be needed to respond to the comments and modify the standards to address the concerns expressed. However, several commenters identified areas of concern that the team agreed had to be addressed, including several that required significant changes to key concepts. These changes required the team to reconsider the basic framework of the standards and integrate their approaches to ensure consistency and compliance with the Orders. This effort took three months to complete versus the one month originally projected, but this

demonstrates the significant value of industry participation in the review and ultimate consensus-building NERC standards development process.

Finally, additional time is needed to complete the revised standards is the consensus-building effort itself, in accordance with the NERC standard development process. NERC recommends that the Commission grant NERC's request for an extension of time that will allow the full implementation of the standard development process to occur, utilizing the full time periods included in the Rules of Procedure. The thorough industry vetting process has been extremely instructive to the standards drafting team in significantly improving the state of the ATC-standards. NERC firmly believes that the quality of ATC-standards is of paramount importance and that the requested five-month extension is a reasonable request in achieving the objectives the Commission seeks in Order Nos. 693 and 890. NERC believes the final deliverable will be a better product as result.

Given the technical complexity of the issues involving ATC and standard development, shortening the timeline may limit the opportunity for industry participants to fully review and offer meaningful comments. Additionally, with a shortened opportunity to review the body of proposed ATC-standards, industry participants may elect to vote in the negative when the ATC-standards are balloted as a reflection of the insufficient ability to review and understand the proposed technical proposals. This would further compromise NERC's ability to deliver these important standards in a timely manner. NERC believes the requested extension optimizes its ability to meet both elements. NERC will keep the Commission's staff apprised of the progress in moving forward with these standards.

CONCLUSION

Wherefore, NERC respectfully requests that it be granted a five-month extension, to May 9, 2008, to submit the ATC-related standards in response to paragraph 223 of the Commission's Order No. 890.

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Dated: November 21, 2007

CERTIFICATE OF SERVICE

I hereby certify that I have served a copy of the foregoing document upon all parties listed on the official service list compiled by the Secretary in this proceeding.

Dated at Washington, D.C. this 21st day of November, 2007.

/s/ Rebecca J. Michael

Rebecca J. Michael

*Attorney for North American Electric
Reliability Corporation*

Attachment 1 – Work History and Timeline

Below is a list of key events and meetings related to the development of the ATC standards. This list only includes “formal” activities, and generally does not include the numerous informal working meetings held by sub-groups within the Standards Drafting Team.

April 14, 2005 – Long Term ATC Task Force publishes its final report.

May 27, 2005 – FERC issues its Notice of Inquiry.

July 8 – August 8 2005 – The ATC/TTC/AFC and CBM/TRM SARs initial drafts are posted for comment.

November 16, 2005 – The SAR Drafting team holds a conference call and WebEx to review Regional documents related to ATC/TTC/AFC/CBM/TRM; to review MOD-001 through -009; to review the comments on the SAR comments; and to review the comments to the FERC NOI

January 13, 2006 – The SAR Drafting Team holds a conference call and WebEx to refine the SARs

January 25-26, 2006 – The SAR Drafting Team holds a meeting to refine the SARs and to work on the development of coordination process between NERC and NAESB

February 15, 2006 – The final versions of the ATC/TTC/AFC and CBM/TRM SARs are posted.

April 5-6, 2006 – A joint meeting with NAESB is held, and the Standards Drafting Team begins considering the changes that will be needed to the MOD standards, what the posting strategy for the standards will consist of, and how NERC and NAESB will coordinate their efforts.

April 13, 2006 – The Standards Drafting Team holds a Conference Call and WebEx to draft changes to the MOD-001 standard and the development timeline.

April 17, 2006 – The Standards Drafting Team holds a Conference Call and WebEx to draft changes to the MOD-001 standard

April 28, 2006 – The Standards Drafting Team holds a Conference Call and WebEx to draft changes to the MOD-001, MOD-004, MOD-005, MOD-008, and MOD-009 standards.

May 2, 2006 – The Standards Drafting Team holds a Conference Call and WebEx to draft changes to the MOD-001, MOD-004, MOD-005, MOD-008, and MOD-009 standards.

May 5, 2006 – The Standards Drafting Team holds a Conference Call and WebEx to draft changes to the MOD-001, MOD-004, MOD-005, MOD-008, and MOD-009 standards.

May 10, 2006 – The Standards Drafting Team holds a Conference Call and WebEx to draft changes to the MOD-001 standard

May 16, 2006 – The Standards Drafting Team holds a Conference Call and WebEx to draft changes to the MOD-001, MOD-004, MOD-005, MOD-008, and MOD-009 standards, as well as development of the MOD-001 comment form.

May 20, 2006 – The Standards Drafting Team holds a Conference Call and WebEx to draft changes to the MOD-001 standard and discuss outstanding questions related to TTC.

May 18, 2006 – FERC issues its Notice of Proposed Rulemaking

June 8-9, 2006 – The Standards Drafting Team holds a meeting to discuss the relationship of the FAC standards to the ATC standards, review the methodologies in practice, and analyze the NOPR.

June 19, 2006 – The Standards Drafting Team holds a Conference Call and WebEx to review changes needed to respond to the NOPR, continue discussion of the various methodologies in use, and review changes that have been made to the MOD-001 standard.

June 26, 2006 – The Standards Drafting Team holds a Conference Call and WebEx to draft changes to the MOD-001 standard

July 7, 2006 – The Standards Drafting Team holds a Conference Call and WebEx to review the comments of the NERC Standard Process Manager regarding the MOD-001 standard

July 20, 2006 – The Standards Drafting Team holds a meeting to draft changes to the MOD-001 standard and have additional discussions regarding the NOPR.

July 27, 2006 – The Standards Drafting Team holds a Conference Call and WebEx to draft changes to the MOD-001 standard

August 3, 2006 – The Standards Drafting Team holds a Conference Call and WebEx to draft changes to the MOD-001 standard related to Generation dispatch.

September 22, 2006 – The Standards Drafting Team holds a Conference Call and WebEx to draft changes to the MOD-001 standard and delegate work assignments.

January 11-12 2007 – The Standards Drafting Team holds a Conference Call and WebEx to draft changes to the MOD-001 standard related to fill-in-the-blank concerns, as well as discusses the standard relating to TRM and CBM.

February 7-8, 2007 – The Standards Drafting Team holds a meeting to work on drafting of standards language for MOD-001, TRM, ETC, CBM, and the FAC-012 and -013 standards.

February 15, 2007 – The MOD-001 standard is posted for a 30-day comment period.

February 16, 2007 – FERC issues its Order 890

March 13-14, 2007 – The Standards Drafting Team holds a meeting to develop the schedule for responding to industry comments, as well as continue work on the standards language for TRM, ETC, CBM and FAC-012 and -013.

March 23, 2007 – The Standards Drafting Team holds a Conference Call and WebEx to discuss the TRM standards language and the responses to the MOD-001 comments.

April 11-12, 2007 – The Standards Drafting Team holds a meeting to discuss how to respond to the 890 Order and to continue working on the MOD-001 comment responses, and then breaks into sub-teams to work on the various parts of the standard (ETC, CBM, TRM, ATC, TTC).

May 3, 2007 – The Standards Drafting Team holds a Conference Call and WebEx to assign team members to draft comment forms for the next posting of the standards.

May 15-17, 2007 –The Standards Drafting Team holds a joint meeting with NAESB to discuss the posting of the standards and how to re-structure them based on industry comments.

May 22, 2007 – The Standards Drafting Team holds a Conference Call and WebEx to review the comment forms and prepare for the next posting of the standards.

May 23, 2007 – A Supplemental SAR to expand the scope of the Drafting Team to include FAC-012 and -013 and to allow for expansion of the team to include TTC experts is posted for comment.

May 25, 2007 – MOD-001, MOD-004, MOD-008, MOD-028, MOD-029, and MOD-030 are posted for a 30-day comment period.

June 12-13, 2007 – The Standards Drafting Team holds a joint meeting with NAESB to discuss the names of the methodologies; begin developing the data exchange requirements; discuss multiple reservations from a single POR to multiple PODs that exceed the generating capability at the POR; source-to-sink analysis; the use of 3rd party limits in the ATC calculation; the retirement of FAC-012 and FAC-013; compliance; the applicability of the standards to ERCOT; and questions for the FERC.

June 13, 2007 – NERC and NAESB file status reports with the Commission.

July 11-13, 2007 – The Standards Drafting Team holds a joint meeting with NAESB to develop responses to the comments on MOD-001 and MOD-004.

July 16-19, 2007 – The Standards Drafting Team holds a joint meeting with NAESB to develop responses to the comments on MOD-008; review the functional model and apply it consistently to the MODs; and assign members of the team respond to comments and solve the problems identified in the June 12th meeting.

July 31, 2007 – The final version of the supplemental SAR, which expands the Standard Drafting Team’s scope and membership to address TTC, is posted.

August 7-9, 2007 – The Standards Drafting Team holds a joint meeting with NAESB to work on the responses to the MOD-028 and MOD-029 comments, as well as work to on standardizing the TTC calculation.

August 27, 2007 – The Standards Drafting Team meets with FERC staff to discuss the status of the work to date.

August 27-29, 2007 – The Standards Drafting Team holds a joint meeting with NAESB and begins working in sub-teams on consistent formatting and language between the standards. The team proposes and agrees to a schedule with a delivery in late August, 2008.

September 12-14, 2007 – The Standards Drafting Team holds a joint meeting with NAESB and discusses an alternate schedule with delivery in April, 2008. The Drafting Team finishes the majority of the work on MOD-028, -029, and -030; adds Violation Risk Factors and Time Horizons to the standards, and discusses (without resolution) the situation where there are multiple reservations from a single POR to multiple PODs that exceed the generating capability at the POR.

September 25-27, 2007 – The Standards Drafting Team holds a meeting and does a final consistency review of MOD-001, -008, -028, -029, and -030. The team works extensively on MOD-004 (CBM). Violation Risk Factors and Time

Horizons are added to MOD-001, -004, and -008. The team finalizes the Implementation plan and Comment Form for the next posting.

October 9-11, 2007 – The Standards Drafting Team holds a meeting and finalizes the responses to comments and the measures and compliance for all the standards.

October 30, 2007 - MOD-001, MOD-004, MOD-008, MOD-028, MOD-029, MOD-030, and the Implementation Plan are posted for a 45-day comment period.

Attachment 2 – Current Drafts of the Standards

Standard Development Roadmap

This section is maintained by the drafting team during the development of the standard and will be removed when the standard becomes effective.

Development Steps Completed:

1. SAC Authorized posting TTC/ATC/AFC SAR Development June 20 2005.
2. SAC Authorized the SAR to be development as a standard on February 14 2006.
3. SC appointed a Standard Drafting Team on March 17, 2006.
4. SDT posted first draft for comment from February 15 – March 16, 2007.
5. SDT posted second draft for comment from May 25–June 25, 2007.

Description of Current Draft:

This is the third draft of the proposed standard posted for stakeholder comments. This draft represents consideration of stakeholder comments submitted with the second draft of the proposed revisions to MOD-001 as well as consideration of applicable FERC directives from FERC Order 693 and Order 890.

Future Development Plan:

Anticipated Actions	Anticipated Date
1. Respond to comments.	February 1, 2008
2. Post for 30-day pre-ballot review.	February 1, 2008
3. First ballot of standard.	March 3, 2008
4. Respond to comments.	April 10, 2008
5. Recirculation ballot.	April 10, 2008
6. 30-day posting before board adoption.	March 2, 2008
7. Board adoption.	April 24, 2008

Definitions of Terms Used in Standard

This section includes all newly defined or revised terms used in the proposed standard. Terms already defined in the Reliability Standards Glossary of Terms are not repeated here. New or revised definitions listed below become approved when the proposed standard is approved. When the standard becomes effective, these defined terms will be removed from the individual standard and added to the Glossary.

Posted Path:

- 1) Any Balancing Authority to Balancing Authority interconnection;
- 2) Any path for which service is denied, curtailed or interrupted for more than 24 hours in the past 12 months;
- 3) Any path for which a Transmission Customer requests to have Available Transfer Capability or Total Transfer Capability posted.

Available Transfer Capability Implementation Document (ATCID): A document that describes the implementation of an Available Transfer Capability methodology.

Transmission Operator Area: The collection of Transmission assets over which the Transmission Operator is responsible for operating.

Existing Transmission Commitments (ETC): Committed uses of a Transmission Service Provider's Transmission system considered when determining Available Transfer Capability.

Planning Coordinator: See Planning Authority.

A. Introduction

- 1. Title:** Available Transfer Capability
- 2. Number:** MOD-001-1
- 3. Purpose:** To promote the consistent and transparent application and documentation of Available Transfer Capability (ATC) calculations for reliable system operations.
- 4. Applicability:**
 - 4.1.** Transmission Service Provider.
 - 4.2.** Transmission Operator.
- 5. Proposed Effective Date:** First day of the first calendar quarter that is twelve months beyond the date that all six (MOD-001-1, MOD-004-1, MOD-008-1, MOD-028-1, MOD-029-1, MOD-030-1)ATC-related standards are approved by applicable regulatory authorities, or in those jurisdictions where regulatory approval is not required, the standard becomes effective on the first day of the first calendar quarter that is twelve months beyond the date the set of standards is approved by the NERC Board of Trustees.

B. Requirements

- R1.** Each Transmission Operator shall select one ATC methodology¹ (Area Interchange methodology, Rated System Path methodology, or Flowgate methodology) for each Posted Path per time period for use in determining Transfer Capabilities of those Facilities within its Planning Coordinator's planning area. [*Violation Risk Factor: Medium*] [*Time Horizon: Operations Planning*]
- R2.** Each Transmission Service Provider shall calculate ATC values for the time periods listed below using the selected ATC methodology or methodologies: [*Violation Risk Factor: Medium*] [*Time Horizon: Operations Planning*]
 - R2.1.** Hourly ATC values for at least the next 168 hours.
 - R2.2.** Daily ATC values for at least the next 31 days.
 - R2.3.** Monthly ATC values for at least the current month plus the next 12 months.
- R3.** Each Transmission Service Provider shall prepare and keep current an Available Transfer Capability Implementation Document (ATCID) that includes, at a minimum, the following information: [*Violation Risk Factor: Lower*] [*Time Horizon: Operations Planning*]
 - R3.1.** Information describing how the selected methodology (or methodologies) has been implemented, in such detail that, given the same information used by the Transmission Service Provider, the results of the ATC calculations may be validated.
 - R3.2.** A description of the manner in which the Transmission Service Provider will account for counterflows or counter-schedules.
 - R3.3.** The identity of the Planning Coordinator and Transmission Operator associated with each Facility under the Transmission Service Provider's tariff.

¹ All Posted Paths do not have to use the same ATC Methodology and no particular Posted Path must use the same ATC Methodology for all time periods.

- R3.4.** The identity of the Transmission Service Providers and Transmission Operators to which it provides data for use in calculating transfer capability.
- R3.5.** The identity of the Transmission Service Providers from which it receives data for use in calculating transfer capability.
- R3.6.** Allocation methodologies.
- R4.** When determining the impact of counterflows in the determination of firm ATC or AFC, the Transmission Service Provider shall use 0% of calculated counterflows based on reservations and/or schedules unless otherwise specified within the Transmission Service Provider's ATCID. [*Violation Risk Factor: Medium*] [*Time Horizon: Operations Planning*]
- R5.** When determining the impact of counterflows in the determination of non-firm ATC or Available Flowgate Capability (AFC), the Transmission Service Provider shall apply the following: [*Violation Risk Factor: Lower*] [*Time Horizon: Operations Planning*]
 - R5.1.** Use 0% of calculated counterflows based on reservations unless otherwise specified within the Transmission Service Provider's ATCID.
 - R5.2.** Use 100% of calculated counterflows based on schedules unless otherwise specified within the Transmission Service Provider's ATCID.
- R6.** The Transmission Service Provider shall notify the following entities (via electronic mail) before implementing a new or revised ATCID: [*Violation Risk Factor: Lower*] [*Time Horizon: Operations Planning*]
 - R6.1.** Each Planning Coordinator associated with the Transmission Service Provider's area.
 - R6.2.** Each Reliability Coordinator associated with the Transmission Service Provider's area.
 - R6.3.** Each Transmission Operator associated with the Transmission Service Provider's area.
 - R6.4.** Each Planning Coordinator adjacent to the Transmission Service Provider's area.
 - R6.5.** Each Reliability Coordinator adjacent to the Transmission Service Provider's area.
 - R6.6.** Each Transmission Service Provider whose area is adjacent to the Transmission Service Provider's area.
- R7.** The Transmission Service Provider shall make available the ATCID and any changes to the ATCID to all of the entities specified in R6. [*Violation Risk Factor: Lower*] [*Time Horizon: Operations Planning*]
- R8.** When calculating Total Transfer Capability (TTC), AFC and ATC, the Transmission Operator and Transmission Service Provider shall each use assumptions consistent with those used in any associated operations studies or planning studies for the time period studied. [*Violation Risk Factor: Lower*] [*Time Horizon: Operations Planning*]
- R9.** Each Transmission Service Provider shall update ATC at a minimum on the following frequency: [*Violation Risk Factor: Lower*] [*Time Horizon: Operations Planning*]
 - R9.1.** For hourly ATC, once per hour.
 - R9.2.** For daily ATC, once per day.
 - R9.3.** For monthly ATC, once a week.

R10. Within fourteen calendar days of a request of any Transmission Service Provider, Planning Coordinator, Reliability Coordinator, or Transmission Operator, each Transmission Service Provider shall begin to make available on the schedule specified by the requester (but no more frequently than once per hour, unless mutually agreed to by the requester and the provider), unless another request already specifies data on a more frequent basis, to each requester, current versions of the following data as requested in electronic format for use in ATC calculations, for up to 13 months into the future (subject to confidentiality and security requirements): [*Violation Risk Factor: Lower*] [*Time Horizon: Operations Planning*]

R10.1. Expected generation and Transmission outages, additions, and retirements.

R10.2. Peak Load forecasts.

R10.3. Unit commitments and dispatch orders, to include all designated network resources and other resources that are committed or have the legal obligation to run, as they are expected to run, in one of the following formats chosen by the data provider:

- Dispatch order
- Participation factors
- Block dispatch

R10.4. Firm and non-firm Network Integration Transmission Service details.

R10.5. Confirmed firm and non-firm Transmission reservations.

R10.6. Grandfathered firm and non-firm contracted transmission capacity on an aggregated basis.

R10.7. Firm roll-over rights.

R10.8. Any firm and non-firm adjustments to reflect parallel path impacts.

R10.9. Power flow models and underlying assumptions.

R10.10. Contingencies, provided in one or more of the following formats:

- A list of Elements
- A list of Flowgates
- A set of selection criteria that can be applied to the Transmission model used by the Transmission Operator and/or Transmission Service Provider

R10.11. Facility Ratings.

R10.12. Counterflows.

R10.13. Values of ATC, ETC, Capacity Benefit Margin (CBM), Transmission Reliability Margin), and TTC for all Posted Paths.

R10.14. Values of Total Flowgate Capability (TFC) and AFC for any Flowgates considered by the Transmission Service Provider when selling Transmission service.

R10.15. Source and sink identification and mapping to the model.

C. Measures

M1. The Transmission Operator shall provide evidence (such as a calculation, inclusion of the information in the ATCID, or other written documentation) that it has selected one or more of the specified ATC methodologies for use in determining Transfer Capabilities of those

Facilities for each Posted Path per timeframe within the Planning Coordinator's planning area. (R1).

- M2.** The Transmission Service Provider shall provide ATC values and identification of the selected ATC methodologies along with other evidence (such as written documentation, processes, or data) to show it calculated ATC for the following using the selected methodology or methodologies chosen as part of R1 (R1):
- There has been at least 168 hours of hourly ATC values calculated at all times.
 - There has been at least 31 days of daily ATC values calculated at all times.
 - There has been at least 12 months plus the current month of monthly ATC values calculated at all times.
- M3.** The Transmission Service Provider shall provide its current ATCID that contains all the information specified in R3. (R3)
- M4.** The Transmission Service Provider shall provide its ATCID and other evidence (such as documentation and data) to show that it determined counterflows based on the rules in R4 and R5. (R4) (R5)
- M5.** The Transmission Service Provider shall provide copies of its dated electronic mail messages used to make notifications in accordance with R6 as evidence that it has notified the entities specified in R5 before a new or revised ATCID was implemented (R6)
- M6.** The Transmission Service Provider shall provide evidence (such as a demonstration) that the current ATCID is available to all of the entities specified in R6, as required by R7. (R7)
- M7.** The Transmission Service Provider and Transmission Operator shall each provide a copy of the assumptions used to calculate TTC, ATC and AFC as well as copies of operations and planning studies and other evidence (such as written documentation, models, studies, supporting information, or data) to show that the assumptions used in determining TTC, ATC, and AFC were consistent with those used in operations or planning studies for the time period studied. (R8)
- M8.** The Transmission Service Provider shall provide evidence (such as logs or data) that it has updated the hourly, daily, and monthly ATC on at least the minimum frequencies specified in R9.
- M9.** The Transmission Service Provider shall provide a copy of the dated request for ATC data as well as evidence to show its response to that request (such as logs or data,) to show that within fourteen calendar days of receiving a request, the requested data items specified in R10 were made available in accordance with R10.

D. Compliance

1. Compliance Monitoring Process

1.1. Compliance Enforcement Authority

Regional Entity.

1.2. Compliance Monitoring Period and Reset Time Frame

Not applicable.

1.3. Data Retention

- The Transmission Operator shall maintain its current selected method(s) for calculating ATC and any methods in force since last compliance audit period to show compliance with R1.
- The Transmission Service Provider shall maintain evidence to show compliance with R2, R4, R5 and R8 for the most recent calendar year plus the current year.
- The Transmission Service Provider shall maintain its current, in force ATCID and any prior versions of the ATCID that were in force since the last compliance audit to show compliance with R3.
- The Transmission Service Provider shall maintain evidence to show compliance with R6 for the most recent calendar year plus the current year.
- The Transmission Service Provider shall maintain evidence to show compliance with R7 for the most recent three calendar years plus the current year.
- The Transmission Operator shall maintain evidence to show compliance with R8 for the most recent calendar year plus the current year.
- The Transmission Service Provider shall maintain evidence to show compliance with R9 and R10 for the most recent calendar year plus the current year.
- If a Transmission Service Provider or Transmission Operator is found non-compliant, it shall keep information related to the non-compliance until found compliant.
- The Compliance Enforcement Authority shall keep the last audit records and all requested and submitted subsequent audit records.

1.4. Compliance Monitoring and Enforcement Processes:

The following processes may be used:

- Compliance Audits
- Self-Certifications
- Spot Checking
- Compliance Violation Investigations
- Self-Reporting
- Complaints

1.5. Additional Compliance Information

None.

2. Violation Severity Levels

Standard MOD-001-1 — Available Transfer Capability

R #	Lower VSL	Moderate	High VSL	Severe VSL
R1.	N/A	N/A	N/A	The Transmission Operator did not select one or more of the specified methodologies.
R2.	N/A	N/A	N/A	The Transmission Operator or Transmission Provider did not calculate ATCs based on the time periods in R2. OR did not use the selected methodology(ies) to calculate ATC.
R3.	The Transmission Service Provider has an ATCID that does not incorporate changes made up to three months ago.	The Transmission Service Provider has an ATCID that does not incorporate changes made more than three months but not more than six months ago.	The Transmission Service Provider has an ATCID that does not incorporate changes made more than six months but not more than one year ago. OR The Transmission Service Provider has an ATCID, but it does not include two or more of the information items described in R3.	The Transmission Service Provider has an ATCID that does not incorporate changes made a year or more ago. OR The Transmission Service Provider does not have an ATCID, or its ATCID does not include any of the information described in R3.
R4.	N/A	N/A	N/A	The Transmission Service provider did not use counterflows in the determination of ATC as described in R4 or its ATCID.
R5.	N/A	N/A	N/A	The Transmission Service provider did not use counterflows in the determination of ATC as described in R5 or its ATCID.

Standard MOD-001-1 — Available Transfer Capability

R #	Lower VSL	Moderate	High VSL	Severe VSL
R6.	The Transmission Service Provider did not notify one or more of the parties specified in R6 of a new or modified ATCID within 14 days of its effectiveness.	The Transmission Service Provider did not notify one or more of the parties specified in R6 of a new or modified ATCID within 30 days of its effectiveness.	The Transmission Service Provider did not notify one or more of the parties specified in R6 of a new or modified ATCID within 60 days of its effectiveness.	The Transmission Service Provider did not notify one or more of the parties specified in R6 of a new or modified ATCID within 90 days of its effectiveness.
R7.	N/A	N/A	N/A	The Transmission Service Provider did not make the ATCID available to the parties described in R7
R8.	N/A	N/A	N/A	The Transmission Service Provider or Transmission Operator did not determine ATC using assumptions consistent with those used in planning and operations studies for the studied time period.
R9.	For Hourly, not calculated within 5hrs OR for Daily not calculated in 2 days, OR for Monthly- not calculated in 8 or more days, but less than 14 days	For Hourly, not calculated in more than 5 hours but not more than 10 hours, OR for Daily not calculated in 3 days, OR for Monthly- not calculated in 14 or more days, but less than 21 days	For Hourly, not calculated in 10 hours or more, but not more than 15 hours, OR for Daily not calculated in 4 days, OR for Monthly- not calculated in 21 or more days, but less than 28 days	For Hourly, not calculated in 15 hours or more, OR for Daily not calculated in 5 days or more, OR for Monthly- not calculated in 28 or more days.

Standard MOD-001-1 — Available Transfer Capability

R #	Lower VSL	Moderate	High VSL	Severe VSL
R10	N/A	The Transmission Service Provider took more than 14 calendar days but less than 28 calendar days from receiving a request, to make available the requested data items specified in R10 to the entities specified within the requirement, per the schedule specified in the request, subject to the limitations specified in R10.	The Transmission Service Provider took 28 or more calendar days, but less than 60 calendar days from receiving a request, to make available the requested data items specified in R10 to the entities specified within the requirement, per the schedule specified in the request, subject to the limitations specified in R10.	The Transmission Service Provider took 60 calendar days or more from receiving a request, to make available the requested data items specified in R10 to the entities specified within the requirement, per the schedule specified in the request, subject to the limitations specified in R10.

Standard Development Roadmap

This section is maintained by the drafting team during the development of the standard and will be removed when the standard becomes effective.

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1. SAC authorized posting TTC/ATC/AFC SAR development June 20, 2005.
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3. First ballot of standard.	March 3, 2008
4. Respond to comments.	April 10, 2008
5. Recirculation ballot.	April 10, 2008
6. 30-day posting before board adoption.	March 2, 2008
7. Board adoption.	April 24, 2008

Definitions of Terms Used in Standard

This section includes all newly defined or revised terms used in the proposed standard. Terms already defined in the Reliability Standards Glossary of Terms are not repeated here. New or revised definitions listed below become approved when the proposed standard is approved. When the standard becomes effective, these defined terms will be removed from the individual standard and added to the Glossary.

Generation Capability Import Requirement (GCIR): The amount of generation capability from external sources requested by a Load-Serving Entity (LSE) (or group of LSEs with an aggregated need for Capacity Benefit Margin) to meet its generation reliability or reserve adequacy requirements as an alternative to internal resources.

Capacity Benefit Margin Implementation Document (CBMID): A document that describes the implementation of a Capacity Benefit Margin methodology.

A. Introduction

1. **Title:** Capacity Benefit Margin
2. **Number:** MOD-004-1
3. **Purpose:** To promote the consistent and transparent calculation, verification, preservation, and use of Capacity Benefit Margin (CBM) to support reliable system operations.
4. **Applicability:**
 - 4.1. **Functional Entity:**
 - 4.1.1 Load-Serving Entity.
 - 4.1.2 Transmission Service Provider.
 - 4.1.3 Balancing Authority.
 - 4.1.4 Transmission Planner.
5. **Facility Limitations/Specifications:**
 - 5.1. None.
6. **Effective Date:** First day of the first calendar quarter that is twelve months beyond the date that all six standards are approved by applicable regulatory authorities, or in those jurisdictions where regulatory approval is not required, the Reliability Standards become effective on the first day of the first calendar quarter that is twelve months beyond the date the standards are approved by the NERC Board of Trustees.

B. Requirements

- R1. The Transmission Service Provider shall prepare and keep current a “Capacity Benefit Margin Implementation Document” (CBMID) that includes, at a minimum, the following information: [*Violation Risk Factor: Lower*] [*Time Horizon: Operations Planning*]
 - R1.1. Its procedure for a Load-Serving Entity within a Balancing Authority associated with the Transmission Service Provider to request CBM to support its Generation Capability Import Requirement (GCIR).
 - R1.2. Its procedure and assumptions for setting CBM for each Posted Path or Flowgate based on Load-Serving Entity requests.
 - R1.3. Its procedure for a Load-Serving Entity to request the scheduling of energy over Transfer Capability set aside as CBM.
- R2. The Transmission Service Provider shall make available the CBMID and any changes to the CBID to the Transmission Operator, Transmission Service Provider, Reliability Coordinator, Transmission Planner, and Planning Coordinator within seven days of a change. [*Violation Risk Factor: Lower*] [*Time Horizon: Operations Planning*]
- R3. A Load-Serving Entity (or group of Load-Serving Entities with an aggregated need for CBM) that wants Transfer Capability to be set aside in the form of CBM shall: [*Violation Risk Factor: Lower*] [*Time Horizon: Operations Planning*]

- R3.1.** Submit a request for CBM to the Transmission Service Provider and Transmission Planner identifying the amount of CBM requested for each month for each year for the next ten year period, that includes:
 - R3.1.1.** The GCIR, specifying:
 - 3.1.1.1. The Balancing Authority(ies) from which generation supporting the GCIR will be supplied or the specific Posted Paths to be utilized for import of the generation supporting the GCIR.
 - 3.1.1.2. A monthly GCIR value for each month during the current year and following year for each Balancing Authority or Posted Path.
 - 3.1.1.3. An annual GCIR value for each subsequent year for each Balancing Authority or Posted Path.
 - R3.1.2.** Identification of all applicable reserve margin and resource adequacy requirements, and the entity(ies) responsible for establishing them, such as municipalities, state commissions, regional transmission organizations, independent system operators, Regional Reliability Organizations, or regional entities.
 - R3.1.3.** A summary of the results of resource studies performed to determine the amount of the request, not to include confidential information.
 - R3.1.4.** All resource studies (and supporting information) performed to determine the amount of the request.
- R3.2.** At least every thirty-one days, update the request provided per R3.1 to reflect any changes that alter future needs for CBM or indicate that no change is needed.
- R3.3.** Base the request provided per R3.1 on verifiable historical, state, regional transmission organization or regional entity criteria.
- R4.** Within fourteen calendar days of receiving a request or change to a request for CBM that meets the requirements defined in R3.1, the Transmission Service Provider shall set the CBM for the months requested as described in R3.1.1.2 as follows: [*Violation Risk Factor: Lower*] [*Time Horizon: Operations Planning*]
 - R4.1.** Determine the amount of CBM (for use in R4.2) for each request by using one of the following::
 - R4.1.1.** For the Area Interchange Methodology and the Rated System Path Methodology, using the requested Generation Capability Import Requirement for the Posted Path
 - R4.1.2.** For the Flowgate Methodology, determining the significant impacts of each request on each Flowgate
 - 4.1.2.1. Determine impacts of a request by multiplying the requested GCIR by the Distribution Factor for the

transfer of that import from the specified Balancing Authority relative to the Flowgate.

- 4.1.2.2. Classify each impacts based on a Distribution Factor of 3% or greater as a significant impact.

R4.2. Set CBM for each Posted Path or Flowgate based on the sum of all requests such that all requests can be met simultaneously or all firm ATC or AFC has been allocated to CBM as follows:

R4.2.1. For Posted Paths, set the CBM for each Posted Path equal to the lesser of:

- The sum of all requests for GCIR for that Posted Path, minus the transfer capability set aside for reserve sharing for that Posted Path or
- The firm Available Transfer Capability (ATC) for that Posted Path

R4.2.2. For Flowgates, set the CBM for each Flowgate equal to the lesser of:

- The sum of the significant impacts of all requests for GCIR for that Flowgate minus the impact of transfer capability set aside for reserve sharing for that Flowgate, or
- The firm Available Flowgate Capability (AFC) for that Flowgate

R4.3. If the sum of all CBM requests can not be met simultaneously, and during the evaluation of monthly ATC or AFC, additional capacity becomes available, increase the CBM based on availability up to a maximum of the sum of all CBM requests.

R5. Within sixty calendar days of receiving a request or change to a request for CBM that meets the requirements defined in R3.1, the Transmission Planner shall set the CBM for the years requested as described in R3.1.1.3 as follows: [*Violation Risk Factor: Lower*] [*Time Horizon: Operations Planning*]

R5.1. Use each GCIR to determine a margin to decrement Firm Transfer Capability for use in all future planning processes.

R5.2. Set the CBM for each Posted Path or Flowgate based on the sum of all CBM requests such that all requests can be met simultaneously or all available firm Transfer Capability has been allocated to CBM.

R5.3. If the sum of all requests can not be met simultaneously, and during the planning process, additional capacity becomes available, increase the CBM based on availability up to a maximum of the sum of all requests.

R5.4. Provide the Transmission Service Provider with the following:

- R5.4.1.** The total amount of CBM for each Posted Path or Flowgate on the Transmission Service Provider's system in each of the years specified in the original CBM request.
- R5.4.2.** If less than the sum of all requests was established as the CBM for any period, for each Posted Path or Flowgate, a list of the values of each GCIR used to set the CBM for each of the years specified in the original request.
- R6.** Within five days of the determination of CBM as described in R4 or R5, the Transmission Service Provider shall provide each Load-Serving Entity (or group of Load-Serving Entities with an aggregated need for CBM) that requested CBM and the Balancing Authority hosting its (their) load with a report that includes: [*Violation Risk Factor: Lower*] [*Time Horizon: Operations Planning*]
- R6.1.** The total amount of CBM for each Posted Path or Flowgate on the Transmission Service Provider's system in each of the months or years specified in the original request. If less than the sum of all requests was established as the CBM for any period:
- For each Posted Path or Flowgate, a list of the values of each GCIR used to set the CBM for each of the months and years specified in the original request
 - The option to request a system impact study.
- R7.** The Transmission Service Provider and Transmission Planner shall each provide copies of the supporting data, including any models, used for allocating CBM over each Posted Path or Flowgate to the following: [*Violation Risk Factor: Lower*] [*Time Horizon: Operations Planning*]
- R7.1.** Each of its associated Transmission Operators within seven calendar days of a modification to the CBM.
- R7.2.** To any Transmission Service Provider, Reliability Coordinator, Transmission Planner, or Planning Coordinator within seven calendar days of their making a request for the data.
- R8.** The Load-Serving Entity that wants to schedule energy over Firm Transfer Capability set aside as CBM shall submit an Interchange Transaction Tag, and shall not request to schedule energy over Firm Transfer Capability set aside as CBM unless experiencing a NERC Energy Emergency Alert (EEA) 2 or higher. [*Violation Risk Factor: Lower*] [*Time Horizon: Operations Planning*]
- R9.** When reviewing an Interchange Transaction Tag using CBM, the Balancing Authority and Transmission Service Provider shall waive any timing and ramping requirements. [*Violation Risk Factor: Lower*] [*Time Horizon: Operations Planning*]
- R10.** The Transmission Service Provider shall approve any Interchange Transaction Tag using CBM that is submitted by an Energy Deficient Entity under an EEA2 if the CBM is available. [*Violation Risk Factor: Medium*] [*Time Horizon: Operations Planning*]

C. Measures

- M1.** Each Transmission Service Provider shall have its CBMID that includes the information specified in R1 as to show that it is compliant with R1. (R1)
- M2.** The Transmission Service Provider shall have evidence (such as logs and data, copies of electronic messages, or other equivalent evidence) to show that within seven days of a change to its CBMID, it made the CBMID available to the Transmission Operator, Transmission Service Provider, Reliability Coordinator, Transmission Planner, and Planning Coordinator. (R2)
- M3.** The Load-Serving Entity that wants CBM shall provide a copy of its CBM request with the supporting information specified in R3.1 to show that it is compliant with R3.1. (R3)
- M4.** The Load-Serving Entity that wants CBM shall provide dated copies of its updated CBM requests as evidence that it has updated its CBM request or confirmed no update was needed at least every thirty-one days, per R3.2 (R3).
- M5.** The Load-Serving Entity that wants CBM shall provide evidence (such as studies, historical data, copies of state or regional transmission organization reliability criteria, regional generation reliability criteria or other equivalent evidence) they it has based its CBM request on verifiable historical, state, regional transmission organization, or regional generation reliability criteria in accordance with R3.3. (R3)
- M6.** The Transmission Service Provider shall provide evidence including copies of requests for CBM and requests for changes to CBM and other evidence such as copies of the actual computations to set CBM, or other equivalent evidence to show that CBM for the months requested as described in R3.1.1.2 has been established using the process described in R4. (R4)
- M7.** The Transmission Planner shall provide evidence including copies of requests for CBM and requests for changes to CBM and other evidence such as copies of actual computations to set CBM, or other equivalent evidence to show that CBM for the years requested as described in R3.1.1.3 has been established using the process described in R5. (R5)
- M8.** The Transmission Planner shall provide evidence (such as written documentation of studies and supporting study models that model, in base loadflows, the GCIRs as identified in R3.1.1 by Load-Serving Entities) that demonstrates that the CBM has been used to determine a margin to decrement Firm Transfer Capability in planning processes as specified in R5.1. (R5)
- M9.** The Transmission Service Provider shall provide copies of the reports sent to Load-Serving Entities and Balancing Authorities along with other evidence (such as logs and data, copies of electronic messages, or other equivalent evidence) to show that within five days of the determination of CBM, a report meeting the requirements described in R6 was provided as specified. (R6).
- M10.** The Transmission Service Provider and Transmission Planner shall each provide evidence including copies of dated requests for data supporting the calculation of CBM along with other evidences such as copies of electronic messages or other

evidence to show that it provided the required entities with copies of the supporting data, including any models, used for allocating CBM as specified in R7. (R7)

- M11.** The Load-Serving Entity that scheduled CBM shall provide evidence (such as logs, copies of tag data, or other data from its Reliability Coordinator) that at the time they requested a schedule using CBM, they were in an EEA2. (R8)
- M12.** Balancing Authorities and Transmission Service Providers shall provide evidence (such as operating logs and tag data) that they did not deny an Interchange Schedule using CBM based on the request not meeting timing or ramping requirements. (R9)
- M13.** The Transmission Service Provider shall provide evidence including copies of CBM values along with other evidence (such as tags, reports, and supporting data) to show that it approved any Interchange Transaction Tag using CBM for any energy deficient entity where the total CBM available was greater than the amount of CBM requested in the Tag. (R10)

D. Compliance

1. Compliance Monitoring Process

1.1. Compliance Enforcement Authority (CEA)

Regional Entity.

1.2. Compliance Monitoring Period and Reset Time Frame

Not applicable.

1.3. Data Retention

- The Transmission Service Provider shall maintain its current, in force ATCID and any prior versions of the ATCID that were in force since the last compliance audit to show compliance with R1.
- The Transmission Service Provider shall maintain evidence to show compliance with R2, R4, R6, R7 and R10 for three calendar years.
- The Load-Serving Entity shall maintain evidence to show compliance with R3, and R8 for three calendar years.
- The Transmission Planner shall maintain evidence to show compliance with R5 and R7 for three calendar years.
- The Balancing Authority shall maintain evidence to show compliance with R9 for three calendar years.
- If an entity is found non-compliant, it shall keep information related to the non-compliance until found compliant.
- The Compliance Enforcement Authority shall keep the last audit records and all requested and submitted subsequent audit records.

1.4. Compliance Monitoring and Enforcement Processes:

The following processes may be used:

- Compliance Audits

- Self-Certifications
- Spot Checking
- Compliance Violation Investigations
- Self-Reporting
- Complaints

1.5. Additional Compliance Information

None.

2. Violation Severity Levels

R #	Lower VSL	Moderate	High VSL	Severe VSL
R1.	The Transmission Service Provider has a CBMID that does not incorporate changes that have been made within the last three months.	The Transmission Service Provider has a CBMID that does not incorporate changes that have been made more than three, but not more than six, months ago.	The Transmission Service Provider has CBMID that does not incorporate changes that have been made more than six, but not more than twelve, months ago.	The Transmission Service Provider does not have a CBMID, or has a CBMID that does not incorporate changes that have been made more than twelve months ago.
R2.	The Transmission Service Provider makes available the CBMID and any changes to the CBID to the Transmission Operator, Transmission Service Provider, Reliability Coordinator, Transmission Planner, and Planning Coordinator eight (8) or more days but not more than 14 days after a change was made.	The Transmission Service Provider makes available the CBMID and any changes to the CBID to the Transmission Operator, Transmission Service Provider, Reliability Coordinator, Transmission Planner, and Planning Coordinator 14 or more days but not more than 21 days after a change was made.	The Transmission Service Provider makes available the CBMID and any changes to the CBID to the Transmission Operator, Transmission Service Provider, Reliability Coordinator, Transmission Planner, and Planning Coordinator 21 or more days but not more than 28 days after a change was made.	The Transmission Service Provider makes available the CBMID and any changes to the CBID to the Transmission Operator, Transmission Service Provider, Reliability Coordinator, Transmission Planner, and Planning Coordinator more than 28 days after a change was made.

Standard MOD-004-1 — Capacity Benefit Margin

R #	Lower VSL	Moderate	High VSL	Severe VSL
R3.	<p>The Load Serving Entity did not update their request for CBM, or indicate that no update was needed, as described in R3.2.</p>	<p>The Load Serving Entity desiring CBM did not submit the information described in any one of the following: R3.1.2, R3.1.3, or R3.1.4.</p> <p>OR</p> <p>The Load Serving Entity did not update their request for CBM, or indicate that no update was needed, as described in R3.2, and their Generation Capability Import Requirement had changed by more than 20MW or 10%, whichever is smaller, and not more than 30MW or 20%, whichever is smaller.</p>	<p>The Load Serving Entity desiring CBM did not submit the information described in any one of the following: R3.1.2, R3.1.3, or R3.1.4.</p> <p>OR</p> <p>The Load Serving Entity did not update their request for CBM, or indicate that no update was needed, as described in R3.2, and their Generation Capability Import Requirement had changed by more than 20MW or 10%, whichever is smaller, and not more than 40MW or 30%, whichever is smaller.</p>	<p>The Load Serving Entity desiring CBM did not include one or more of the items specified in R3.1.1 in their request.</p> <p>OR</p> <p>The Load Serving Entity desiring CBM did not submit any of the information described in R3.1.2, R3.1.3, or R3.1.4.</p> <p>OR</p> <p>The Load Serving Entity did not update their request for CBM, or indicate that no update was needed, as described in R3.2, and their Generation Capability Import Requirement had changed by more than 40MW or 30%, whichever is smaller.</p> <p>OR</p> <p>The Load Serving Entity requested GCIR greater than its needs for imports to meet reserve margin or resource adequacy requirements (not to include the incremental power flows from reserve sharing requirements), and the additional GCIR requested was more than 10MW in excess of the needed amount.</p>

Standard MOD-004-1 — Capacity Benefit Margin

R #	Lower VSL	Moderate	High VSL	Severe VSL
R4.	N/A	N/A	<p>The Transmission Service Provider set CBM for the months requested as described in R3.1.1.2 more than 14, but not more than 30, days after receiving a request for CBM.</p> <p>OR</p> <p>The Transmission Service Provider did not follow the process described in R4.1, R4.2, and R4.3.</p>	<p>The Transmission Service Provider set CBM for the months requested as described in R3.1.1.2 more than 30 days after receiving a request for CBM.</p> <p>OR</p> <p>The Transmission Service Provider did not follow the process described in R4.1, R4.2, and R4.3, and the resource adequacy requirements of one or more Load Serving Entities requesting CBM were not met.</p>
R5.	N/A	N/A	<p>The Transmission Planner set CBM for the years requested as described in R3.1.1.3 more than 60, but not more than 120, days after receiving a request for CBM.</p> <p>OR</p> <p>The Transmission Planner did not follow the process described in R5.1, R5.2, R5.3, and R5.4.</p>	<p>The Transmission Planner set CBM for the years requested as described in R3.1.1.3 more than 120 days after receiving a request for CBM.</p> <p>OR</p> <p>The Transmission Planner did not follow the process described in R5.1, R5.2, R5.3, and R5.4, and the resource adequacy requirements of one or more Load Serving Entities requesting CBM were not met.</p>
R6.	The Transmission Service Provider provided the report to the requesting entities within 7 days (up to 2 days late) of determining the CBM	The Transmission Service Provider provided the report to the requesting entities within 12 days (up to 7 days late) of determining CBM	The Transmission Service Provider provided the report to the requesting entities within 19 days (up to 14 days late) of determining CBM	The Transmission Service Provider provided the report to the requesting entities within 20 or more days of determining CBM OR did not provide the report.

Standard MOD-004-1 — Capacity Benefit Margin

R #	Lower VSL	Moderate	High VSL	Severe VSL
R7.	The Transmission Service Provider or Transmission Planner did not provide a requester specified in R5 with the supporting data, including models, used to allocate CBM in more than seven, but not more than fourteen, days after the submission of the request.	The Transmission Service Provider or Transmission Planner did not provide a requester specified in R5 with the supporting data, including models, used to allocate CBM in more than fourteen, but not more than thirty, days after the submission of the request.	The Transmission Service Provider or Transmission Planner did not provide a requester specified in R5 with the supporting data, including models, used to allocate CBM in more than thirty, but not more than sixty, days after the submission of the request.	The Transmission Service Provider or Transmission Planner did not provide a requester specified in R5 with the supporting data, including models, used to allocate CBM more than sixty days after the submission of the request.
R8.	N/A	N/A	N/A	A Load Serving Entity requested to schedule energy over CBM while not in an EEA2
R9.	N/A	N/A	N/A	A Balancing Authority or Transmission Service Provider denied an Interchange Transaction Tag using CBM based on timing or ramping requirements.
R10.	N/A	N/A	N/A	The responsible entity has failed to demonstrate implementation or execution of the program/procedure requirement or directive

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Transmission Reliability Margin Implementation Document (TRMID): A document that describes the implementation of a Transmission Reliability Margin methodology.

A. Introduction

1. **Title:** **Transmission Reliability Margin Calculation Methodology**
2. **Number:** **MOD-008-1**
3. **Purpose:** To promote the consistent and transparent calculation, verification, preservation, and use of Transmission Reliability Margin (TRM) to ensure reliable system operations.
4. **Applicability:**
 - 4.1. Transmission Operator.
 - 4.2. Transmission Service Provider.
5. **Proposed Effective Date:** First day of the first calendar quarter that is twelve months beyond the date that all six (MOD-001-1, MOD-004-1, MOD-008-1, MOD-028-1, MOD-029-1, MOD-030-1)ATC-related standards are approved by applicable regulatory authorities, or in those jurisdictions where regulatory approval is not required, the standard becomes effective on the first day of the first calendar quarter that is twelve months beyond the date the set of standards is approved by the NERC Board of Trustees.

B. Requirements

- R1. Each Transmission Operator shall prepare and keep current a TRM Implementation Document (TRMID) that includes, as a minimum, the following information:
[Violation Risk Factor: Lower] [Time Horizon: Operations Planning]
 - R1.1. Identification of (on each of its respective Posted Paths or Flowgates) each of the following components of uncertainty if used in calculating TRM, and a description of how that component is used to calculate a TRM value:
 - Aggregate Load forecast uncertainty (not included in determining generation reliability requirements).
 - Load distribution uncertainty.
 - Forecast uncertainty in Transmission system topology (including maintenance outages).
 - Allowances for parallel path (loop flow) impacts.
 - Allowances for simultaneous path interactions.
 - Variations in generation dispatch (including maintenance outages and location of future generation).
 - Short-term System Operator response (Operating Reserve actions not exceeding a 59-minute window).
 - Reserve sharing requirements.
 - Inertial response and frequency bias.
 - R1.2. A statement to confirm that it shall use assumptions in calculating TRM that are consistent with those assumptions that are used in the Transmission planning process for the corresponding time periods.

- R1.3.** The description of the method of TRM allocation across Posted Paths or Flowgates.
- R1.4.** The identification of the TRM calculation used for the following time periods:
 - R1.4.1.** Same day and real-time.
 - R1.4.2.** Day-ahead and pre-schedule.
 - R1.4.3.** Beyond day-ahead and pre-schedule, up to thirteen months ahead.
- R1.5.** If TRM is zero for all the time periods listed in R1.4, a statement of that practice.
- R2.** The Transmission Operator shall only use the components of uncertainty from R1.1 to calculate TRM, and shall not include any of the components of Capacity Benefit Margin (CBM). [*Violation Risk Factor: Lower*] [*Time Horizon: Operations Planning*]
- R3.** Each Transmission Operator shall provide its TRMID, and any underlying documentation, work papers and load flow base cases used to determine TRM, to all of the following within seven calendar days of a request: [*Violation Risk Factor: Lower*] [*Time Horizon: Operations Planning*]
 - R3.1.** The Transmission Service Provider responsible for tariff administration over the Facilities operated by the Transmission Operator
 - R3.2.** The Reliability Coordinator responsible for oversight of the Facilities for which the Transmission Service Provider offers service.
 - R3.3.** The Planning Coordinator responsible for oversight of the Facilities for which the Transmission Service Provider offers service.
- R4.** Each Transmission Service Provider shall make available (within seven calendar days of a documented request for such information) the TRMIDs used by its Transmission Operator(s), and any underlying documentation, work papers and load flow base cases used to determine TRM, to Transmission Service Providers who have made a request for such information. [*Violation Risk Factor: Lower*] [*Time Horizon: Operations Planning*]
- R5.** Each Transmission Operator shall calculate, at least once every 13 months (in accordance with the definitions in its TRMID), a TRM value for the following time periods (on each Posted Path or Flowgate) and shall provide these TRM values to its Transmission Service Provider(s) and Transmission Planner(s) within seven calendar days of the calculation: [*Violation Risk Factor: Medium*] [*Time Horizon: Operations Planning*]
 - R5.1.** Same day and real-time.
 - R5.2.** Day-ahead and pre-schedule.
 - R5.3.** Beyond the day-ahead and pre-schedule, up to thirteen (13) months ahead.

C. Measures

- M1.** The Transmission Operator shall provide its current TRMID that contains the information described in R1 to show its compliance with R1. (R1)

- M2. The Transmission Operator shall provide evidence including its TRMID, TRM values, CBM values, CBMID, and other evidence, (such as written documentation, study reports, and supporting information) to demonstrate that its TRM values did not include any elements of uncertainty beyond those defined in R1.1 and to show that it did not include any of the components of CBM. (R2)
- M3. The Transmission Operator shall provide a dated copy of any request for its TRMID or associated documentation, and evidence such as copies of emails or postal receipts that show the recipient, date and contents as evidence that the requested documentation was provided within the specified timeframe to the entities described in R3. (R3)
- M4. The Transmission Service Provider shall provide a dated copy of any request for its Transmission Operator's TRMID or associated documentation, and evidence such as copies of emails or postal receipts that show the recipient, date and contents as evidence that the requested documentation was provided within the specified timeframe to the requesting entity as described in R4. (R4)
- M5. The Transmission Operator shall provide evidence (such as logs and data that it determined TRM at least once every thirteen months for each of the listed time periods and provided it to their Transmission Service Provider(s) and Transmission Planner(s) as described in R5. (R5)

D. Compliance

1. Compliance Monitoring Process

1.1. Compliance Enforcement Authority

Regional Entity.

1.2. Compliance Monitoring Period and Reset Time Frame

Not applicable.

1.3. Data Retention

- The Transmission Operator shall have its current, in-force TRMID and any TRMIDs in force since last compliance audit period for R1.
- The Transmission Operator shall retain evidence to show compliance with R2, R3, and R5 for the most recent three calendar years plus the current year.
- The Transmission Service Provider shall retain evidence to show compliance with R4 for the most recent three calendar years plus the current year.
- If a responsible entity is found non-compliant, it shall keep information related to the non-compliance until found compliant.
- The Compliance Enforcement Authority shall keep the last audit records and all requested and submitted subsequent audit records.

1.4. Compliance Monitoring and Enforcement Processes

Any of the following may be used:

- Compliance Audits
- Self-Certifications
- Spot Checking
- Compliance Violation Investigations
- Self-Reporting
- Complaints

1.5. Additional Compliance Information

None.

2. Violation Severity Levels

R #	Lower VSL	Moderate	High VSL	Severe VSL
R1.	The Transmission Operator has a TRMID that does not incorporate changes made up to three months ago.	The Transmission Operator has a TRMID that does not incorporate changes been made three or more months ago but less than six months ago.	The Transmission Operator has a TRMID that does not incorporate changes made six or more months ago but less than one year ago.	The Transmission Operator has a TRMID that does not incorporate changes that have been made more than one year ago. OR The Transmission Operator does not have a TRMID, or its TRMID does not include any of the information described in R1.
R2.	N/A	N/A	N/A	The Transmission Operator included elements of uncertainty not defined in R1 in their calculation of TRM or it included components of CBM in TRM.
R3.	The Transmission Operator did provide the TRMID to all entities specified in R3 but provided TRMID to all parties in more than 7 days but less than 14 days. .	The Transmission Operator did not provide the TRMID to one entities specified in R3 OR provided TRMID to all parties in more than 14 days or more but less than 30 days. .	The Transmission Operator did not provide the TRMID to two entities specified in R3 OR provided TRMID to all parties in more than 30 days or more but less than 60 days.	The Transmission Operator did not provide the TRMID to any of the entities specified in R3 OR provided TRMID to all parties in more than 60 days.

Standard MOD-008-1 — TRM Calculation Methodology

R4.	The Transmission Service Provider made available the current TRMID and supporting documentation as specified in R4 in more than 7 calendar days but no more than 14 days of a request by a Transmission Service Provider.	The Transmission Service Provider made available the current TRMID and supporting documentation as specified in R4 in more than 14 calendar days but no more than 30 days of a request by a Transmission Service Provider.	The Transmission Service Provider made available the current TRMID and supporting documentation as specified in R4 in more than 30 calendar days but no more than 60 days of a request by a Transmission Service Provider.	The Transmission Service Provider made available the current TRMID and supporting documentation as specified in R4 in 60 days or more of a request by a Transmission Service Provider Or did not make the current TRMID available.
R5.	The Transmission Operator did not provide the Transmission Planner with its determined TRM values.	The Transmission Operator did not determine TRM for any of the listed time frames within thirteen months of the previous determination, and the last determination was not more than 15 months ago.	<p>The Transmission Operator did not determine TRM for any of the listed time frames within thirteen months of the previous determination, and the last determination was more than 15 months ago, but not more than 18 months ago.</p> <p>OR</p> <p>The Transmission Operator did not provide the Transmission Service Provider with its determined TRM values, and one or more of those values changed by more than twenty percent from the previous value given to the Transmission Service Provider.</p>	<p>The Transmission Operator did not determine TRM for any of the listed time frames within thirteen months of the previous determination, and the last determination was more than 18 months ago.</p> <p>OR</p> <p>The Transmission Operator has not provided the Transmission Service Provider with any determined TRM values.</p>

Standard Development Roadmap

This section is maintained by the drafting team during the development of the standard and will be removed when the standard becomes effective.

Development Steps Completed:

1. SAC authorized posting TTC/ATC/AFC SAR development June 20, 2005.
2. SAC authorized the SAR to be development as a standard on February 14, 2006.
3. SC appointed a Standard Drafting Team on March 17, 2006.
4. SDT posted first draft for comment from May 25–June 25, 2007

Description of Current Draft:

This is the second draft of the proposed standard posted for stakeholder comments. This draft includes the modifications identified in the SAR with consideration stakeholder comments and applicable FERC directives from FERC Order 693 and Order 890.

Future Development Plan:

Anticipated Actions	Anticipated Date
1. Respond to comments.	February 1, 2008
2. Post for 30-day pre-ballot review.	February 1, 2008
3. First ballot of standard.	March 3, 2008
4. Respond to comments.	April 10, 2008
5. Recirculation ballot.	April 10, 2008
6. 30-day posting before board adoption.	March 2, 2008
7. Board adoption.	April 24, 2008

Definitions of Terms Used in Standard

This section includes all newly defined or revised terms used in the proposed standard. Terms already defined in the Reliability Standards Glossary of Terms are not repeated here. New or revised definitions listed below become approved when the proposed standard is approved. When the standard becomes effective, these defined terms will be removed from the individual standard and added to the Glossary.

Area Interchange Methodology: The Area Interchange methodology is characterized by determination of incremental transfer capability via simulation, from which Total Transfer Capability (TTC) can be mathematically derived. Capacity Benefit Margin, Transmission Reliability Margin, and Existing Transmission Commitments are subtracted from the TTC to derive Available Transfer Capability.

A. Introduction

1. **Title: Area Interchange Methodology**
2. **Number: MOD-028-1**
3. **Purpose:** To increase consistency and transparency in the development and documentation of transfer capability calculations for short-term Transmission services performed by entities using the Area Interchange Methodology to support reliable system operations.
4. **Applicability:**
 - 4.1. Each Transmission Operator that uses the Area Interchange Methodology to calculate Total Transfer Capabilities (TTCs) for Posted Paths.
 - 4.2. Each Transmission Service Provider that uses the Area Interchange Methodology to calculate Available Transfer Capabilities (ATCs) for Posted Paths.
5. **Proposed Effective Date:** First day of the first calendar quarter that is twelve months beyond the date that all six (MOD-001-1, MOD-004-1, MOD-008-1, MOD-028-1, MOD-029-1, MOD-030-1) ATC-related standards are approved by applicable regulatory authorities, or in those jurisdictions where regulatory approval is not required, the standard becomes effective on the first day of the first calendar quarter that is twelve months beyond the date the set of standards is approved by the NERC Board of Trustees.

B. Requirements

- R1. Each Transmission Service Provider shall include in its Available Transfer Capability Implementation Document (ATCID), at a minimum, the following information relative to its methodology for determining TTC: [*Violation Risk Factor: Lower*] [*Time Horizon: Operations Planning*]
 - R1.1. Information describing how the selected methodology has been implemented, in such detail that, given the same information used by the Transmission Operator, the results of the TTC calculations may be validated.
 - R1.2. A description of the manner in which the Transmission Operator will account for Interchange Schedules in the calculation of TTC.
 - R1.3. Any contractual obligations for allocation of TTC.
 - R1.4. A description of the manner in which Contingencies are identified for use in the TTC process.
- R2. When calculating TTC for Posted Paths, the Transmission Operator shall use a Transmission model that contains all of the following: [*Violation Risk Factor: Medium*] [*Time Horizon: Operations Planning*]
 - R2.1. Modeling data and topology of its Reliability Coordinator's area of responsibility.
 - R2.2. Modeling data and topology (or equivalent representation) for immediately adjacent and beyond Reliability Coordination areas.

- R2.3.** Facility Ratings specified by the Generator Owners and Transmission Owners.
- R3.** When calculating TTCs (for intra-day and next-day) for Posted Paths, the Transmission Operator shall include the following data for the Transmission Service Provider's Area, all the following data as provided by adjacent Transmission Service Providers, and any of the following data provided by any other Transmission Service Providers with which coordination agreements have been executed, provided that data can be associated with Facilities that are explicitly represented in the Transmission model: [*Violation Risk Factor: Medium*] [*Time Horizon: Operations Planning*]
- R3.1.** For on-peak intra-day TTCs, and next-day intra-peak TTCs, use (at a minimum):
- R3.1.1.** Expected generation and Transmission outages, additions, and retirements.
 - R3.1.2.** Peak Load forecast for the on-peak period being calculated.
 - R3.1.3.** Unit commitment and dispatch order, to include all designated network resources and other resources that are committed or have the legal obligation to run, (within or out of economic dispatch) as they are expected to run.
- R3.2.** For off-peak intra-day and next-day TTCs, use (at a minimum):
- R3.2.1.** Expected generation and Transmission outages, additions, and Retirements.
 - R3.2.2.** Peak Load forecast for the off-peak period being calculated.
 - R3.2.3.** Unit commitment and dispatch order, to include all designated network resources and other resources that are committed or have the legal obligation to run, (within or out of economic dispatch) as they are expected to run.
- R4.** When calculating TTCs (for time periods beyond next day) for Posted Paths, the Transmission Operator shall include the following data for the Transmission Service Provider's Area, all the following data as provided by adjacent Transmission Service Providers, and any of the following data provided by any other Transmission Service Providers with which coordination agreements have been executed, provided that data can be associated with Facilities that are explicitly represented in the Transmission model: [*Violation Risk Factor: Lower*] [*Time Horizon: Operations Planning*]
- R4.1.** For days two through 31 TTCs, use (at a minimum):
- R4.1.1.** Expected generation and Transmission outages, additions, and retirements.
 - R4.1.2.** Peak Load forecast for the day being calculated.
 - R4.1.3.** Unit commitment and dispatch order, to include all designated network resources and other resources that are committed or have the legal obligation to run, (within or out of economic dispatch) as they are expected to run.

- R4.2.** For months two through 13 TTCs, use (at a minimum):
- R4.2.1.** Expected generation and Transmission outages, additions, and retirements.
 - R4.2.2.** Peak Load forecast for the month calculated.
 - R4.2.3.** Unit commitment and dispatch order, to include all designated network resources and other resources that are committed or have the legal obligation to run, (within or out of economic dispatch) as they are expected to run.
- R5.** When calculating TTCs for Posted Paths, the Transmission Operator shall meet all of the following conditions: [*Violation Risk Factor: Lower*] [*Time Horizon: Operations Planning*]
- R5.1.** Use all Contingencies meeting the criteria described in its ATCID.
 - R5.2.** Respect any contractual allocations of TTC.
 - R5.3.** Include, for each time period, the expected schedules using monthly or longer firm Transmission service, filtered to reduce or eliminate duplicate impacts from transactions using Transmission service from multiple Transmission Service Providers, for the Transmission Service Provider's Area, all adjacent Transmission Service Providers, and any Transmission Service Providers with which coordination agreements have been executed modeling the source and sink as follows:
 - If the source has been specified in the reservation and it is discretely modeled in the Transmission Service Provider's Transmission model, use the discretely modeled point as the source.
 - If the source has been specified in the reservation and the point can be mapped to an "equivalence" modeled in the Transmission Service Provider's Transmission model, use the modeled equivalence as the source.
 - If the source has been specified in the reservation and the point cannot be mapped to a discretely modeled point or an "equivalence" modeled in the Transmission Service Provider's Transmission model, use the interface point with the adjacent upstream Transmission Service Provider as the source.
 - If the source has not been specified, use the interface point with the adjacent upstream Transmission Service Provider as the source.
 - If the sink has been specified in the reservation and it is discretely modeled in the Transmission Service Provider's Transmission model, use the discretely modeled point shall as the sink.
 - If the sink has been specified in the reservation and the point can be mapped to an "equivalence" modeled in the Transmission Service Provider's Transmission model, use the modeled equivalence as the sink.

- If the sink has been specified in the reservation and the point can not be mapped to a discretely modeled point or an “equivalence” modeled in the Transmission Service Provider’s Transmission model, use the interface point with the adjacent downstream Transmission Service Provider as the sink.
 - If the sink has not been specified, use the interface point with the adjacent downstream Transmission Service Provider as the sink.
- R6.** Each Transmission Operator shall calculate TTC for each Posted Path as defined below, unless otherwise requested by the Transmission Service Provider: [*Violation Risk Factor: Lower*] [*Time Horizon: Operations Planning*]
- R6.1.** At least once per calendar week for TTCs used in hourly, and daily ATC calculations.
- R6.2.** At least once per calendar month for TTCs used in monthly ATC calculations.
- R7.** Each Transmission Operator shall calculate TTC for each Posted Path using the following process: [*Violation Risk Factor: Medium*] [*Time Horizon: Operations Planning*]
- a. Determine the incremental Transfer Capability for each Posted Path by increasing generation and/or decreasing load within the source Balancing Authority area and decreasing generation and/or increasing load within the sink Balancing Authority area until either:
 - A System Operating Limit is reached on the Transmission Service Provider’s system, or
 - A SOL is reached on any other adjacent system in the Transmission model that is not on the study path and the distribution factor is greater than 5%.
 - b. If the limit in step ‘a’ can not be reached by adjusting any combination of load or generation, then set the incremental Transfer Capability by the results of the case where the maximum adjustments were applied.
 - c. Sum the incremental Transfer Capability and all impacts of Firm Transmission Service that were included in the study model.
 - d. Use (as the TTC) the lesser of:
 - The sum of the incremental Transfer Capability and the impacts of Firm Transmission Service that were included in the study model, or
 - The sum of Facility Ratings of all ties comprising the Posted Path.
 - e. For Posted Paths whose capacity uses jointly-owned or allocated Facilities, limit TTC for each Transmission Operator so the TTC does not exceed that Transmission Operator’s contractual rights.
- R8.** The Transmission Operator shall provide the Transmission Service Provider of that Posted Path with the most current value for TTC for that Posted Path within seven calendar days of its determination.
- R9.** When calculating Existing Transmission Commitments (ETCs) for firm commitments (ETC_F) for all time periods for a Posted Path the Transmission Service Provider shall

use the following algorithm: [*Violation Risk Factor: Medium*] [*Time Horizon: Operations Planning*]

$$ETC_F = NITS_F + GF_F + PTP_F + ROR_F + OS_F$$

Where:

NITS_F is the firm capacity reserved for Network Integration Transmission Service reserved on Posted Paths that serve as interfaces with other Transmission Service Providers.

GF_F is the capacity reserved for Grandfathered Firm Transmission Service and bundled contracts for energy and Transmission, where executed prior to the effective date of a Transmission Service Provider's Open Access Transmission Tariff or "Safe Harbor Tariff" accepted by FERC

PTP_F is the firm capacity reserved for confirmed Point-to-Point Transmission Service.

ROR_F is the capacity reserved for roll-over rights for Firm Transmission Service contracts granting Transmission Customers the right of first refusal to take or continue to take Transmission Service when the Transmission Customer's Transmission Service contract expires or is eligible for renewal

OS_F is the capacity reserved for any other service(s), contract(s), or agreement(s) not specified above using Firm Transmission Service, including any other firm adjustments to reflect impacts on other Posted Paths as described in the ATCID.

- R10.** When calculating ETC for non-firm commitments (ETC_{NF}) for all time periods for a Posted Path the Transmission Service Provider shall use the following algorithm: [*Violation Risk Factor: Lower*] [*Time Horizon: Operations Planning*]

$$ETC_{NF} = NITS_{NF} + GF_{NF} + PTP_{NF} + OS_{NF}$$

Where:

NITS_{NF} is the non-firm capacity reserved for Network Integration Transmission Service reserved on Posted Paths that serve as interfaces with other Transmission Service Providers.

GF_{NF} is the capacity reserved for Grandfathered Non-Firm Transmission Service and bundled contracts for energy and Transmission, where executed prior to the effective date of a Transmission Service Provider's Open Access Transmission Tariff or "Safe Harbor Tariff" accepted by FERC.

PTP_{NF} is non-firm capacity reserved for confirmed Point-to-Point Transmission Service.

OS_{NF} is the capacity reserved for any other service(s), contract(s), or agreement(s) not specified above using Non-Firm Transmission Service, including any other firm adjustments to reflect impacts on other Posted Paths as described in the ATCID.

- R11.** When calculating Firm ATC for a Posted Path for a specified period, the Transmission Service Provider shall utilize the following algorithm: [*Violation Risk Factor: Medium*] [*Time Horizon: Operations Planning*]

$$ATC_F = TTC - ETC_F - CBM - TRM + Postbacks_F + Counterflows_F$$

Where:

ATC_F is the firm Available Transfer Capability for the Posted Path for that period,

TTC is the Total Transfer Capability of the Posted Path for that period,

ETC_F is the sum of existing firm Transmission commitments for the Posted Path during that period,

CBM is the Capacity Benefit Margin for the Posted Path during that period,

TRM is the Transmission Reliability Margin for the Posted Path during that period,

Postbacks_F are adjustments to firm ATC due to postbacks for that period, as defined in Business Practices, and

Counterflows_F are adjustments to firm ATC as determined by the Transmission Service Provider and described in their ATCID.

- R12.** When calculating Non-Firm ATC for a Posted Path for a specified period, the Transmission Service Provider shall use the following algorithm: [*Violation Risk Factor: Lower*] [*Time Horizon: Operations Planning*]

$$ATC_{NF} = TTC - ETC_F - ETC_{NF} - CBM_S - TRM_U + Postbacks_{NF} + Counterflows_{NF}$$

Where:

ATC_{NF} is the non-firm Available Transfer Capability for the Posted Path for that period,

TTC is the Total Transfer Capability of the Posted Path for that period,

ETC_F is the sum of existing firm Transmission commitments for the Posted Path during that period,

ETC_{NF} is the sum of existing non-firm Transmission commitments for the Posted Path during that period,

CBM_S is the Capacity Benefit Margin for the Posted Path that has been scheduled on during that period,

TRM_U is the Transmission Reliability Margin for the Posted Path that has not been released for sale as non-firm capacity by the Transmission Service Provider during that period,

Postbacks_{NF} are adjustments to non-firm ATC due to postbacks for that period, as defined in Business Practices, and

Counterflows_{NF} are adjustments to non-firm ATC as determined by the Transmission Service Provider and described in their ATCID.

C. Measures

- M1.** Each Transmission Service Provider shall provide its current ATCID that has the information described in R1 to show compliance with R1. (R1)
- M2.** The Transmission Operator shall provide evidence including the model used to calculate TTC as well as other evidence (such as Facility Ratings provided by facility owners, written documentation, logs, and data) to show that the modeling requirements in R2 were met. (R2)
- M3.** The Transmission Operator shall provide evidence, including scheduled outages, facility additions and retirements, (such as written documentation, logs, and data) that the data described in R3 and R4 were included in the determination of TTC.(R3) (R4)
- M4.** The Transmission Operator shall provide the contingencies used in determining TTC and its ATCID as evidence to show that the contingencies described in the ATCID were included in the determination of TTC. (R5)
- M5.** The Transmission Operator shall provide copies of contracts that contain requirements to allocate TTCs and TTCs to show that any contractual allocations of TTC were respected as required in R5.2. (R5)
- M6.** The Transmission Operator shall provide evidence (such as copies of coordination agreements, reservations, interchange transactions, or other documentation) to show that monthly or longer reservations were used to estimate scheduled interchange, the modeling of scheduled interchange was based on the rules described in R5.3, and that estimated scheduled interchange was included in the determination of TTC. (R5)
- M7.** The Transmission Operator shall provide evidence (such as logs and data and dated copies of requests from the Transmission Service Provider to calculate TTCs at specific intervals) that TTCs have been calculated at least once per calendar week for TTCs used in hourly, and daily ATC calculations and at least once per calendar month for TTCs used in monthly ATC calculations per the specifications in R6.(R6)
- M8.** The Transmission Operator shall provide evidence (such as written documentation) that TTCs have been calculated using the process described in R7. (R7)
- M9.** The Transmission Operator shall have evidence including a copy of the latest calculated TTC values along with a dated copy of email notices or other equivalent evidence to show that its provided its Transmission Service Provider with the most current values for TTC in accordance with R8.
- M10.** The Transmission Service Provider shall provide evidence (such as documentation and data) that the determination of Firm ETC used the algorithm and elements described in R9 and did not include any additional elements. (R9)
- M11.** The Transmission Service Provider shall provide evidence (such as documentation and data) that the determination of Non-Firm ETC used the algorithm and the elements described in R10 and did not include any additional elements. (R10)
- M12.** The Transmission Service Provider shall provide evidence (such as documentation and data) that the determination of Firm ATC used the algorithm and the elements described in R11 and does not include any additional elements. (R11)

M13. The Transmission Service Provider shall provide evidence (such as documentation and data) that the determination of Non-Firm ATC used the algorithm and the elements described in R12 and does not include any additional elements. (R12)

D. Compliance

1. Compliance Monitoring Process

1.1. Compliance Enforcement Authority

Regional Entity.

1.2. Compliance Monitoring Period and Reset

Not applicable.

1.3. Data Retention

- The Transmission Service Provider shall retain its current, in force ATCID and any prior versions of the ATCID that were in force since the last compliance audit to show compliance with R1.
- The Transmission Operator shall have its latest model used to calculate TTC and evidence of the previous version to show compliance with R2.
- The Transmission Operator shall retain evidence to show compliance with R3 and R4 for the most recent 12 months or until the model used to calculate TTC is updated, whichever is longer.
- The Transmission Operator shall retain evidence to show compliance with R5, R6, R7 and R8 for the most recent 12 months.
- The Transmission Service Provider shall retain evidence to show compliance with R9, R10, R11 and R12 for the most recent 12 months.
- If a Transmission Service Provider or Transmission Operator is found non-compliant, it shall keep information related to the non-compliance until found compliant.
- The Compliance Enforcement Authority shall keep the last audit records and all requested and submitted subsequent audit records.

1.4. Compliance Monitoring and Enforcement Processes:

The following processes may be used:

- Compliance Audits
- Self-Certifications
- Spot Checking
- Compliance Violation Investigations
- Self-Reporting
- Complaints

1.5. Additional Compliance Information

None.

2. Violation Severity Levels

R #	Lower VSL	Moderate	High VSL	Severe VSL
R1.	The Transmission Service Provider has an ATCID that meets the intent of Requirement 1 but the ATCID is missing some minor information.	The Transmission Service Provider has an ATCID but it is missing one of the four required elements in R1.	The Transmission Service Provider has an ATCID but it is missing two of the four required elements in R1.	The Transmission Service Provider has an ATCID but it is missing three or more of the four required elements in R1.
R2.	The Transmission Operator utilized Facility Ratings that were different from those specified by a Transmission Owner in their Transmission model and one of those Facility Ratings was used (or should have been used) to establish TTC for one or more Posted Paths.	The Transmission Operator utilized Facility Ratings that were different from those specified by a Transmission Owner in their Transmission model and two to five of those Facility Ratings were used (or should have been used) to establish a TTC for one or more Posted Paths.	<p>The Transmission Operator utilized Facility Ratings that were different from those specified by a Transmission Owner in their Transmission model and six to ten of those Facility Ratings were used (or should have been used) to establish a TTC for one or more Posted Paths.</p> <p>OR</p> <p>The Transmission Operator did not include in the Transmission model modeling data and topology (or equivalent representation) for one adjacent Reliability Coordinator area.</p>	<p>The Transmission Operator utilized Facility Ratings that were different from those specified by a Transmission Owner in their Transmission model and eleven or more of those Facility Ratings were used (or should have been used) to establish a TTC for one or more Posted Paths.</p> <p>OR</p> <p>The Transmission Operator did not include in the Transmission model detailed modeling data and topology for its own Reliability Coordinator area.</p> <p>OR</p> <p>The Transmission Operator did not include in the Transmission model detailed modeling data and topology (or equivalent representation) for two or more adjacent Reliability Coordinator areas.</p>

R #	Lower VSL	Moderate	High VSL	Severe VSL
R3.	The Transmission Operator did not include one to ten expected generation and Transmission outages, additions or retirements in the TTC process.	The Transmission Operator did not include eleven to twenty-five expected generation and Transmission outages, additions or retirements in the TTC process.	The Transmission Operator did not include twenty-six to fifty expected generation and Transmission outages, additions or retirements in the TTC process.	<p>In calculating TTCs for intra-day and next-day, the Transmission Operator did not include more than fifty expected generation and Transmission outages, additions or retirements in the TTC process.</p> <p>OR</p> <p>In calculating TTCs for intra-day and next-day, the Transmission Operator did not include the peak Load forecast or unit commitment in its TTC calculation as described in R3.1.</p>
R4.	N/A	N/A	N/A	<p>In calculating TTCs for time periods beyond next day, the Transmission Operator did not include more than fifty expected generation and Transmission outages, additions or retirements in the TTC process.</p> <p>OR</p> <p>In calculating TTCs for time periods beyond next-day, the Transmission Operator did not include the peak Load forecast or unit commitment in its TTC calculation as described in R4.1.</p>

R #	Lower VSL	Moderate	High VSL	Severe VSL
R5.	N/A	N/A	N/A	<p>The Transmission Operator did not include in the TTC calculation the contingencies that met the criteria described in the ATCID.</p> <p>OR</p> <p>The Transmission Operator did not respect contractual allocations of TTC.</p> <p>OR</p> <p>The Transmission Operator did not model reservations' sources or sinks as described in R5.3</p> <p>OR</p> <p>The Transmission Operator did not use monthly or longer reservations to estimate interchange or did not utilize that estimate in the TTC calculation as described in R5.3.</p>
R6.	N/A	N/A	N/A	<p>The Transmission Operator did not calculate TTCs per the minimum time frames specified in R6.</p>
R7.	N/A	N/A	N/A	<p>The Transmission Operator did not calculate TTCs per the minimum time frames specified in R7.</p>

Standard MOD-028-1 — Area Interchange Methodology

R #	Lower VSL	Moderate	High VSL	Severe VSL
R8.	The Transmission Operator has not provided its Transmission Service Provider with its Posted Path TTCs within seven calendar days of their determination, but is has not been more than 14 calendar days since their determination.	The Transmission Operator has not provided its Transmission Service Provider with its Posted Path TTCs within calendar days of their determination, but is has not been more than 21 calendar days since their determination.	The Transmission Operator has not provided its Transmission Service Provider with its Posted Path TTCs within 21 calendar days of their determination, but is has not been more than 28 calendar days since their determination.	The Transmission Operator has not provided its Transmission Service Provider with its Posted Path TTCs within 28 or more calendar days of their determination
R9.	N/A	N/A	N/A	The Transmission Service Provider did not use all the elements defined in R9 when determining firm ETC, or used additional elements.
R10.	N/A	N/A	N/A	The Transmission Service Provider did not use all the elements defined in R10 when determining non-firm ETC, or used additional elements.
R11.	N/A	N/A	N/A	The Transmission Service Provider did not use all the elements defined in R11 when determining firm ATC, or used additional elements.
R12.	N/A	N/A	N/A	The Transmission Service Provider did not use all the elements defined in R12 when determining non-firm ATC, or used additional elements.

Standard Development Roadmap

This section is maintained by the drafting team during the development of the standard and will be removed when the standard becomes effective.

Development Steps Completed:

1. SAC authorized posting TTC/ATC/AFC SAR development June 20, 2005.
2. SAC authorized the SAR to be development as a standard on February 14, 2006.
3. SC appointed a Standard Drafting Team on March 17, 2006.
4. SDT posted second first for comment from May 25–June 25, 2007

Description of Current Draft:

This is the second draft of the proposed standard posted for stakeholder comments. This draft includes the modifications identified in the SAR with consideration of stakeholder comments submitted in response to the first draft of the proposed standard and applicable FERC directives from FERC Order 693 and Order 890.

Future Development Plan:

Anticipated Actions	Anticipated Date
1. Respond to comments.	February 1, 2008
2. Post for 30-day pre-ballot review.	February 1, 2008
3. First ballot of standard.	March 3, 2008
4. Respond to comments.	April 10, 2008
5. Recirculation ballot.	April 10, 2008
6. 30 Day posting before board adoption.	March 2, 2008
7. Board adopts MOD-001-1.	April 24, 2008

Definitions of Terms Used in Standard

This section includes all newly defined or revised terms used in the proposed standard. Terms already defined in the Reliability Standards Glossary of Terms are not repeated here. New or revised definitions listed below become approved when the proposed standard is approved. When the standard becomes effective, these defined terms will be removed from the individual standard and added to the Glossary.

Rated System Path Methodology: The Rated System Path Methodology is characterized by an initial Total Transfer Capability (TTC), determined via simulation. Capacity Benefit Margin, Transmission Reliability Margin, and Existing Transmission Commitments are subtracted from TTC to derive Available Transmission Capability.

A. Introduction

- 1. Title:** Rated System Path Methodology
- 2. Number:** MOD-029-1
- 3. Purpose:** To increase consistency and transparency in the development and documentation of transfer capability calculations for Transmission services performed by entities using the Rated System Path Methodology to support reliable system operations.
- 4. Applicability:**
 - 4.1.** Each Transmission Operator that uses the Rated System Path Methodology to calculate Total Transfer Capabilities (TTCs) for Posted Paths.
 - 4.2.** Each Transmission Service Provider that uses the Rated System Path Methodology to calculate Available Transfer Capabilities (ATCs) for Posted Paths.
- 5. Proposed Effective Date:** First day of the first calendar quarter that is twelve months beyond the date that all six (MOD-001-1, MOD-004-1, MOD-008-1, MOD-028-1, MOD-029-1, MOD-030-1)ATC-related standards are approved by applicable regulatory authorities, or in those jurisdictions where regulatory approval is not required, the standard becomes effective on the first day of the first calendar quarter that is twelve months beyond the date the set of standards is approved by the NERC Board of Trustees.

B. Requirements

- R1.** When calculating TTCs for Posted Paths, the Transmission Operator shall use a Transmission model that meets the following criteria: [*Violation Risk Factor: Medium*] [*Time Horizon: Operations Planning*]
- R1.1.** Includes at least:
 - R1.1.1.** The Transmission Operator Area
 - R1.1.2.** All Transmission Operator Areas contiguous with its own Transmission Operator Area
 - R1.1.3.** Any other Transmission Operator Area linked to the Transmission Operator’s Area by joint operating agreement.
 - R1.2.** Models all system elements as in-service for the assumed initial conditions.
 - R1.3.** Models all generation Facilities larger than 20 MVA in the studied area.
 - R1.4.** Models phase shifters in Non-regulating mode, unless otherwise specified in the ATCID.
 - R1.5.** Uses current Facility Ratings as provided by the Transmission Owner and Generator Owner
 - R1.6.** Uses peak load forecast by Balancing Authority.
 - R1.7.** Uses Transmission Facility additions and retirements.
 - R1.8.** Uses Generation Facility additions and retirements.
 - R1.9.** Uses Special Protection System (SPS) models where currently existing or projected for implementation within the studied time horizon
 - R1.10.** Models series compensation for each “Extra High Voltage (EHV)” line at the expected operating level unless specified otherwise in the ATCID.
 - R1.11.** Includes any other modeling requirements or criteria specified in the ATCID.

- R1.12.** Where three phase fault damping is used to determine stability limits, identifies the percent used and includes justification for use unless specified otherwise in the ACTID.
- R2.** The Transmission Operator shall use the following process to determine TTC: [*Violation Risk Factor: Medium*] [*Time Horizon: Operations Planning*]
 - R2.1.** Except where otherwise specified within MOD-029-1, adjust base case generation and Load levels within the updated power flow model to determine the maximum flow (reliability limit) that can be simulated on the Posted Path while at the same time satisfying all planning criteria for N-0, N-1, and N-2 contingencies as follows:
 - R2.1.1.** When modeling normal conditions (N-0), do not model any Transmission Element above 100% of its continuous rating.
 - R2.1.2.** When modeling N-1 or N-2 contingencies, the system shall demonstrate transient, dynamic and voltage stability, with no Transmission Element modeled above its emergency rating.
 - R2.1.3.** Do not exceed any Facility Ratings (including thermal and voltage ratings)
 - R2.1.4.** Uncontrolled separation shall not occur.
 - R2.1.5.** Initiate system disturbances for stability studies by a three-phase-to-ground fault on all modeled “Extra High Voltage (EHV)” buses adjacent to the major interconnection point of the modeled Posted Path.
 - R2.2.** Where it is impossible to actually simulate a reliability-limited flow in a direction counter to prevailing flows (on an alternating current transmission line), set the TTC for the non-prevailing direction equal to the TTC in the prevailing direction.
 - R2.3.** For a Posted Path whose capacity is limited by contract, set TTC on the Posted Path at the lesser of the maximum allowable contract capacity or the reliability limit as determined by R1.2.1.
 - R2.4.** For Posted Paths whose TTC varies due to simultaneous interaction with one or more other paths, develop a nomogram describing the interaction of the paths and the resulting TTC under specified conditions.
 - R2.5.** Verify that the TTC for the Posted Path being studied does not adversely impact the TTC value of any existing path. Do this by modeling the flow on the path being studied at its proposed new TTC level simultaneous with the flow on the existing path at its TTC level while at the same time honoring the reliability criteria outlined in R2.1
 - R2.6.** Where multiple ownership of Transmission rights exists on a Posted Path, allocate TTC of that Posted Path in accordance with the contractual agreement made by the multiple owners of that Posted Path.
 - R2.7.** For Posted Paths whose path rating, adjusted for seasonal variance, was established, known and used in operation since January 1, 1994, and the Regional Entity has not taken action to have the path rated using a different method, set the TTC at that previously established amount.
 - R2.8.** Create a study report that describes the steps undertaken, including the contingencies and assumptions used, when determining the TTC and the results of the study.
- R3.** Within seven calendar days of the finalization of the study report, the Transmission Operator shall make available to the Transmission Service Provider of the Posted Path, the most

current value for TTC and the TTC study report documenting the assumptions used and steps taken in determining the current value for TTC for that Posted Path.

- R4.** Each Transmission Operator shall establish the TTC at the lesser of the TTC calculated in MOD-029-1 or any System Operating Limit for that Posted Path. [*Violation Risk Factor: Medium*] [*Time Horizon: Operations Planning*]
- R5.** When calculating ETC for firm Existing Transmission Commitments (ETC_F) for a specified period for a Posted Path, the Transmission Service Provider shall use the following algorithm: [*Violation Risk Factor: Medium*] [*Time Horizon: Operations Planning*]

$$ETC_F = NL_F + NITS_F + GF_F + PTP_F + ROR_F + OS_F$$

Where:

NL_F is the firm capacity reserved to serve peak Native Load forecast commitments for the time period being calculated, to include Native Load growth, and losses not otherwise included in Transmission Reliability Margin or Capacity Benefit Margin.

NITS_F is the firm capacity reserved for Network Integration Transmission Service serving Load, to include load growth, and losses not otherwise included in Transmission Reliability Margin or Capacity Benefit Margin.

GF_F is the capacity reserved for grandfathered Firm Transmission Service and bundled contracts for energy and Transmission, where executed prior to the effective date of a Transmission Service Provider's Open Access Transmission Tariff or "Safe Harbor Tariff" accepted by FERC.

PTP_F is the firm capacity reserved for confirmed Point-to-Point Transmission Service,

ROR_F is the firm capacity reserved for Roll-over rights for contracts granting Transmission Customers the right of first refusal to take or continue to take Transmission Service when the Transmission Customer's Transmission Service contract expires or is eligible for renewal.

OS_F is the firm capacity reserved for any other service(s), contract(s), or agreement(s) not specified above using Firm Transmission Service.

- R6.** When calculating ETC for non-firm Existing Transmission Commitments (ETC_{NF}) for all time horizons for a Posted Path the Transmission Service Provider shall use the following algorithm: [*Violation Risk Factor: Lower*] [*Time Horizon: Operations Planning*]

$$ETC_{NF} = NITS_{NF} + GF_{NF} + PTP_{NF} + OS_{NF}$$

Where:

NITS_{NF} is the non-firm capacity reserved for Network Integration Transmission Service serving Load, to include load growth, and losses not otherwise included in Transmission Reliability Margin or Capacity Benefit Margin.

GF_{NF} is the non-firm capacity reserved for grandfathered Transmission Service and bundled contracts for energy and Transmission, where executed prior to the effective date of a Transmission Service Provider's Open Access Transmission Tariff or "Safe Harbor Tariff" accepted by FERC.

PTP_{NF} is non-firm capacity reserved for confirmed Point-to-Point Transmission Service.

OS_{NF} is the non-firm capacity reserved for any other service(s), contract(s), or agreement(s) not specified above using non-firm.

- R7.** When calculating Firm ATC for a Posted Path for a specified period, the Transmission Service Provider shall use the following algorithm: [*Violation Risk Factor: Medium*] [*Time Horizon: Operations Planning*]

$$ATC_F = TTC - ETC_F - CBM - TRM + Postbacks_F + Counter-schedules_F$$

Where

ATC_F is the firm Available Transfer Capability for the Posted Path for that period.

TTC is the Total Transfer Capability of the Posted Path for that period.

ETC_F is the sum of existing firm commitments for the Posted Path during that period.

CBM is the Capacity Benefit Margin for the Posted Path during that period.

TRM is the Transmission Reliability Margin for the Posted Path during that period.

Postbacks_F are adjustments to firm Available Transfer Capability due to postbacks for that period, as defined in business practices.

Counter-schedules_F are adjustments to firm Available Transfer Capability as determined by the Transmission Service Provider and described in their Available Transfer Capability Implementation Document.

- R8.** When calculating non-firm ATC for a Posted Path for a specified period, the Transmission Service Provider shall use the following algorithm: [*Violation Risk Factor: Lower*] [*Time Horizon: Operations Planning*]

$$ATC_{NF} = TTC - ETC_F - ETC_{NF} - CBM_S - TRM_U + Postbacks_{NF} + Counter-schedules_{NF}$$

Where:

ATC_{NF} is the non-firm Available Transfer Capability for the Posted Path for that period.

TTC is the Total Transfer Capability of the Posted Path for that period.

ETC_F is the sum of existing non-firm commitments for the Posted Path during that period.

ETC_{NF} is the sum of existing non-firm commitments for the Posted Path during that period.

CBM_S is the Capacity Benefit Margin for the Posted Path that has been scheduled during that period.

TRM_U is the Transmission Reliability Margin for the Posted Path that has not been released for sale as non-firm capacity by the Transmission Service Provider during that period,

Postbacks_{NF} are adjustments to non-firm Available Transfer Capability due to postbacks for that period, as defined in business practices, and

Counter-schedules_{NF} are adjustments to non-firm Available Transfer Capability as determined by the Transmission Service Provider and described in its Available Transfer Capability Implementation Document.

C. Measures

- M1.** Each Transmission Operator that uses the Rated System Path Methodology shall produce each Transmission model it used to calculate TTC for purposes of posting ATC for each Posted Path, as required in R1, for the time horizon(s) to be examined.

- M1.1.** Production shall be in the same form and format used by the Transmission Operator to calculate the TTC used in its posted ATC calculations, as required in R1.
- M1.2.** The Transmission model produced must show the use of each attribute specified in R1.1; except that, no evidence shall be required to prove: 1) utilization of a Special Protection System where none was included in the model or 2) that no additions or retirements to the generation or Transmission system occurred.
- M1.3.** The Transmission model produced must show the use of the modeling parameters stated in R1.1 through R.12.
- M2.** Each Transmission Operator that uses the Rated System Path Methodology shall produce the ATCID it uses to show where it has described and used additional modeling criteria in its ACTID that are not otherwise included in MOD-29 (See R1.4, R.1.10, R1.11 and R1.12).
- M3.** Each Transmission Operator that uses the Rated System Path Methodology shall produce the source documents reflecting the values it used to meet the requirements in R.1.5 through R1.9 for the period examined. (R1)
- M4.** Each Transmission Operator that uses the Rated System Path Methodology shall produce the models, reports, or study results that it used to establish TTC in accordance with R2.1 through R2.7. (R2)
- M5.** Each Transmission Operator that uses the Rated System Path Methodology shall produce as evidence the study reports, as required in R.2.8, for each path for which it determined TTC for the period examined. (R2)
- M6.** Each Transmission Operator shall provide evidence (such as logs or data) that it provided the TTC and its study report to the Transmission Service Provider within seven calendar days of the finalization of the study report. (R3)
- M7.** Each Transmission Operator shall provide evidence that it used the lesser of the calculated TTC or the SOL as the TTC, by producing: 1) all values calculated pursuant to R.1.2 for each Posted Path, 2) Any corresponding SOLs for those Posted Paths, and 3) the TTC set by the Transmission Operator and given to the Transmission Service Provider for use in R6 and R7 for each Posted Path. (R4)
- M8.** Each Transmission Service Provider shall produce the algorithms it used to calculate ETCs for Firm and Non-Firm Transmission Service, as required in R5 and R6, showing that only the variables allowed in R5 and R6 were used to calculate ETCs.
 - M8.1.** Production of the algorithms shall be in the same form and format used by the Transmission Service Provider to calculate ETCs in R5 and R6.
- M9.** Each Transmission Service Provider shall produce the algorithms it used to calculate Firm and Non-Firm ATCs, as required in R7 and R8, showing that only the variables allowed in R7 and R8 were used to calculate ATCs.
 - M9.1.** Production of the algorithms shall be in the same form and format used by the Transmission Service Provider to calculate ATCs in R7 and R8.

D. Compliance

1. Compliance Monitoring Process

1.1. Compliance Enforcement Authority

Regional Entity.

1.2. Compliance Monitoring Period and Reset Time Frame

Not applicable.

1.3. Data Retention

- The Transmission Operator shall have its latest models used to determine TTC and evidence of previous versions for R1. (M1 and M6)
- The Transmission Operator shall have the current, in force ATCID(s) provided by its Transmission Service Provider(s) and any prior versions of the ATCID that were in force since the last compliance audit to show compliance with R1. (M2)
- The Transmission Operator shall retain the latest version and the prior version of the source documents used to update its models to show compliance with R1. (M3)
- The Transmission Operator shall retain evidence to show compliance with R2.1 through R2.7 for the most recent three calendar years plus the current year. (M4)
- The Transmission Operator shall retain the latest version and prior version of the TTC study reports to show compliance with R2. (M5)
- The Transmission Operator shall retain evidence for the most recent three calendar years plus the current year to show compliance with R1, R3 and R4. (M6 and M7)
- The Transmission Service Provider shall retain evidence for the most recent three calendar years plus the current year to show compliance with R5, R6, R7 and R8. (M8 and M9)
- If a Transmission Service Provider or Transmission Operator is found non-compliant, it shall keep information related to the non-compliance until found compliant.
- The Compliance Enforcement Authority shall keep the last audit records and all requested and submitted subsequent audit records.

1.4. Compliance Monitoring and Enforcement Processes:

The following processes may be used:

- Compliance Audits
- Self-Certifications
- Spot Checking
- Compliance Violation Investigations
- Self-Reporting
- Complaints

1.5. Additional Compliance Information

None.

2. Violation Severity Levels

R #	Lower VSL	Moderate	High VSL	Severe VSL
R1.	<p>The Transmission Operator met all but one of the modeling requirements specified in R1</p> <p>OR</p> <p>The Transmission Operator utilized Facility Ratings that were different from those specified by a Transmission Owner in their Transmission model and one of those Facility Ratings were used (or should have been used) to establish a TTC for one or more Posted Paths.</p>	<p>The Transmission Operator met all but two of the modeling requirements specified in R1</p> <p>OR</p> <p>The Transmission Operator utilized Facility Ratings that were different from those specified by a Transmission Owner in their Transmission model and two to five of those Facility Ratings were used (or should have been used) to establish a TTC for one or more Posted Paths.</p>	<p>The Transmission Operator met all but three of the modeling requirements specified in R1</p> <p>OR</p> <p>The Transmission Operator utilized Facility Ratings that were different from those specified by a Transmission Owner in their Transmission model and six to ten of those Facility Ratings were used (or should have been used) to establish a TTC for one or more Posted Paths.</p>	<p>The Transmission Operator did not meet four or more of the modeling requirements specified in R1</p> <p>OR</p> <p>The Transmission Operator utilized Facility Ratings that were different from those specified by a Transmission Owner in their Transmission model and eleven or more of those Facility Ratings were used (or should have been used) to establish a TTC for one or more Posted Paths.</p>
R2	N/A	N/A	N/A	The Transmission Operator did not calculate TTC using the process described in R2.
R3.	The Transmission Operator provided the TTC and study report to the Transmission Service Provider after more than seven, but not more than 14 calendar days after the report was finalized.	The Transmission Operator provided the TTC and study report to the Transmission Service Provider after more than 14, but not more than 21 calendar days after the report was finalized.	The Transmission Operator provided the TTC and study report to the Transmission Service Provider after more than 21, but not more than 28 calendar days after the report was finalized.	The Transmission Operator provided the TTC and study report to the Transmission Service Provider 28 or more calendar days after the report was finalized.
R4.	N/A	N/A	The Transmission Operator did not specify the TTC as the lesser of the TTC calculated using the process described in R4 or the SOL for one to four Posted Paths.	The Transmission Operator did not specify the TTC as the lesser of the TTC calculated using the process described in or the SOL, for five or more Posted Paths

R #	Lower VSL	Moderate	High VSL	Severe VSL
R5.	N/A	N/A	N/A	The Transmission Service Provider did not use all the elements defined in R5 when determining Firm ETC, or used additional elements.
R6.	N/A	N/A	N/A	The Transmission Service Provider did not use all the elements defined in R6 when determining Non-Firm ETC, or used additional elements.
R7.	N/A	N/A	N/A	The Transmission Service Provider did not use all the elements defined in R7 when determining Firm ATC, or used additional elements.
R8.	N/A	N/A	N/A	The Transmission Service Provider did not use all the elements defined in R8 when determining Non-Firm ATC, or used additional elements.

Standard Development Roadmap

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Development Steps Completed:

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2. SAC authorized the SAR to be development as a standard on February 14, 2006.
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Definitions of Terms Used in Standard

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Flowgate:

- 1.) A designated point on the Transmission system through which the Interchange Distribution Calculator calculates the power flow from Interchange Transactions.
- 2.) A mathematical construct, comprised of one or more monitored Facilities and optionally one or more contingency Facilities, used to analyze the impact of power flows upon the Bulk Electric System.

Total Flowgate Capability (TFC): The maximum flow on a Flowgate that will respect all System Operating Limits for that Flowgate.

Available Flowgate Capability (AFC): The flow capability remaining on a Flowgate for further commercial activity over and above already committed uses.

Power Transfer Distribution Factor (PTDF): In the pre-contingency configuration of a system under study, a measure of the responsiveness or change in electrical loadings on system facilities due to a change in electric power transfer from one area to another, expressed in percent (up to 100%) of the change in power transfer .

Outage Transfer Distribution Factor (OTDF): In the post-contingency configuration of a system under study, the electric Power Transfer Distribution Factor (PTDF) with a specific system facility removed from service (outaged).

Flowgate Methodology: The Flowgate methodology is characterized by identification of key Facilities as Flowgates. Total Flowgate Capabilities are determined based on facility ratings. The impacts of Existing Transmission Commitments (ETCs) are determined by simulation. The impacts of ETC, Capacity Benefit Margin (CBM) and Transmission Reliability Margin (TRM) are subtracted from the Transmission Flowgate Capability to determine the Available Flowgate Capability (AFC) value for that Flowgate. AFCs are used to determine Available Transmission Capability (ATC).

A. Introduction

- 1. Title:** Flowgate Methodology
- 2. Number:** MOD-030-1
- 3. Purpose:** To increase consistency and transparency in the development and documentation of transfer capability calculations for short-term Transmission services performed by entities using the Flowgate Methodology to support reliable system operations.
- 4. Applicability:**
 - 4.1.1** Each Transmission Operator that uses the Flowgate Methodology to support the calculation of Available Transfer Capabilities (ATCs) for Posted Paths.
 - 4.1.2** Each Transmission Service Provider that uses the Flowgate Methodology to calculate ATCs for Posted Paths.
- 5. Proposed Effective Date:** First day of the first calendar quarter that is twelve months beyond the date that all six (MOD-001-1, MOD-004-1, MOD-008-1, MOD-028-1, MOD-029-1, MOD-030-1)ATC-related standards are approved by applicable regulatory authorities, or in those jurisdictions where regulatory approval is not required, the standard becomes effective on the first day of the first calendar quarter that is twelve months beyond the date the set of standards is approved by the NERC Board of Trustees.

B. Requirements

- R1.** The Transmission Service provider shall include in its “Available Transfer Capability Implementation Document” (ATCID) the criteria used by the Transmission Operator to identify sets of Transmission Facilities as Flowgates that are to be considered in Available Flowgate Capability (AFC) calculations. [*Violation Risk Factor: Lower*] [*Time Horizon: Operations Planning*]
- R2.** The Transmission Operator shall perform the following: [*Violation Risk Factor: Lower*] [*Time Horizon: Operations Planning*]
 - R2.1.** Identify Flowgates for used in the AFC process based, at a minimum, on the following criteria:
 - R2.1.1.** Any Facility within the Transmission Operator’s area based on thermal, stability or voltage limits is a Flowgate.
 - R2.1.2.** All first Contingency transfer analyses from all adjacent Balancing Authority source sink combinations such that at a minimum the first three limiting Elements/Contingency combinations within the Transmission Operator’s system are included as Flowgates.
 - 2.1.2.1.** Use Contingencies consistent with the Contingencies used in operations studies and planning studies for the applicable time periods.
 - R2.1.3.** Any limiting Element/Contingency combination within the Transmission model that has been subjected to an Interconnection-wide congestion management procedure OR any limiting element/contingency combination within the Transmission model that has been requested to be included by any other Transmission Service Provider using the Flowgate Methodology or Area Interchange Methodology, where

- 2.1.3.1. If the coordination of the limiting element/contingency combination is not already addressed through a different methodology, and
 - Any generator within the Transmission Service Provider's area has at least a 5% Power Transfer Distribution Factor (PTDF) impact on the Flowgate when delivered to the aggregate load of its own area, or
 - A transfer from any Balancing Area within the Transmission Service Provider's area to a Balancing Area adjacent has at least a 5% PTDF impact on the Flowgate.
- R2.2.** At a minimum, update the list of Flowgates to create, modify, or delete Flowgate definitions at least once per calendar quarter.
- R2.3.** Determine the TFC of each of the defined Flowgates as equal to:
 - For thermal limits, the System Operating Limit (SOL) of the Flowgate.
 - For voltage or stability limits, the flow that will respect the SOL of the Flowgate.
- R2.4.** At a minimum, update the TFC once per calendar year.
- R2.5.** Provide the Transmission Service Provider with the updated TFCs within seven calendar days of their determination.
- R3.** The Transmission Operator shall use a Transmission model to determine Available Flowgate Capability (AFC) that meets the following criteria: [*Violation Risk Factor: Medium*] [*Time Horizon: Operations Planning*]
 - R3.1.** Contains Facility Ratings specified by the Transmission Owners and Generator Owners of the Facilities within the model.
 - R3.2.** Updated at least once per day for AFC calculations for intra-day, next day, and days two through 30.
 - R3.3.** Updated at least once per month for AFC calculations for months two through 13.
 - R3.4.** Contains modeling data and topology for the Facilities within its Reliability Coordinator's Area.
 - R3.5.** Contains modeling data and topology for at least three contiguous busses of the Bulk Electric System directly and synchronously connected to the tie-lines into the systems of each adjacent Reliability Coordinator Area.
 - R3.6.** Contains modeling data and topology (or equivalent representation) for synchronous Facilities beyond three busses.
- R4.** When calculating AFCs, the Transmission Service Provider shall Use assumptions consistent with the assumptions used in operations studies and planning studies for the applicable time periods, including: [*Violation Risk Factor: Lower*] [*Time Horizon: Operations Planning*]
 - R4.1.** Contingencies.
 - R4.2.** Modeling the impact of point-to-point reservations as follows:

- If the source has been specified in the reservation and it is discretely modeled in the Transmission Service Provider's Transmission model, use the discretely modeled point as the source.
- If the source has been specified in the reservation and the point can be mapped to an "equivalence" modeled in the Transmission Service Provider's Transmission model, use the modeled equivalence as the source.
- If the source has been specified in the reservation and the point cannot be mapped to a discretely modeled point or an "equivalence" modeled in the Transmission Service Provider's Transmission model, use the interface point with the adjacent upstream Transmission Service Provider as the source.
- If the source has not been specified, use the interface point with the adjacent upstream Transmission Service Provider as the source.
- If the sink has been specified in the reservation and it is discretely modeled in the Transmission Service Provider's Transmission model, use the discretely modeled point as the sink.
- If the sink has been specified in the reservation and the point can be mapped to an "equivalence" modeled in the Transmission Service Provider's Transmission model, use the modeled equivalence as the sink.
- If the sink has been specified in the reservation and the point can not be mapped to a discretely modeled point or an "equivalence" modeled in the Transmission Service Provider's Transmission model, use the interface point with the adjacent downstream Transmission Service Provider as the sink.
- If the sink has not been specified, use the interface point with the adjacent downstream Transmission Service Provider as the sink.

R5. When calculating AFCs, the Transmission Service Provider shall: [*Violation Risk Factor: Medium*] [*Time Horizon: Operations Planning*]

R5.1. Include all expected generation and Transmission outages, additions, and retirements in effect during the period calculated for the Transmission Service Provider's area, all adjacent Transmission Service Providers, and any Transmission Service Providers with which coordination agreements have been executed.

R5.2. For external (third-party) Flowgates, use any AFC for each specific Flowgate provided by that third party as the AFC for that Flowgate.

R6. When calculating the impact of ETC for firm commitments (ETC_{Fi}) for all time periods for a Flowgate, the Transmission Service Provider shall sum: [*Violation Risk Factor: Medium*] [*Time Horizon: Operations Planning*]

R6.1. The impact of Firm Network and Native Load Service, for the Transmission Service Provider's area, all adjacent Transmission Service Providers, and any other Transmission Service Providers with which coordination agreements have been executed, based on:

R6.1.1. For on-peak intra-day and next-day AFCs

6.1.1.1. Peak Load forecast for the on-peak period calculated, consistent with that used for planning and operations for applicable time periods, including native load and network service load

- 6.1.1.2. Unit commitment and dispatch order, to include all designated network resources and other resources that are committed or have the legal obligation to run, as they are expected to run.
- R6.1.2.** For off-peak intra-day and next-day AFCs
 - 6.1.2.1. Peak Load forecast for the off-peak period calculated, consistent with that used for planning and operations for applicable time periods, including Native Load and network service Load
 - 6.1.2.2. Unit commitment and dispatch order, to include all designated network resources and other resources that are committed or have the legal obligation to run, as they are expected to run.
- R6.1.3.** For days two through 31AFCs
 - 6.1.3.1.1 Peak Load forecast for the day calculated, consistent with that used for planning and operations for applicable time periods, including native load and network service load
 - 6.1.3.2. Unit commitment and dispatch order, to include all designated network resources and other resources that are committed or have the legal obligation to run, as they are expected to run.
- R6.1.4.** For months two through 13 AFCs
 - 6.1.4.1. Peak Load forecast for the month calculated, consistent with that used for planning and operations for applicable time periods, including native load and network service load
 - 6.1.4.2. Unit commitment and dispatch order, to include all designated network resources and other resources that are committed or have the legal obligation to run, as they are expected to run.
- R6.2.** The impact of all confirmed firm Point-to-Point Transmission Service expected to be scheduled, including roll-over rights for Firm Transmission Service contracts, for the Transmission Service Provider's area not included in the model.
- R6.3.** The impact of any confirmed firm Point-to-Point Transmission Service expected to be scheduled, filtered to reduce or eliminate duplicate impacts from transactions using Transmission service from multiple Transmission Service Providers, including roll-over rights for Firm Transmission Service contracts, not included in the model in excess of 3%¹ for all adjacent Transmission Service Providers and any other Transmission Service Providers with which coordination agreements have been executed. The impact of any Grandfathered firm contracts expected to be scheduled for the Transmission Service Provider's area not included in the model.
- R6.4.** The impact of any Grandfathered firm contracts expected to be scheduled not included in the model in excess of 3%² for all adjacent Transmission Service Providers and any other Transmission Service Providers with which coordination agreements have been executed.

¹ Transmission Service Providers may use a threshold lower than 3% if desired.

² Transmission Service Providers may use a threshold lower than 3% if desired.

- R7.** When calculating the impact of ETC for non-firm commitments (ETC_{NFi}) for all time periods for a Flowgate the Transmission Service Provider shall sum: [*Violation Risk Factor: Lower*] [*Time Horizon: Operations Planning*]
- R7.1.** The impact of all confirmed non-firm Point-to-Point Transmission Service not included in the model for the Transmission Service Provider's area
- R7.2.** The impact of any confirmed non-firm Point-to-Point Transmission Service not included in the model in excess of 3%³ for all adjacent Transmission Service Providers and any other Transmission Service Providers with which coordination agreements have been executed.
- R7.3.** The impact of any Grandfathered non-firm contracts not included in the model for the Transmission Service Provider's area
- R7.4.** The impact of any Grandfathered non-firm contracts not included in the model in excess of 3%⁴ for all adjacent Transmission Service Providers, and any other Transmission Service Providers with which coordination agreements have been executed.
- R8.** When calculating firm AFC for a Flowgate for a specified period, the Transmission Service Provider shall use the following algorithm: [*Violation Risk Factor: Medium*] [*Time Horizon: Operations Planning*]

$$AFC_F = TFC - ETC_{Fi} - CBM_i - TRM_i + Postbacks_{Fi} + Counterflows_{Fi}$$

Where:

AFC_F is the firm Available Flowgate Capability for the Flowgate for that period,

TFC is the Total Flowgate Capability of the Flowgate,

ETC_{Fi} is the sum of the impacts of existing firm Transmission commitments for the Flowgate during that period,

CBM_i is the impact of the Capacity Benefit Margin on the Flowgate during that period,

TRM_i is the impact of the Transmission Reliability Margin on the Flowgate during that period,

Postbacks_{Fi} are adjustments to firm AFC due to postbacks for that period, as defined in Business Practices, and

Counterflows_{Fi} are adjustments to firm ATC as determined by the Transmission Service Provider and described in their ATCID.

- R9.** When calculating non-firm AFC for a Flowgate for a specified period, the Transmission Service Provider shall use the following algorithm: [*Violation Risk Factor: Lower*] [*Time Horizon: Operations Planning*]

$$AFC_{NF} = TFC - ETC_{Fi} - ETC_{NFi} - CBM_{Si} - TRM_{Ui} + Postbacks_{NFi} + Counterflows$$

Where:

³ Transmission Service Providers may include impacts less than 3% if desired.

⁴ Transmission Service Providers may include impacts less than 3% if desired.

ATC_{NF} is the non-firm Available Flowgate Capability for the Posted Path for that period.

TFC is the Total Flowgate Capability of the Flowgate.

ETC_{Fi} is the sum of the impacts of existing firm Transmission commitments for the Flowgate during that period.

ETC_{NFi} is the sum of the impacts of existing non-firm Transmission commitments for the Flowgate during that period.

CBM_{Si} is the impact of any schedules during that period using Capacity Benefit Margin.

TRM_{Ui} is the impact on the Flowgate of the Transmission Reliability Margin that has not been released for sale as non-firm capacity by the Transmission Service Provider during that period.

Postbacks_{NF} are adjustments to non-firm Available Flowgate Capability due to postbacks for that period, as defined in business practices.

Counterflows_{NF} are adjustments to non-firm AFC as determined by the Transmission Service Provider and described in their ATCID.

- R10.** The Transmission Service Provider shall convert Flowgate AFCs to ATCs (and TFCs to TTCs) for Posted Paths based on the following algorithm: [*Violation Risk Factor: Lower*] [*Time Horizon: Operations Planning*]

$$TC = \min\{PTC_1, PTC_2, \dots, PTC_n\} \text{ and } PTC_n = \frac{FC_n}{DF_{np}}$$

Where:

TC is the Transfer Capability (either ‘Available’ or ‘Total’).

P is the set of partial Transfer Capabilities (either available or total) for all “impacted” Flowgates honored by the Transmission Service Provider; a Flowgate is considered “impacted” by a path if the Distribution Factor for that path is greater than 3% on an OTDF Flowgate or PTDF Flowgate.

PTC_n is the partial Transfer Capability (either ‘Available’ or ‘Total’) for a path relative to a Flowgate *n*.

FC_n is the Flowgate Capability (‘Available’ or ‘Total’) of a Flowgate *n*.

DF_{np} is the distribution factor for Flowgate *n* relative to path *p*.

C. Measures

- M1.** Each Transmission Service Provider shall provide its ATCID and other evidence (such as written documentation) to show that its ATCID contains the criteria used by the Transmission Operator to identify sets of Transmission Facilities as Flowgates that are to be considered in AFC calculations. (R1)
- M2.** The Transmission Operator shall provide evidence (such as studies and working papers) that all Flowgates that meet the criteria described in R2.1 are considered in its AFC calculations. (R2.1)
- M3.** The Transmission Operator shall provide evidence (such as logs) that it updated its list of Flowgates at least once per quarter. (R2.2)

- M4.** The Transmission Operator shall provide evidence (such as data and models) that it determined the TFC for each Flowgate as defined in R2.3.(R2.3)
- M5.** The Transmission Operator shall provide evidence (such as logs) that it updated the TFCs for each Flowgate at least once per calendar year. (R2.4)
- M6.** The Transmission Operator shall provide evidence (such as logs and electronic communication) that it provided the Transmission Service Provider with updated TFCs within seven calendar days of their determination. (R2.5)
- M7.** The Transmission Operator shall provide evidence (such as written documentation, logs, models, and data) that the Transmission model used to determine AFCs contains the information specified in R3. (R3)
- M8.** The Transmission Service Provider shall provide evidence (such as written documentation and studies) that the assumptions used in AFC calculation were consistent with those used in operations and planning studies for the same period. (R4.1)
- M9.** The Transmission Service Provider shall provide evidence (such as written documentation and data) that the modeling of point-to-point reservations was based on the rules described in R4. (R4)
- M10.** The Transmission Service Provider shall provide evidence (such as written documentation, electronic communications, and data) that all expected generation and Transmission outages, additions, and retirements were included in the AFC calculation. (R5.1)
- M11.** The Transmission Service Provider shall provide evidence (such as logs, electronic communications, and data) that AFCs provided by third parties were used instead of those calculated by the Transmission Operator. (R5.2)
- M12.** The Transmission Service Provider shall provide evidence (such as documentation and data) that the determination of firm ETC included the elements described in R6 and did not include any additional elements. (R6)
- M13.** The Transmission Service Provider shall provide evidence (such as documentation and data) that the determination of non-firm ETC included the elements described in R7 and did not include any additional elements. (R7)
- M14.** The Transmission Service Provider shall provide evidence (such as documentation and data) that the determination of firm AFC used the algorithm and the elements described in R8 and did not include any additional elements. (R8)
- M15.** The Transmission Service Provider shall provide evidence (such as documentation and data) that the determination of non-firm AFC used the algorithm and the elements described in R9 and did not include any additional elements. (R9)
- M16.** The Transmission Service Provider shall provide evidence (such as documentation and data) that the determination of Transfer Capabilities follows the procedure described in R10. (R10)

D. Compliance

1. Compliance Monitoring Process

1.1. Compliance Enforcement Authority

Regional Entity.

1.2. Compliance Monitoring Period and Reset Time Frame

Not applicable.

1.3. Data Retention

- The Transmission Service Provider shall retain its current, in force ATCID and any prior versions of the ATCID that were in force since the last compliance audit to show compliance with R1.
- The Transmission Operator shall have its latest model used to calculate TTC and evidence of the previous version to show compliance with R2 and R3.
- The Transmission Operator shall retain evidence to show compliance with R2.1, R2.3 for the most recent 12 months.
- The Transmission Operator shall retain evidence to show compliance with R2.2, R2.4 and R2.5 for the most recent three calendar years plus current year.
- The Transmission Service Provider shall retain evidence to show compliance with R4 for 12 months or until the model used to calculate TTC is updated, whichever is longer.
- The Transmission Service Provider shall retain evidence to show compliance with R5, R6, R7, R8, R9, and R10 for the most recent calendar year plus current year.
- If a Transmission Service Provider or Transmission Operator is found non-compliant, it shall keep information related to the non-compliance until found compliant.
- The Compliance Enforcement Authority shall keep the last audit records and all requested and submitted subsequent audit records.

1.4. Compliance Monitoring and Enforcement Processes:

The following processes may be used:

- Compliance Audits
- Self-Certifications
- Spot Checking
- Compliance Violation Investigations
- Self-Reporting
- Complaints

1.5. Additional Compliance Information

None.

2. Violation Severity Levels

R #	Lower VSL	Moderate	High VSL	Severe VSL
R1.	N/A	N/A	N/A	The Transmission Service Provider does not include in its ATCID the criteria for identifying Flowgates to be considered in AFC calculations.
R2.	<p>The Transmission Operator has not updated its list of Flowgates for more than two consecutive quarters but not more than three consecutive quarters.</p> <p>OR</p> <p>The Transmission Operator has not provided its Transmission Service Provider with its Flowgate TFCs within seven days (one week) of their determination, but is has not been more than 14 days (two weeks) since their determination.</p>	<p>The Transmission Operator did not include a Flowgate in their AFC calculations that met the criteria described in R2.1.</p> <p>OR</p> <p>The Transmission Operator has not updated its list of Flowgates for more than three but not more than four consecutive quarters.</p> <p>OR</p> <p>The Transmission Operator has not updated its Flowgate TFCs at least once within a calendar year, and it has been not more than 15 months since the last update.</p> <p>OR</p> <p>The Transmission Operator has not provided its Transmission Service Provider with its Flowgate TFCs in more than 14 days (two weeks) of their determination, but is has not been more than 21 days (three weeks) since their</p>	<p>The Transmission Operator did not include two to five Flowgates in their AFC calculations that met the criteria described in R2.1.</p> <p>OR</p> <p>The Transmission Operator has not updated its list of Flowgates for more than four but not more than five consecutive quarters.</p> <p>OR</p> <p>The Transmission Operator has not updated its Flowgate TFCs at least once within a calendar year, and it has been more than 15 months but not more than 18 months since the last update.</p> <p>OR</p> <p>The Transmission Operator has not provided its Transmission Service Provider with its Flowgate TFCs in more than 21 days (three weeks) of their determination, but is has</p>	<p>The Transmission Operator did not include six or more Flowgates in their AFC calculations that met the criteria described in R2.1.</p> <p>OR</p> <p>The Transmission Operator has not updated its list of Flowgates for more than five consecutive quarters.</p> <p>OR</p> <p>The Transmission Operator did not determine the TFC for a flowgate as described in R2.3.</p> <p>OR</p> <p>The Transmission Operator has not updated its Flowgate TFCs at least once within a calendar year, and it has been more than 18 months since the last update.</p> <p>OR</p> <p>The Transmission Operator has not provided its Transmission Service Provider</p>

R #	Lower VSL	Moderate	High VSL	Severe VSL
		determination.	not been more than 28 days (four weeks) since their determination.	with its Flowgate TFCs in more than 28 days (4 weeks) of their determination.

R #	Lower VSL	Moderate	High VSL	Severe VSL
R3.	<p>The Transmission Operator used Facility Ratings that were different from those specified by a Transmission Owner in their Transmission model and one of those Facility Ratings was used (or should have been used) to establish a TFC for one or more flowgates.</p>	<p>The Transmission Operator used Facility Ratings that were different from those specified by a Transmission Owner in their Transmission model and two to five of those Facility Ratings were used (or should have been used) to establish a TFC for one or more flowgates.</p>	<p>The Transmission Operator used Facility Ratings that were different from those specified by a Transmission Owner in their Transmission model and six to ten of those Facility Ratings were used (or should have been used) to establish a TFC for one more flowgates.</p>	<p>The Transmission Operator did not update the Transmission model per the schedule specified in R3.</p> <p>OR</p> <p>The Transmission Operator used Facility Ratings that were different from those specified by a Transmission Owner in their Transmission model and eleven or more of those Facility Ratings were used (or should have been used) to establish a TFC for one or more flowgates.</p> <p>OR</p> <p>The Transmission operator did not include in the Transmission model detailed modeling data and topology for its own Reliability Coordinator area.</p> <p>OR</p> <p>The Transmission operator did not include in the Transmission model detailed modeling data and topology at least three contiguous busses of the BES for more than one adjacent Reliability Coordinator area.</p>
R4.	N/A	N/A	N/A	<p>The Transmission Service Provider did not use assumptions consistent with those used in operations and planning studies for the same period.</p>

R #	Lower VSL	Moderate	High VSL	Severe VSL
R5.	The Transmission Service Provider did not include one to ten expected generation or Transmission outages, additions or retirements in the AFC process.	The Transmission Service Provider did not include eleven to twenty-five expected generation and Transmission outages, additions or retirements in the AFC process.	The Transmission Service Provider did not include twenty-six to fifty expected generation and Transmission outages, additions or retirements in the AFC process.	<p>The Transmission Service Provider did not use assumptions consistent with those used in operations and planning studies for the same period</p> <p>OR</p> <p>The Transmission Service Provider did not model reservations as described in R4.1.</p> <p>OR</p> <p>The Transmission Service Provider did not include more than fifty expected generation and Transmission outages, additions or retirements in the AFC process.</p> <p>OR</p> <p>The Transmission Service provider did not use AFC provided by a third party.</p>
R6.	N/A	N/A	N/A	The Transmission Service Provider did not use all the elements defined in R6 when determining non-firm ETC, or used additional elements.
R7.	N/A	N/A	N/A	The Transmission Service Provider did not use all the elements defined in R7 when determining firm AFC, or used additional elements.

R #	Lower VSL	Moderate	High VSL	Severe VSL
R8.	N/A	N/A	N/A	The Transmission Service Provider did not use all the elements defined in R8 when determining non-firm AFC, or used additional elements.
R9.	N/A	N/A	N/A	The Transmission Service Provider did not follow the procedure for determining Transfer Capabilities described in R9.
R10.	N/A	N/A	N/A	The Transmission Service Provider did not follow the procedure for determining Transfer Capabilities described in R10.