

R14002

North American Energy Standards Board

**Request for Initiation of a NAESB Business Practice Standard, Model Business Practice or
Electronic Transaction
or
Enhancement of an Existing NAESB Business Practice Standard, Model Business Practice or
Electronic Transaction**

Instructions:

- 1. Please fill out as much of the requested information as possible. It is mandatory to provide a contact name, phone number and fax number to which questions can be directed. If you have an electronic mailing address, please make that available as well.**
- 2. Attach any information you believe is related to the request. The more complete your request is, the less time is required to review it.**
- 3. Once completed, send your request to:**
Rae McQuade
NAESB, President
801 Travis, Suite 1675
Houston, TX 77002

Phone: 713-356-0060
Fax: 713-356-0067

by either mail, fax, or to NAESB's email address, naesb@naesb.org.

Once received, the request will be routed to the appropriate subcommittees for review.

Please note that submitters should provide the requests to the NAESB office in sufficient time so that the NAESB Triage Subcommittee may fully consider the request prior to taking action on it. It is preferable that the request be submitted a minimum of 3 business days prior to the Triage Subcommittee meetings. Those meeting schedules are posted on the NAESB web site at http://www.naesb.org/monthly_calendar.asp.

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Electronic Transaction
or
Enhancement of an Existing NAESB Business Practice Standard, Model Business Practice or
Electronic Transaction**

Date of Request: 2/7/2014

1. Submitting Entity & Address:

North American Electric Reliability Corporation
3353 Peachtree Rd NE
North Tower, Suite 600
Atlanta, GA 30326

2. Contact Person, Phone #, Fax #, Electronic Mailing Address:

Name : Mark Lauby
Title : Vice President, Standards
Phone : 404-446-9723
Fax : _____
E-mail : Mark.Lauby@nerc.net

3. Title and Description of Proposed Standard or Enhancement:

Title:

N/A

Description:

The North American Electric Reliability Corporation (NERC) administers a set of FERC-approved Reliability Standards (numbers MOD-001-1a, MOD-004-1, MOD-008-1, MOD-028-1, MOD-029-1a, and MOD-030-2, referred to herein as the MOD A standards) that pertain to the determination of Available Transfer Capability (ATC) and Available Flowgate Capability (AFC). Through its Reliability Standards development process, NERC is proposing to retire these six standards and replace them with a single standard, MOD-001-2, focused exclusively on the reliability issues associated with ATC and AFC determinations. The existing MOD A standards include significant detail on the manner in which ATC and AFC are determined that is not relevant to reliability issues. As such, NERC's is seeking to remove such detail from these Reliability Standards. However, much of this detail may be relevant from a commercial or business perspective. NERC is therefore requesting that NAESB, through its standards development process, consider incorporating into its Wholesale Electric Quadrant Standards for Business Practices and Communication Protocols for Public Utilities those elements from NERC's MOD A standards that are not being retained in the proposed Reliability Standard MOD-001-2.

4. Use of Proposed Standard or Enhancement (include how the standard will be used, documentation on the description of the proposed standard, any existing documentation of the proposed standard, and required communication protocols):

NERC's standard drafting team for this project, which consists of industry subject matter experts, developed the attached spreadsheet to outline which requirements in the existing MOD A standards will be covered by NERC's proposed MOD-001-2 standard, in whole or in part, and which requirements (or elements thereof) NAESB may consider for inclusion in its business practice standards. Adoption of these requirements into NAESB's business practice standard would be used to provide industry the necessary business practices and commercial guidance for determining ATC and AFC upon removal of such requirements from NERC's Reliability Standards.

5. Description of Any Tangible or Intangible Benefits to the Use of the Proposed Standard or Enhancement:

The adoption of these requirements into a NAESB standard may help ensure that ATC and AFC determinations across the electric industry continue to be made in a consistent and transparent fashion, consistent with the Federal Energy Regulatory Commission's (FERC's) requirement to standardize ATC/AFC calculations to establish a non-discriminatory market for transmission service.

6. Estimate of Incremental Specific Costs to Implement Proposed Standard or Enhancement:

Because industry is already implementing the MOD A standards, there should be minimal implementation costs should NAESB adopt elements from the MOD A standards. The MOD A standards have been included in NERC's Reliability Standards since 2009 and reflect business and commercial practices that were in place for some time before the standards became effective. Accordingly, industry already has processes and procedures in place to comply with these standards.

7. Description of Any Specific Legal or Other Considerations:

NERC requests that NAESB's adoption of any of the elements of the existing MOD A standards become effective on the same date as the proposed effective date of MOD-001-2. The retirement of the other remaining NERC MOD A Standards should fall on this same effective date. The purpose of this request is to ensure that at all times the elements proposed for transfer to NAESB are incorporated in either an effective NERC or NAESB standard.

As described in the attached implementation plan for proposed MOD-01-2, NERC is proposing that the MOD-001-2 standard and the retirement of the existing MOD A standards become effective 18 months after an order from FERC approving the proposed standard and the retirements becomes effective. The 18-month period is designed to provide NAESB sufficient time, prior to the effective date of proposed MOD-001-2, to incorporate into its business practice standards those elements from the MOD A Standards that relate to commercial or business practices and are not included in proposed MOD-001-2. To the extent that the proposed implementation period does not provide NAESB sufficient time to consider the issues, NERC is committed to working with NAESB and FERC staff to address any timing issues.

8. If This Proposed Standard or Enhancement Is Not Tested Yet, List Trading Partners Willing to Test Standard or Enhancement (Corporations and contacts):

As mentioned earlier, the MOD A standards have been in place since 2009 and industry is already implementing the standards. There is no need to test the proposed standards.

9. If This Proposed Standard or Enhancement Is In Use, Who are the Trading Partners:

Transmission Operators and Transmission Service Providers determine ATC and AFC for the benefit of third party transmission customers.

10. Attachments (such as : further detailed proposals, transaction data descriptions, information flows, implementation guides, business process descriptions, examples of ASC ANSI X12 mapped transactions):

- Proposed Reliability Standard MOD-001-2
- Proposed Implementation Plan for MOD-001-2
- Project 2012-05 ATC Revisions (MOD A) Consideration of Directives
- Spreadsheet Describing Elements of Existing NERC Reliability Standards to be Considered for NAESB Adoption
- NERC Reliability Standards MOD-001-a, MOD-004-1, MOD-008-1, MOD-028-2, MOD-029-1a, MOD-030-2

A. Introduction

1. **Title:** Available Transmission System Capability
2. **Number:** MOD-001-2
3. **Purpose:**

To ensure that determinations of available transmission system capability are determined in a manner that supports the reliable operation of the Bulk-Power System (BPS) and that the methodology and data underlying those determinations are disclosed to those registered entities that need such information for reliability purposes.

4. **Applicability:**

- 4.1. **Functional Entity**

- 4.1.1 Transmission Operator

- 4.1.2 Transmission Service Provider

- 4.2. **Exemptions:** The following is exempt from MOD-001-2.

- 4.2.1 Functional Entities operating within the Electric Reliability Council of Texas (ERCOT)

5. **Effective Date:**

- 5.1. The standard shall become effective on the first day of the first calendar quarter that is 18 months after the date that the standard is approved by an applicable governmental authority or as otherwise provided for in a jurisdiction where approval by an applicable governmental authority is required for a standard to go into effect. Where approval by an applicable governmental authority is not required, the standard shall become effective on the first day of the first calendar quarter that is 18 months after the date the standard is adopted by the NERC Board of Trustees or as otherwise provided for in that jurisdiction.

B. Requirements and Measures

- R1.** Each Transmission Operator that determines Total Flowgate Capability (TFC) or Total Transfer Capability (TTC) shall develop a written methodology (or methodologies) for determining TFC or TTC values. The methodology (or methodologies) shall reflect the Transmission Operator’s current practices for determining TFC or TTC values. *[Violation Risk Factor: Lower] [Time Horizon: Operations Planning]*
- 1.1** Each methodology shall describe the method used to account for the following limitations in both the pre- and post-contingency state:
- 1.1.1** Facility ratings;
 - 1.1.2** System voltage limits;
 - 1.1.3** Transient stability limits;
 - 1.1.4** Voltage stability limits; and
 - 1.1.5** Other System Operating Limits (SOLs).
- 1.2** Each methodology shall describe the method used to account for each of the following elements, provided such elements impact the determination of TFC or TTC:
- 1.2.1** The simulation of transfers performed through the adjustment of generation, Load, or both;
 - 1.2.2** Transmission topology, including, but not limited to, additions and retirements;
 - 1.2.3** Expected transmission uses;
 - 1.2.4** Planned outages;
 - 1.2.5** Parallel path (loop flow) adjustments;
 - 1.2.6** Load forecast; and
 - 1.2.7** Generator dispatch, including, but not limited to, additions and retirements.
- 1.3** Each methodology shall describe the process for including any reliability-related constraints that are requested to be included by another Transmission Operator, provided that (1) the request references this specific requirement, and (2) the requesting Transmission Operator includes those constraints in its TFC or TTC determination.
- 1.3.1** Each Transmission Operator that uses the Flowgate Methodology shall include in its methodology an impact test process for including requested constraints. If a generator to Load transfer in a registered entity’s area or a transfer to a neighboring registered entity impacts the requested constraint by five percent or greater, the requested constraint shall be included in the TFC determination, otherwise the requested constraint is not required to be included.
 - 1.3.2** Each Transmission Operator that uses the Area Interchange or Rated System Path Methodology shall describe in its methodology the process it uses to account for requested constraints that have a five percent or greater distribution factor for a transfer

between areas in the TTC determination; otherwise the requested constraint is not required to be included. When testing transfers involving the requesting Transmission Operator's area, the requested constraint may be excluded.

1.3.3 A different method for determining whether requested constraints need to be included in the TFC or TTC determination may be used if agreed to by the Transmission Operators.

- M1.** Each Transmission Operator that determines TFC or TTC shall provide its current written methodology (or methodologies) or other evidence (such as written documentation) to show that its methodology (or methodologies) contains the following:
- A description of the method used to account for the limits specified in part 1.1. Methods of accounting for these limits may include, but are not limited to, one or more of the following:
 - TFC or TTC being determined by one or more limits.
 - Simulation being used to find the maximum TFC or TTC that remains within the limit.
 - The application of a distribution factor in determining if a limit affects the TFC or TTC value.
 - Monitoring a subset of limits and a statement that those limits are expected to produce the most severe results.
 - A statement that the monitoring of a select limit(s) results in the TFC or TTC not exceeding another set of limits.
 - A statement that one or more of those limits are not applicable to the TFC or TTC determination.
 - A description of the method used to account for the elements specified in part 1.2, provided such elements impact the determination of TFC or TTC. Methods of accounting for these elements may include, but are not limited to, one or more of the following:
 - A statement that the element is not accounted for since it does not affect the determination of TFC or TTC.
 - A description of how the element is used in the determination of TFC or TTC.
 - A description of the process for including any reliability-related constraints that are requested to be included by another Transmission Operator, as specified in parts 1.3, 1.3.1, 1.3.2, or 1.3.3).
 - Each Transmission Operator that determines TFC or TTC shall provide evidence that currently active TFC or TTC values were determined based on its current written methodology, as specified in Requirement R1.
- R2.** Each Transmission Service Provider that determines Available Flowgate Capability (AFC) or Available Transfer Capability (ATC) shall develop an Available Transfer Capability Implementation Document (ATCID) that describes the methodology (or methodologies) for determining AFC or ATC values. The methodology (or methodologies) shall reflect the Transmission Service Provider's current practices for determining AFC or ATC values. *[Violation Risk Factor: Lower] [Time Horizon: Operations Planning]*

- 2.1. Each methodology shall describe the method used to account for the following elements, provided such elements impact the determination of AFC or ATC:
 - 2.1.1. The simulation of transfers performed through the adjustment of generation, Load, or both;
 - 2.1.2. Transmission topology, including, but not limited to, additions and retirements;
 - 2.1.3. Expected transmission uses;
 - 2.1.4. Planned outages;
 - 2.1.5. Parallel path (loop flow) adjustments;
 - 2.1.6. Load forecast; and
 - 2.1.7. Generator dispatch, including, but not limited to, additions and retirements.
 - 2.2. Each Transmission Service Provider that uses the Flowgate Methodology shall, for reliability-related constraints identified in part 1.3, use the AFC determined by the Transmission Service Provider for that constraint.
- M2.** Each Transmission Service Provider that determines AFC or ATC shall provide its current ATCID or other evidence (such as written documentation) to show that its ATCID contains the following:
- A description of the method used to account for the elements specified in part 2.1, provided such elements impact the determination of AFC or ATC. Methods of accounting for these elements may include, but are not limited to, one or more of the following:
 - A description of how the element is used in the determination of AFC or ATC.
 - A statement that the element is not accounted for since it does not affect the determination of AFC or ATC.
 - A statement that the element is accounted for in the determination of TFC or TTC by the Transmission Operator, and does not otherwise affect the determination of AFC or ATC.
 - For each Transmission Service Provider that uses the Flowgate Methodology, a description of the method in which AFC provided by another Transmission Service Provider was used for the reliability-related constraints identified in part 1.3.
 - Each Transmission Service Provider that determines AFC or ATC shall provide evidence that currently active AFC or ATC values were determined based on its current written methodology, as specified in Requirement R2.
- R3.** Each Transmission Service Provider that determines Capacity Benefit Margin (CBM) values shall develop a Capacity Benefit Margin Implementation Document (CBMID) that describes its method for determining CBM values. The method described in the CBMID shall reflect the Transmission Service Provider's current practices for determining CBM values. *[Violation Risk Factor: Lower] [Time Horizon: Operations Planning]*
- M3.** Each Transmission Service Provider that determines CBM shall provide evidence, including, but not limited to, its current CBMID, current CBM values, or other evidence (such as written documentation, study reports, or supporting information) to demonstrate that it determined CBM

values consistent with its methodology described in the CBMID. If a Transmission Service Provider does not maintain CBM, examples of evidence include, but are not limited to, an attestation, statement, or other documentation that states the Transmission Service Provider does not maintain CBM.

- R4.** Each Transmission Operator that determines Transmission Reliability Margin (TRM) values shall develop a Transmission Reliability Margin Implementation Document (TRMID) that describes its method for determining TRM values. The method described in the TRMID shall reflect the Transmission Operator’s current practices for determining TRM values. *[Violation Risk Factor: Lower][Time Horizon: Operations Planning]*
- M4.** Each Transmission Operator that determines TRM shall provide evidence including, but not limited to, its current TRMID, current TRM values, or other evidence (such as written documentation, study reports, or supporting information) to demonstrate that it determined TRM values consistent with its methodology described in the TRMID. If a Transmission Operator does not maintain TRM, examples of evidence include, but are not limited to, an attestation, statement, or other documentation that states the Transmission Operator does not maintain TRM.
- R5.** Within 45 calendar days of receiving a written request that references this specific requirement from a Planning Coordinator, Reliability Coordinator, Transmission Operator, Transmission Planner, Transmission Service Provider, or any other registered entity that demonstrates a reliability need, each Transmission Operator or Transmission Service Provider shall provide: *[Violation Risk Factor: Lower] [Time Horizon: Operations Planning]*
 - 5.1.** A written response to any request for clarification of its TFC or TTC methodology, ATCID, CBMID, or TRMID. If the request for clarification is contrary to the Transmission Operator’s or Transmission Service Provider’s confidentiality, regulatory, or security requirements then a written response shall be provided explaining the clarifications not provided, on what basis and whether there are any options for resolving any of the confidentiality, regulatory, or security concerns.
 - 5.2.** If not publicly posted on OASIS or its company website, the Transmission Operator’s effective:
 - 5.2.1** TRMID; and
 - 5.2.2** TFC or TTC methodology.
 - 5.3.** If not publicly posted on OASIS or its company website, the Transmission Service Provider’s effective:
 - 5.3.1** ATCID; and
 - 5.3.2** CBMID.
- M5.** Examples of evidence include, but are not limited to:
 - Dated records of the request and the Transmission Operator’s or Transmission Service Provider’s response to the request;

- A statement by the Transmission Operator or Transmission Service Provider that they have received no requests; or
- A statement by the Transmission Operator or Transmission Service Provider that they do not determine one or more of these values: AFC, ATC, CBM, TFC, TTC or TRM.

R6. Each Transmission Operator or Transmission Service Provider that receives a written request from another Transmission Operator or Transmission Service Provider for data related to AFC, ATC, TFC, or TTC determinations that (1) references this specific requirement, and (2) specifies that the requested data is for use in the requesting party's AFC, ATC, TFC, or TTC determination shall take one of the actions below. [*Violation Risk Factor: Lower*] [*Time Horizon: Operations Planning*]

6.1. In responding to a written request for data on an ongoing basis, the Transmission Service Provider or Transmission Operator shall make available its data on an ongoing basis no later than 45 calendar days from receipt of the written request. Unless otherwise agreed upon, the Transmission Operator or Transmission Service Provider is not required to:

6.1.1 Alter the format in which it maintains or uses the data; or

6.1.2 Make available the requested data on a more frequent basis than it produces the data and in no event shall it be required to provide the data more frequently than once an hour.

6.2 In responding to all other data requests, each Transmission Operator or Transmission Service Provider shall make available the requested data within 45 calendar days of receipt of the written request. Unless otherwise agreed upon, the Transmission Operator or Transmission Service Provider is not required to alter the format in which it maintains or uses the data.

6.3 If making available any requested data under parts 6.1 or 6.2 of this requirement is contrary to the Transmission Operator's or Transmission Service Provider's confidentiality, regulatory, or security requirements, the Transmission Operator or Transmission Service Provider shall not be required to make available that data; provided that, within 45 calendar days of the written request, it responds to the requesting registered entity specifying the data that is not being provided, on what basis and whether there are any options for resolving any of the confidentiality, regulatory or security concerns.

M6. Examples of evidence for a data request that involves providing data on an ongoing basis (6.1), include, but are not limited to:

- Dated records of a registered entity's request, and examples of the response being met;
- Dated records of a registered entity's request, and a statement from the requestor that the request was met (demonstration that the response was met is not required if the requestor confirms it is being provided); or
- A statement by the Transmission Operator or Transmission Service Provider that they have received no requests under this requirement.

Examples of evidence for all other data requests (6.2) include, but are not limited to:

- Dated records of a registered entity's request, and the response to the request;

- Dated records of a registered entity's request, and a statement from the requestor that the request was met; or
- A statement by the Transmission Operator or Transmission Service Provider that they have received no requests under this requirement.

An example of evidence of a response by the Transmission Operator or Transmission Service Provider that providing the data would be contrary to the registered entity's confidentiality, regulatory, or security requirements (6.3) is a response to the requestor specifying the data that is not being provided, on what basis and whether there are any options for resolving any of the confidentiality, regulatory, or security concerns.

C. Compliance

1. Compliance Monitoring Process:

1.1. Compliance Enforcement Authority:

As defined in the NERC Rules of Procedure, “Compliance Enforcement Authority” refers to NERC or the Regional Entity in their respective roles of monitoring and enforcing compliance with the NERC Reliability Standards.

1.2. Evidence Retention:

The following evidence retention periods identify the period of time a registered entity is required to retain specific evidence to demonstrate compliance. For instances in which the evidence retention period specified below is shorter than the time since the last audit, the Compliance Enforcement Authority may ask the registered entity to provide other evidence to show that it was compliant for the full time period since the last audit.

- Implementation and methodology documents shall be retained for five years.
- Components of the calculations and the results of such calculations for all values contained in the implementation and methodology documents.
 - Hourly values for the most recent 14 days;
 - Daily values for the most recent 30 days; and
 - Monthly values for the most recent 60 days.
- If a Transmission Operator or Transmission Service Provider is found non-compliant, it shall keep information related to the non-compliance until mitigation is complete and approved.
- The Compliance Enforcement Authority shall keep the last audit records and all requested and submitted subsequent audit records.

1.3. Compliance Monitoring and Assessment Processes:

- “Compliance Monitoring and Assessment Processes” refers to the identification of the processes that will be used to evaluate data or information for the purpose of assessing performance or outcomes with the associated reliability standard.

1.4. Additional Compliance Information:

- None

Table of Compliance Elements

R #	Time Horizon	VRF	Violation Severity Levels (VSLs)			
			Lower VSL	Moderate VSL	High VSL	Severe VSL
R1	Operations Planning	Lower	Each Transmission Operator that determines TFC or TTC has not described its method for accounting for one of the limitations listed in part 1.1 in its written methodology. (1.1)	Each Transmission Operator that determines TFC or TTC has not described its method for accounting for two of the limitations listed in part 1.1 in its written methodology. (1.1)	Each Transmission Operator that determines TFC or TTC has not described its method for accounting for any of the limitations listed in part 1.1 in its written methodology. (1.1)	Each Transmission Operator that determines TFC or TTC did not develop a written methodology for describing its current practices for determining TFC or TTC values.
			OR	OR	OR	OR
			Each Transmission Operator that determines TFC or TTC has not described its method for accounting for one of the element listed in part 1.2 in its written methodology, provided that element impacts its TFC or TTC determination. (1.2)	Each Transmission Operator that determines TFC or TTC has not described its method for accounting for two, three, or four elements listed in part 1.2 in its written methodology, provided those elements impacts its TFC or TTC determination. (1.2)	Each Transmission Operator that determines TFC or TTC has not described its method for accounting for five, six, or seven elements of listed in part 1.2 in its written methodology, provided those elements impacts its TFC or TTC determination. (1.2)	Each Transmission Operator that determines TFC or TTC developed a written methodology for determining TFC or TTC but the methodology did not reflect its current practices for determining TFC or TTC values.
					OR	

R #	Time Horizon	VRF	Violation Severity Levels (VSLs)			
			Lower VSL	Moderate VSL	High VSL	Severe VSL
					<p>Each Transmission Operator that determines TFC or TTC has not described the process for including any reliability-related constraints that have been requested by another Transmission Operator, provided the constraints are also used in the requesting Transmission Operator’s TFC or TTC calculation and the request referenced part 1.3. (1.3)</p> <p>OR</p> <p>Each Transmission Operator that determines TFC or TTC has not used (i) an impact test process for including requested constraints, (ii) a process to account for requested constraints</p>	

R #	Time Horizon	VRF	Violation Severity Levels (VSLs)			
			Lower VSL	Moderate VSL	High VSL	Severe VSL
					that have a five percent or greater distribution factor for a transfer between areas in the TTC determination, or (iii) a mutually agreed upon method for determining whether requested constraints need to be included in the TFC or TTC determination. (1.3.1, 1.3.2, 1.3.3)	
R2	Operations Planning	Lower	Each Transmission Service Provider that determines AFC or ATC has not described its method for accounting for one of the elements listed in part 2.1 in its written methodology, provided that element impacts its AFC or ATC determination. (2.1)	Each Transmission Service Provider that determines AFC or ATC has not described its method for accounting for two, three, or four elements listed in part 2.1 in its written methodology, provided the elements impact its AFC or ATC determination. (2.1)	Each Transmission Service Provider that determines AFC or ATC has not described its method for accounting for five, six, or seven elements listed in part 2.1 in its written methodology, provided the elements impact its AFC or ATC determination. (2.1) OR	Each Transmission Service Provider that determines AFC or ATC did not develop an ATCID describing its AFC or ATC methodology. OR Each Transmission Service Provider that determines AFC or ATC did not reflect its current practices for

R #	Time Horizon	VRF	Violation Severity Levels (VSLs)			
			Lower VSL	Moderate VSL	High VSL	Severe VSL
					Each Transmission Service Provider that uses the Flowgate Methodology did not use the AFC determined by the Transmission Service Provider for reliability-related constraints identified in part 1.3. (2.2)	determining AFC or ATC values in its ATCID.
R3	Operations Planning	Lower	None.	None.	None.	Each Transmission Service Provider that determines CBM values did not develop a CBMID describing its method for determining CBM values. OR Each Transmission Service Provider that determines CBM values did not reflect its current practices for determining CBM values in its CBMID.

R #	Time Horizon	VRF	Violation Severity Levels (VSLs)			
			Lower VSL	Moderate VSL	High VSL	Severe VSL
R4	Operations Planning	Lower	None.	None.	None.	<p>Each Transmission Operator that determines TRM values did not develop a TRMID describing its method for determining TRM values.</p> <p>OR</p> <p>Each Transmission Operator that determines TRM values did not reflect its current practices for determining TRM values in its TRMID.</p>
R5	Operations Planning	Lower	Each Transmission Operator or Transmission Service Provider did not respond in writing to a written request by one or more of the registered entities specified in Requirement R5 within 45 calendar days from	Each Transmission Operator or Transmission Service Provider did not respond in writing to a written request by one or more of the registered entities specified in Requirement R5 within 76 calendar days from	Each Transmission Operator or Transmission Service Provider did not respond in writing to a written request by one or more of the registered entities specified in Requirement R5 within 106 calendar days	Each Transmission Operator or Transmission Service Provider failed to respond in writing to a written request by one or more of the registered entities specified in Requirement R5.

R #	Time Horizon	VRF	Violation Severity Levels (VSLs)			
			Lower VSL	Moderate VSL	High VSL	Severe VSL
			the date of the request, but did respond in writing within 75 calendar days.	the date of the request, but did respond in writing within 105 calendar days.	from the date of the request, but did respond in writing within 135 calendar days.	
R6	Operations Planning	Lower	Each Transmission Operator or Transmission Service Provider did not respond to a written request for data by one or more of the registered entities specified in Requirement R6 by making the requested data available within 45 calendar days from the date of the request, but did respond within 75 calendar days.	Each Transmission Operator or Transmission Service Provider did not respond to a written request for data by one or more of the registered entities specified in Requirement R6 by making data available within 76 calendar days from the date of the request, but did respond within 105 calendar days.	Each Transmission Operator or Transmission Service Provider did not respond to a written request by one or more of the registered entities specified in Requirement R6 by making data available within 106 calendar days from the date of the request, but did respond within 135 calendar days.	Each Transmission Operator or Transmission Service Provider failed to respond to a written request for data by making data available to one or more of the entities specified in Requirement R6.

D. Regional Variances

None.

E. Interpretations

None.

F. Associated Documents

None.

Guidelines and Technical Basis

Requirement R1:

Total Flowgate Capability (TFC) and Total Transfer Capability (TTC) are the starting points for the Available Flowgate Capability (AFC) and Available Transfer Capability (ATC) values. AFC and ATC values influence Real-time conditions and have the ability to impact Real-time operations. A Transmission Operator (TOP) shall clearly document its methods of determining TFC and TTC so that any TOP or Transmission Service Provider (TSP) that uses the information can clearly understand how the values are determined. The TFC and TTC values shall account for any reliability-related constraints that limit those values as well as system conditions forecasted for the time period for which those values are determined. The TFC and TTC values shall also incorporate constraints on external systems when appropriate, in addition to constraints on the TOP's own system. Requirement R1 sets requirements for the determination of TFC or TTC, but does not establish if a TOP must determine TFC or TTC.

Requirement R2:

A TSP must clearly document its methods of determining AFC and ATC so that TOPs or other entities can clearly understand how the values are determined. The AFC and ATC values shall account for system conditions at the time those values would be used. Each TSP that uses the Flowgate Methodology shall also use the AFC value determined by the TSP responsible for an external system constraint where appropriate. Requirement R2 sets requirements for the determination of AFC or ATC, but does not establish if a TSP must determine AFC or ATC.

Requirement R3:

Capacity Benefit Margin (CBM) is one of the values that may be used in determining the AFC or ATC value. CBM is the amount of firm transmission transfer capability preserved by the transmission provider for Load-Serving Entities (LSEs), whose Loads are located on that TSP's system, to enable access by the LSEs to generation from interconnected systems to meet resource reliability requirements. A clear explanation of how the CBM value is developed is an important aspect of the TSP's ability to communicate to other entities how that AFC or ATC value was determined. Therefore anytime CBM is used (non-zero) a CBMID is required to communicate the method of determining CBM.

Requirement R4:

Transmission Reliability Margin (TRM) is one of the values that may be used in determining the AFC or ATC value. TRM accounts for the inherent uncertainty in system conditions and the need for operating flexibility to ensure reliable system operation as system conditions change. An explanation by the TOP of how the TRM value is developed for use in the TSP's determination of AFC and ATC is an important aspect of the TSP's ability to communicate to other entities how that AFC or ATC value was determined. Therefore, anytime a TOP provides a non-zero TRM to a TSP, a Transmission Reliability Margin Implementation Document (TRMID) is required to communicate the method of determining TRM.

Requirement R5:

Clear communication of the methods of determining AFC, ATC, CBM, TFC, TRM, and TTC are necessary to the reliable operation of the Bulk-Power System (BPS). A TOP and TSP are obligated to make available their methodologies for determining AFC, ATC, CBM, TFC, TRM, and TTC to those with a reliability need. The TOP and TSP are further obligated to respond to any requests for clarification on those methodologies, provided that responding to such requests would not be contrary to the registered entities confidentiality, regulatory, or security concerns. The purpose of this requirement is not to monitor every communication that occurs regarding these values, but to ensure that those with reliability need have access to the information. Therefore, the requirement is very specific on when it is invoked so that it does not create an administrative burden on regular communications between registered entities.

Rationale for R6:

This requirement provides a mechanism for each TOP or TSP to access the best available data for use in its calculation of AFC, ATC, CBM, TFC, TRM, and TTC values. Requirement R6 requires that a TOP or TSP share their data, with the caveat that the TOP or TSP is not required to modify that data from the form that they use or maintain it in. For data requests that involve providing data on a regular interval, the TOP or TSP is not obligated to provide the data more frequently than either (1) once an hour, or (2) as often as they update the data. The data provider is also not obligated to provide data that would violate any of its confidentiality, regulatory, or security obligations. The purpose of this requirement is not to monitor every data exchange that occurs regarding these values, but to ensure that those with reliability need have access to the information. Therefore, the requirement is very specific on when it is invoked so that it does not create an administrative burden on regular communications between registered entities.

Version History

Version	Date	Action	Change Tracking
1	August 26, 2008	Adopted by the NERC Board of Trustees	
1a	November 5, 2009	Adopted by the NERC Board of Trustees	Interpretation (Project 2009-15)
2	February 6, 2014	Adopted by the NERC Board of Trustees	Consolidation of MOD-001-1a, MOD-004-1, MOD-008-1, MOD-028-1, MOD-029-1a, and MOD-030-2

Implementation Plan

Project 2012-05 MOD A

Implementation Plan for MOD-001-2 – Available Transmission System Capability

Approvals Required

MOD-001-2 – Available Transmission System Capability

Prerequisite Approvals

There are no other standards that must receive approval prior to the approval of this standard.

Revisions to Glossary Terms

None

Applicable Entities

Transmission Operator

Transmission Service Provider

Applicable Facilities

N/A

Conforming Changes to Other Standards

None

Effective Dates

The standard shall become effective on the first day of the first calendar quarter that is 18 months after the date that the standard is approved by an applicable governmental authority or as otherwise provided for in a jurisdiction where approval by an applicable governmental authority is required for a standard to go into effect. Where approval by an applicable governmental authority is not required, the standard shall become effective on the first day of the first calendar quarter that is 18 months after the date the standard is adopted by the NERC Board of Trustees or as otherwise provided for in that jurisdiction.

Justification

The proposed 18-month implementation period is designed to allow the North American Energy Standards Board (NAESB) to include in its Wholesale Electric Quadrant Standards for Business Practices and Communication Protocols for Public Utilities (WEQ Standards), prior to the effective date of

proposed MOD-001-2 and the retirement of currently effective Reliability Standards MOD-001-1, MOD-004-1, MOD-008-1, MOD-028-2, MOD-029-1a and MOD-030-2 (MOD A Standards), those elements from the MOD A Standards that relate to commercial or business practices and are not included in proposed MOD-001-2. NERC and the standard drafting team recognize that even though certain of the requirements in the MOD A Standards do not address reliability issues and, in turn, are not included in proposed MOD-001-2, those requirements may be essential for market or commercial purposes and should be considered by an organization, like NAESB, that administers business practice standards for the electric industry.

The proposed implementation period should provide NAESB sufficient time, working through its business practice development process, to adopt revised WEQ Standards to include the commercial elements of the MOD A Standards and for the Federal Energy Regulatory Commission to incorporate by reference the revised WEQ Standards into its regulations. NERC expects that NAESB will adopt revised WEQ Standards to become effective on the same date as the proposed MOD-001-2 and the retirement of the MOD A Standards will become effective.

Retirements

MOD-001-1a, MOD-004-1, MOD-008-1, MOD-028-1, MOD-029-1a, and MOD-030-2 shall be retired at midnight of the day immediately prior to the effective date of MOD-001-2. The effective retirement date should coincide with the effective date of revised WEQ Standards adopted by NAESB.

Project 2012-05 - ATC Revisions (MOD A)

Consideration of Directives (November 12, 2013)

Project 2012-05 ATC Revisions (MOD A)	
Directive	Consideration of Directive
<p><i>NERC S-Ref 10204 – Order No. 729 at P 129</i></p> <p>129. If the Commission determines upon its own review of the data, or upon review of a complaint, that it should investigate the implementation of the available transfer capability methodologies, the Commission will need access to historical data. Accordingly, pursuant to section 215(d)(5) of the FPA and section 39.5(f) of our regulations, the Commission directs the ERO to modify the Reliability Standards so as to increase the document retention requirements to a term of five years, in order to be consistent with the enforcement provisions established in Order No. 670.</p>	<p>Consistent with FERC’s directive, proposed MOD-001-2 requires applicable registered entities to retain the implementation and methodology documents required under Requirements R1-R4 for five years. For the components of the calculations and the results of such calculations for all values contained in the implementation and methodology documents, the proposed standard provides a graduated time frame for the calculations of hourly, daily, and monthly values. Evidence of hourly values must be retained for 14 days, daily values for 30 days and monthly values for 60 days. The standard drafting team (“SDT”) concludes there is little to no benefit of requiring entities to retain such detailed supporting data of the calculations for longer periods. The SDT notes that to comply with Commission requirements under Order No. 670,¹ however, entities may be required to retain such supporting data for longer periods.</p>

¹ *Prohibition of Energy Market Manipulation*, Order No. 670, 71 FR 4244 (Jan. 26, 2006), FERC Stats. & Regs. ¶ 31,202, at PP 62- 63 (2006) (citing 28 U.S.C. § 2462 (2000)).

Project 2012-05 ATC Revisions (MOD A)

Directive	Consideration of Directive
<p><i>NERC S-Ref 10206 – Order No. 729 at P 151</i></p> <p>151. Nevertheless, the Commission believes that the lists of required recipients of the implementation documents may be overly prescriptive and could exclude some registered entities with a reliability need to review such information. Accordingly, pursuant to section 215(d)(5) of the FPA and section 39.5(f) of our regulations, the Commission directs the ERO to develop a modification to the Reliability Standards pursuant to the ERO’s Reliability Standards development process to require disclosure of the various implementation documents to any registered entity who demonstrates to the ERO a reliability need for such information.</p>	<p>Consistent with the Commission’s directive, Requirement R5 of the proposed standard requires that the implementation documents be made available to any registered entity that demonstrates a reliability need for such information, subject to confidentiality, regulatory, and security requirements.</p>

Project 2012-05 ATC Revisions (MOD A)	
Directive	Consideration of Directive
<p><i>NERC S-Ref 10207 – Order No. 729 at P 160</i></p> <p>160. In Order No. 890, the Commission also expressed concern regarding the treatment of reservations with the same point of receipt (generator), but multiple points of delivery (Load), in setting aside existing transmission capacity. The Commission found that such reservations should not be modeled in the existing transmission commitments calculation simultaneously if their combined reserved transmission capacity exceeds the generator’s nameplate capacity at the point of receipt. The Commission required the development of Reliability Standards that lay out clear instructions on how these reservations should be accounted for by the transmission service provider. The proposed Reliability Standards achieve this by requiring transmission service providers to identify in their implementation documents how they have implemented MOD-028-1, MOD-029-1, or MOD-030-2, including the calculation of existing transmission commitments. Thus we will not direct the ERO to develop a modification to address over-generation, as suggested by Entegra. Nonetheless, in developing the modifications to the MOD Reliability Standards directed in this Final Rule, the ERO should consider generator nameplate ratings and transmission line ratings including the comments raised by Entegra and ISO/RTO Council.</p>	<p>The SDT determines that it is not necessary to address this directive in the proposed reliability standard. First, in a recent Notice of Proposed Rulemaking, the Commission proposed to withdraw this directive.² Additionally, the SDT concludes that the comments regarding generator nameplate ratings and transmission line ratings do not relate to the reliability issues associated with Available Flowgate Capability (AFC) and Available Transfer Capability (ATC) calculations. The SDT notes that the comments relate to the determination of existing transmission commitments (ETC), which is a component of ATC or AFC that would be disclosed in an entity’s Available Transfer Capability Implementation Document (ATCID) under Requirement R2 of the proposed standard. Specifying the manner in which ETC is determined, which would include generator nameplate ratings and transmission line ratings, where appropriate, is not necessary for reliability purposes.</p> <p>NERC is working with the North American Energy Standards Board (NAESB) to transfer those elements from the MOD A standards that relate to commercial or business practices and are not included in proposed MOD-001-2 into NAESB’s business practice standards. When considering whether to incorporate those elements into its business practice standards, NAESB could consider whether it is appropriate to address this directive.</p>

² *Electric Reliability Organization Proposal to Retire Requirements in Reliability Standards*, 143 FERC ¶ 61,251 at P 85, Attachment A (2013).

Project 2012-05 ATC Revisions (MOD A)

Directive	Consideration of Directive
<p><i>NERC S-Ref 10208 – Order No. 729 at P 162</i></p> <p>162. In Order No. 890, the Commission directed public utilities, working through NERC, to modify MOD-010 through MOD-025 to incorporate a periodic review and modification of various data models. The Commission found that updating and benchmarking was essential to accurately simulate the performance of the transmission grid and to calculate comparable available transfer capability values. On rehearing, the Commission clarified that the models used by the transmission provider to calculate available transfer capability, and not actual available transfer capability values, must be benchmarked. Updating and benchmarking of models to actual events will ensure greater accuracy, which will benefit information provided to and used by adjacent transmission service providers who rely upon such information to plan their systems. Accordingly, pursuant to section 215(d)(5) of the FPA and section 39.5(f) of our regulations, the Commission directs the ERO to develop benchmarking and updating requirements to measure modeled available transfer and flowgate capabilities against actual values. Such requirements should specify the frequency for benchmarking and updating the available transfer and flowgate capability values and should require transmission service providers to update their models after any incident that substantially alters system conditions, such as generation outages.</p>	<p>The SDT concludes that the proposed standard is responsive to the Commission’s concern regarding the accuracy of ATC/AFC values as system conditions change. Requirements R1 (part 1.2) and R2 (part 2.1) of the proposed standard require that a Transmission Operator’s (TOP’s) and a Transmission Service Providers (TSP’s) models for determining Total Flowgate Capability (TFC) or Total Transfer Capability (TTC) or AFC/ATC, respectively, account for system topology, including additions and retirements as well as expected system usage, planned outages, Load forecast and expected generation dispatch when such elements impact the determination of TFC, TTC, AFC or ATC. By describing how its methodology accounts for these elements, adjacent systems will be able to effectively model their own transfer or flowgate capabilities. The SDT concludes, however, that because each part of the country has a different sensitivity to these elements and the frequency with which they change, there is no additional reliability benefit in mandating the frequency with which a TOP or TSP must benchmark or update its models. Under Requirement R6 of the proposed standard, registered entities are required to share their data with others, which also increases the amount of up to date information available for the determination of AFC/ATC values. Additionally, under Requirements R5 of the proposed standard, a TSP or a TOP could be asked to clarify its benchmarking or updating practices, if not already set forth in its documented methodology, and share data underlying those practices. As such, the proposed reliability addresses the Commission’s directive toward increasing accuracy by improving transparency.</p>

Project 2012-05 ATC Revisions (MOD A)	
Directive	Consideration of Directive
<p><i>NERC S-Ref 10209 – Order No. 729 at P 173</i></p> <p>173. The Commission therefore directs the ERO, pursuant to section 215(d)(5) of the FPA and section 39.5(f) of our regulations, to develop a modification to MOD-028-1 and MOD-029-1 to specify that base generation schedules used in the calculation of available transfer capability will reflect the modeling of all designated network resources and other resources that are committed to or have the legal obligation to run, as they are expected to run, and to address the effect on available transfer capability of designating and undesignating a network resource.</p>	<p>The SDT determines that it is not necessary to address this directive in the proposed standard. The SDT concludes that this directive does not relate to the reliability issues associated with ATC or AFC determinations. Specifically, the directive relates to the inputs for calculating ETC, which is not relevant to reliability. The SDT concludes that there is no reliability purpose served by mandating how generation and network resources should be treated so long as it is transparent. The SDT notes that under Requirement R2 of the proposed standard, a TSP should describe its practices related to the treatment of base generation schedules and the effect of designating and undesignating a network resource. Under Requirement R5 of the proposed reliability standard, the TSP will be required to respond to requests for clarification of its practices on this issue. The SDT notes that NAESB could consider whether to address this directive from a commercial perspective.</p>
<p><i>NERC S-Ref 10211 – Order No. 729 at P 179</i></p> <p>179. We agree that, in order to be useful, hourly, daily and monthly available transfer capability and available flowgate capability values must be calculated and posted in advance of the relevant time period. Requirement R8 of MOD-001-1 and Requirement R10 of MOD-030-2 require that such posting will occur far enough in advance to meet this need. With respect to Entegra’s request regarding more frequent updates for constrained facilities, we direct the ERO to consider this suggestion through its Reliability Standards development process.</p>	<p>The SDT determines that it is not necessary to address this directive in the proposed standard. In a recent Notice of Proposed Rulemaking, the Commission proposed to withdraw this directive.³ Additionally, the SDT concludes that the frequency of updates for constrained facilities is not relevant to reliability but relates to commercial access to the constrained paths. The SDT notes, however, that an entity’s ATCID should address this issue. NAESB could consider whether to address this directive from a commercial perspective.</p>

³ *Electric Reliability Organization Proposal to Retire Requirements in Reliability Standards*, 143 FERC ¶ 61,251 at P 85, Attachment A (2013).

Project 2012-05 ATC Revisions (MOD A)	
Directive	Consideration of Directive
<p><i>NERC S-Ref 10212 – Order No. 729 at P 179</i></p> <p>179. Further, we agree with Cottonwood regarding unscheduled or unanticipated events. Therefore, pursuant to section 215(d)(5) of the FPA and section 39.5(f) of our regulations, we direct the ERO to develop modifications to MOD-001-1 and MOD-030-2 to clarify that material changes in system conditions will trigger an update whenever practical. Finally, we clarify that these Reliability Standards shall not be used as a “safe harbor” to avoid other, more stringent reporting or update requirements.</p>	<p>The SDT determines that it is not necessary to address this directive in the proposed standard. The proposed standard is limited to addressing reliability issues associated with AFC/ATC determinations. The need to update due to material changes in system condition is not needed for reliability but serves the purpose of providing the best information to the market. As such, it may be appropriate for NAESB to address this issue in its business practice standards. The SDT notes, however, that an entity’s ATCID could address this issue.</p>
<p><i>NERC S-Ref 10214 – Order No. 729 at P 184</i></p> <p>184. As proposed, MOD-001-1 does not restrict a transmission service provider from double-counting data inputs or assumptions in the calculation of available transfer or flowgate capability. To the extent possible, available transfer or flowgate capability values should reflect actual system conditions. The double-counting of various data inputs and assumptions could cause an understatement of available transfer or flowgate capability values and, thus, poses a risk to the reliability of the Bulk-Power System. We note that, in the Commission’s order accepting the associated NAESB business standards, issued concurrently with this Final Rule in Docket No. RM05-5-013, the Commission directs EPSA to address its concerns regarding the modeling of condition firm service through the NERC Reliability Standards development process. We reaffirm here that modeling of available transfer capability should consider the effects of conditional firm service, including the potential for double-counting. Accordingly, pursuant to section 215(d)(5) of the FPA and section 39.5(f) of our regulations, the Commission directs the ERO to develop modifications to MOD-001-1 pursuant to the ERO’s Reliability Standards development process to prevent the double-counting of data inputs and assumptions. In developing these modifications, the ERO should consider the effects of conditional firm service.</p>	<p>The SDT concludes that the proposed standard is responsive to the Commission’s concern. By requiring the documentation and disclosure of the methodologies for determining TTC/TFC, AFC/ATC, Capacity Benefit Margin (CBM) and Transmission Reliability Margin (TRM), registered entities will understand how a neighboring entity calculates these values and, in turn, reduces the reliability risks associated with potentially double-counting any data inputs and assumptions. NAESB may also consider whether the possibility of double-counting needs to be addressed in greater detail in its business practice standards.</p>

Project 2012-05 ATC Revisions (MOD A)

Directive	Consideration of Directive
<p><i>NERC S-Ref 10215 – Order No. 729 at P 192</i></p> <p>192. In its filing letter, NERC states that it requires applicable entities to calculate available transfer capability or available flowgate capability on a consistent schedule and for specific time frames. In keeping with the Commission’s goals of consistency and transparency in the calculation of available transfer capability or available flowgate capability, the Commission finds that transmission service providers should use consistent modeling practices over different time frames. If a transmission service provider uses inconsistent modeling practices over different time frames that should be made explicit in its implementation document along with a justification for the inconsistent practices. Accordingly, pursuant to section 215(d)(5) of the FPA and section 39.5(f) of our regulations, the Commission directs the ERO to develop a modification to the Reliability Standard pursuant to its Reliability Standards development process requiring transmission service providers to include in their implementation documents any inconsistent modeling practices along with a justification for such inconsistencies.</p>	<p>The SDT concludes that the proposed standard is responsive to the Commission’s concern. By requiring that TSPs and TOPs document their methodologies for determining TTC/TFC, AFC/ATC, CBM and TRM to reflect their current practices, the TSP/TOP must provide information regarding their modeling practices, including whether those modeling practices are used consistently. Additionally, Requirement R5 allows registered entities to request that the TSP/TOP clarify its methodology, which includes requests about the TSP’s/TOP’s modeling practices. Should NAESB see a need for additional detail on modeling practices for purposes of ensuring a non-discriminatory market, it may further consider this directive.</p>

Project 2012-05 ATC Revisions (MOD A)	
Directive	Consideration of Directive
<p><i>NERC S-Ref 10216 – Order No. 729 at P 200</i></p> <p>200. With regard to Midwest ISO’s concern, while the terms “assumptions” and “no more limiting” as used in Requirements R6 and R7 could benefit from further granularity, we find these Requirements to be sufficiently clear for purposes of compliance. Likewise, with regard to Entegra’s concern, we agree that transmission service providers should use data and assumptions for their available transfer capability or available flowgate capability and total transfer capability or total flowgate capability calculations that are consistent with those used in the planning of operations and system expansion. Under Requirements R6 and R7, transmission service providers and transmission operators must not overstate assumptions that are used in planning of operations. We believe these requirements are sufficiently clear as written. Nonetheless, we encourage the ERO to consider Midwest ISO’s and Entegra’s comments when developing other modifications to the MOD Reliability Standards pursuant to the ERO’s Reliability Standards development procedure.</p>	<p>The SDT determines that it is not necessary to address this directive in the proposed standard. In a recent Notice of Proposed Rulemaking, the Commission proposed to withdraw this directive.⁴ There is no additional reliability benefit to specifically including a requirement that the TOP explain how it uses consistent or less limiting assumptions than their operations planning. This issue may be considered further by NAESB if it is important for commercial purposes.</p>

⁴ *Electric Reliability Organization Proposal to Retire Requirements in Reliability Standards*, 143 FERC ¶ 61,251 at P 85, Attachment A (2013).

Project 2012-05 ATC Revisions (MOD A)

Directive	Consideration of Directive
<p><i>NERC S-Ref 10217 – Order No. 729 at P 220</i></p> <p>220. We agree with NERC that a transmission service provider should consider any information provided in establishing an appropriate level of capacity benefit margin. Similarly, we agree with the Georgia Companies that all relevant information should be considered in establishing an appropriate level of capacity benefit margin, including information provided by customers. However, in determining the appropriate generation capacity import requirement as part of the sum of capacity benefit margin to be requested from the transmission service provider, it would not be appropriate for a load-serving entity or resource planner to rely exclusively on a reserve margin or adequacy requirement established by an entity that is not subject to this Standard. Thus, we hereby adopt the NOPR proposal to direct the ERO to develop a modification to Requirements R3.1 and R.4.1 of MOD-004-1 to require load-serving entities and resource planners to determine generation capability import requirements by reference to one or more relevant studies (loss of load expectation, loss of load probability or deterministic risk analysis) <u>and</u> applicable reserve margin or resource adequacy requirements, as relevant. Such a modification should ensure that a transmission service provider has adequate information to establish the appropriate level of capacity benefit margin.</p>	<p>The SDT determines that it is not necessary to specifically address this directive in the proposed standard. Under the proposed standard, the method of calculating CBM is determined by the TSP and must be described in the TSP’s CBMID. The SDT concludes that no reliability benefit is provided by placing a requirement on Load Serving Entities (LSEs) and Resource Planners (RPs) to determine generation capability import requirements by reference to one or more relevant studies and applicable reserve margin or resource adequacy requirements. This issue may be considered further by NAESB if it is important for commercial purposes.</p>

Project 2012-05 ATC Revisions (MOD A)

Directive	Consideration of Directive
<p><i>NERC S-Ref 10218 – Order No. 729 at P 222</i></p> <p>222. We agree with the Midwest ISO that ISOs, RTOs, and other entities with a wide view of system reliability needs should be able to provide input into determining the total amount of capacity benefit margin required to preserve the reliability of the system. However, Requirements R1.3 and R7 already make clear that determinations of need for generation capability import requirement made by a load serving entity or resource planner are not final. Further, the third bullet of Requirements R5 and R6 explicitly lists reserve margin or resource adequacy requirements established by RTOs and ISOs among the factors to be considered in establishing capacity benefit margin values for available transfer capability paths or flowgates used in available transfer capability or available flowgate capability calculations. In fact, it is for this reason that we uphold the NOPR proposal. Therefore, pursuant to section 215(d)(5) of the FPA and section 39.5(f) of our regulations, the Commission directs the ERO to modify MOD-004-1 to clarify the term “manage” in Requirement R1.3. This modification should ensure that the Reliability Standard clarify how the transmission service provider will manage situations where the requested use of capacity benefit margin exceeds the capacity benefit margin available.</p>	<p>The SDT determines that it is not necessary to specifically address this directive in the proposed standard. Under the proposed reliability standard, the method of calculating CBM is determined by the TSP and must be described in the TSP’s CBMID. The Capacity Benefit Margin Implementation Document (CBMID) should describe the manner in which the TSP will manage situations where the requested use of CBM exceeds the CBM available. The SDT concludes that no reliability benefit is provided specifically requiring such a description. This issue may be considered further by NAESB if it is important for commercial purposes.</p>

Project 2012-05 ATC Revisions (MOD A)	
Directive	Consideration of Directive
<p><i>NERC S-Ref 10219 – Order No. 729 at P 231</i></p> <p>231. The Commission understands sub-requirement R2.2 of MOD-028-1 to mean that, when calculating total transfer capability for available transfer capability paths, a transmission operator shall use a transmission model that includes relevant data from reliability coordination areas that are not adjacent. While we believe that the provision is reasonably clear, the Commission agrees that the term “and beyond” could be better explained. Accordingly, pursuant to section 215(d)(5) of the FPA and section 39.5(f) of our regulations, the Commission directs the ERO to develop a modification sub-requirement R2.2 pursuant to its Reliability Standards development process to clarify the phrase “adjacent and beyond Reliability Coordination areas.”</p>	<p>The SDT determines that it is not necessary to specifically address this directive in the proposed standard. In a recent Notice of Proposed Rulemaking, the Commission proposed to withdraw this directive.⁵ Additionally, the proposed standard does not use the phrase “adjacent and beyond Reliability Coordination areas.”</p>
<p><i>NERC S-Ref 10220 - Order No. 729 at P 234</i></p> <p>234. The Commission believes that, as written, the time frames established in Requirement R5 are just and reasonable because they balance the need to reliably operate the grid with the burden on transmission operators to recalculate total transfer capability even when total transfer capability does not often change. Nevertheless, the Commission agrees that a graduated time frame for reposting could be reasonable in some situations. Accordingly, the ERO should consider this suggestion when making future modifications to the Reliability Standards.</p>	<p>The SDT determines that it is not necessary to specifically address this directive in the proposed standard. In a recent Notice of Proposed Rulemaking, the Commission proposed to withdraw this directive.⁶ The SDT considered this issue and concludes that there is no reliability benefit in requiring specific time frames for an Area Interchange Methodology user to update their TTC based on an outage. Under the proposed reliability standard, the time frame within which a value is recalculated and reposted based on an outage would be addressed by the TOP in its methodology. This issue may be considered further by NAESB if it is important for commercial purposes.</p>

⁵ *Electric Reliability Organization Proposal to Retire Requirements in Reliability Standards*, 143 FERC ¶ 61,251 at P 85, Attachment A (2013).

⁶ *Electric Reliability Organization Proposal to Retire Requirements in Reliability Standards*, 143 FERC ¶ 61,251 at P 85, Attachment A (2013).

Project 2012-05 ATC Revisions (MOD A)	
Directive	Consideration of Directive
<p><i>NERC S-Ref 10221 – Order No. 729 at P 237</i></p> <p>237. The Commission agrees that any distribution factor to be used should be clearly stated in the implementation document, and that to facilitate consistent and understandable results the distribution factors used in determining total transfer capability should be applied consistently. Accordingly, pursuant to section 215(d)(5) of the FPA and section 39.5(f) of our regulations, the Commission directs the ERO to develop a modification to MOD-028-1 pursuant to its Reliability Standards development process to address these two concerns.</p>	<p>The SDT concludes that the proposed reliability standard is responsive to the Commission’s concern. First, the proposed reliability standard requires disclosure of the TOP’s method of addressing TTC/TFC and the TSP’s method of determining ATC/AFC. These methods will describe the manner in which TOPs and TSPs use distribution factors. The description must reflect current practices. The proposed standard also allows neighboring TOPs to request that a TOP consider a transmission constraint in its TTC/TFC determination. Users of the Area Interchange or Rated System Path Methodology must describe the process they use to account for requested constraints that have a five percent or greater distribution factor for a transfer between areas in the TTC determination.</p>
<p><i>NERC S-Ref 10222 – Order No. 729 at P 246</i></p> <p>246. Puget Sound’s request is reasonable, and insofar as calculating non-firm available transfer capability using counterschedules as opposed to counterflows achieves substantially equivalent results, using them will not be considered a violation. However, we do not have enough information to determine that the terms are generally interchangeable in all circumstances. The ERO should consider Puget Sound’s concerns on this issue when making future modifications to the Reliability Standards.</p>	<p>The SDT determines that it is not necessary to specifically address this directive in the proposed standard. In a recent Notice of Proposed Rulemaking, the Commission proposed to withdraw this directive.⁷ Additionally, the SDT concludes that the issue raised by Puget Sound is outside the scope of the reliability issues associated with ATC/AFC determinations.</p>

⁷ *Electric Reliability Organization Proposal to Retire Requirements in Reliability Standards*, 143 FERC ¶ 61,251 at P 85, Attachment A (2013).

Project 2012-05 ATC Revisions (MOD A)	
Directive	Consideration of Directive
<p><i>NERC S-Ref 10223 – Order No. 729 at P 269</i></p> <p>269. As noted above, the Commission approves the proposal to make these Reliability Standards effective on the first day of the first calendar quarter that is twelve months beyond the date that the Reliability Standards are approved by all applicable regulatory authorities. Although MOD-030-2 defines its effective date with reference to the effective date of MOD-030-1, the Commission finds that this direction is sufficiently clear in the context of the current proceeding. To the extent necessary, we clarify MOD-030-2 shall become effective on the first day of the first calendar quarter that is twelve months beyond the date that the Reliability Standards are approved by all applicable regulatory authorities. The Commission also directs the ERO to make explicit such detail in any future version of this or any other Reliability Standard.</p>	<p>The SDT determines that this directive is no longer relevant. Additionally, in a recent Notice of Proposed Rulemaking, the Commission proposed to withdraw this directive.⁸</p>
<p><i>NERC S-Ref 10226 – Order No. 729 at P 304</i></p> <p>304. The Commission believes that the definition of Postback is not fully determinative. NERC should be able to define this term without reference to the Business Practices, another defined term. Accordingly, the Commission adopts its NOPR proposal and directs the ERO to develop a modification to the definition of Postback to eliminate the reference to Business Practices. Although we are sensitive to Puget Sound’s concern that the required Postback component may increase the recordkeeping burden on some entities, in other regions the component may be critical. We disagree that the term’s existence assumes that once a reservation is confirmed on a particular point of reservation or point of receipt combination the impact of the confirmed reservation will always be present in the available transfer capability calculation. However, we would consider suggestions that would allow entities to comply with the requirements as efficiently as possible, such as a regional difference through the ERO’s standards development procedure.</p>	<p>Because the term “Postback” is not used in the proposed standard, it is not necessary to address this directive. The term “Postback” is not used in any other standard. Any necessary revisions to NERC’s Glossary of Terms to remove the term “Postback” will be addressed in a subsequent project modifying the NERC Glossary.</p>

⁸ *Electric Reliability Organization Proposal to Retire Requirements in Reliability Standards*, 143 FERC ¶ 61,251 at P 85, Attachment A (2013).

Project 2012-05 ATC Revisions (MOD A)	
Directive	Consideration of Directive
<p><i>NERC S-Ref 10227 – Order No. 729 at P 305</i></p> <p>305. The Commission also adopts its NOPR proposal to direct the ERO to develop a modification to the definition of Business Practices that would remove the reference to regional reliability organizations and replace it with the term Regional Entity. We also direct the ERO to develop a definition of the term Regional Entity to be included in the NERC Glossary.</p>	<p>Because the term “Business Practices” is not used in the proposed standard, it is not necessary to address this directive. Any necessary revisions to NERC’s Glossary of Terms related to the term “Business Practices” will be part of any subsequent project modifying the NERC Glossary</p>
<p><i>NERC S-Ref 10229 – Order No. 729 at P 306</i></p> <p>306. We agree with SMUD and Salt River that the definition of “ATC Path” should not limit a transmission provider’s flexibility to treat multiple parallel interconnections between balancing authorities as a single path, and that available transfer capability paths may comprise multiple, parallel interconnections between Balancing Authorities when such treatment is appropriate to maintain reliability. We also agree that the definition should not reference the Commission’s regulations. The Commission’s regulations are not applicable to all registered entities and are subject to change. We therefore direct the ERO to develop a modification to the definition of “ATC Path” that does not reference the Commission’s regulations.</p>	<p>Because the term “ATC Path” is not used in the proposed standard, it is not necessary to address this directive. The term “ATC Path” is not used in any other standard. Any necessary revisions to NERC’s Glossary of Terms to remove the term “ATC Path” will be part of any subsequent project modifying the NERC Glossary.</p>

FERC Approved Standards

Standard Number	Req.	Text of Requirement	Whether Proposed MOD-001-2 Addresses the Existing Requirement	Recommended NAESB Action		
					<p>GREEN: Proposed MOD-001-2 covers the existing requirement and NAESB need not consider adoption.</p> <p>YELLOW: Proposed MOD-001-2 partially covers the existing requirement and NAESB should consider whether any of the elements of the existing requirement should be adopted for commercial purposes.</p> <p>RED: Proposed MOD-001-2 does not address this requirement and NAESB should consider adoption.</p> <p>GRAY: Overarching requirement containing a list or requirement parts.</p>	
MOD-001-1a	R1.	Each Transmission Operator shall select one of the methodologies listed below for calculating Available Transfer Capability (ATC) or Available Flowgate Capability (AFC) for each ATC Path per time period identified in R2 for those Facilities within its Transmission operating area: [Time Horizon: Operations Planning] <input type="checkbox"/> The Area Interchange Methodology, as described in MOD-028 <input type="checkbox"/> The Rated System Path Methodology, as described in MOD-029 <input type="checkbox"/> The Flowgate Methodology, as described in MOD-030	Proposed MOD-001-2 does not require entities to select a specific methodology for determining ATC/AFC.	NAESB should consider whether its business practice standards should list the methodologies that entities may use for determining ATC/AFC.		
MOD-001-1a	R2.	Each Transmission Service Provider shall calculate ATC or AFC values as listed below using the methodology or methodologies selected by its Transmission Operator(s): [Time Horizon: Operations Planning]	Requirement R2 of the proposed NERC standard requires entities to have an ATCID. Although no longer required under NERC's standards, it is expected that entities will continue to calculate values for these time ranges and describe those calculations in its ATCID.	NAESB should consider if there is a market need for NAESB to specify the range of hourly, daily and monthly values to be calculated or whether this required is captured elsewhere (e.g., OATT requirements).		
MOD-001-1a	R2.1.	Hourly values for at least the next 48 hours.				
MOD-001-1a	R2.2.	Daily values for at least the next 31 calendar days.				
MOD-001-1a	R2.3.	Monthly values for at least the next 12 months (months 2-13).				
MOD-001-1a	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: [Time Horizon: Operations Planning]	Proposed R2 requires the TSP to have an ATCID.			
MOD-001-1a	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 or AFC calculations can be validated.	While proposed R2 requires an ATCID, this specific language has been removed from NERC's standards. Entities, however, may continue to provide this information in their implementation documents.	NAESB should consider whether to include this type of requirement in its standards if needed for market purposes.		
MOD-001-1a	R3.2.	A description of the manner in which the Transmission Service Provider will account for counterflows including:	If the entity uses Counterflows then they should be described in the ATCID required under proposed R2.	NAESB to consider whether market standards are needed to address how an entity accounts for Counterflows.		
MOD-001-1a	R3.2.1.	How confirmed Transmission reservations, expected Interchange and internal counterflow are addressed in firm and non-firm ATC or AFC calculations.				
MOD-001-1a	R3.2.2.	A rationale for that accounting specified in R3.2.				
MOD-001-1a	R3.3.	The identity of the Transmission Operators and Transmission Service Providers from which the Transmission Service Provider receives data for use in calculating ATC or AFC.	Entities may include this information in the ATCID required under proposed R2. Additionally, proposed R6 requires sharing of data upon request.	NAESB to consider whether there is a market need to require entities to specifically document the identity of TOPs and TSPs from which they receive data.		
MOD-001-1a	R3.4.	The identity of the Transmission Service Providers and Transmission Operators to which it provides data for use in calculating transfer or Flowgate capability.	Entities may include this information in the ATCID required under proposed R2. Additionally, proposed R6 requires sharing of data upon request.	NAESB to consider whether there is a market need to require entities to specifically document the identity of TOPs and TSPs to which they provide data.		
MOD-001-1a	R3.5.	A description of the allocation processes listed below that are applicable to the Transmission Service Provider: <ul style="list-style-type: none"> Processes used to allocate transfer or Flowgate capability among multiple lines or sub-paths within a larger ATC Path or Flowgate. Processes used to allocate transfer or Flowgate capabilities among multiple owners or users of an ATC Path or Flowgate. Processes used to allocate transfer or Flowgate capabilities between Transmission Service Providers to address issues such as forward looking congestion management and seams coordination. 	Although not explicitly stated in the requirement, this description would be provided in the ATC/AFC and TFC/TTC methodologies required under proposed R1 and R2	NAESB should consider whether there is a market need to specifically require such a description in its standards.		
MOD-001-1a	R3.6.	A description of how generation and transmission outages are considered in transfer or Flowgate capability calculations, including:	Covered in proposed R1 (R1.2.4) and R2 (R2.1.4)			
MOD-001-1a	R3.6.1.	The criteria used to determine when an outage that is in effect part of a day impacts a daily calculation.	Proposed R1 and R2 cover treatment of outages but not at this level of detail.	NAESB should consider these aspects of outages and how they affect markets.		
MOD-001-1a	R3.6.2.	The criteria used to determine when an outage that is in effect part of a month impacts a monthly calculation.	Proposed R1 and R2 cover treatment of outages but not at this level of detail.	NAESB should consider these aspects of outages and how they affect markets.		
MOD-001-1a	R3.6.3.	How outages from other Transmission Service Providers that can not be mapped to the Transmission model used to calculate transfer or Flowgate capability are addressed.	Proposed R1 and R2 cover treatment of outages but not at this level of detail.	NAESB should consider these aspects of outages and how they affect markets.		
MOD-001-1a	R4.	The Transmission Service Provider shall notify the following entities before implementing a new or revised ATCID: [Time Horizon: Operations Planning]				
MOD-001-1a 2/13/2014	R4.1.	Each Planning Coordinator associated with the Transmission Service Provider's area.				

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MOD-001-1a	R4.2.	Each Reliability Coordinator associated with the Transmission Service Provider's area.	Proposed R5 requires the sharing of the methodology documents but no longer requires disclosure prior to implementing a new methodology.			
MOD-001-1a	R4.3.	Each Transmission Operator associated with the Transmission Service Provider's area.				
MOD-001-1a	R4.4.	Each Planning Coordinator adjacent to the Transmission Service Provider's area.				
MOD-001-1a	R4.5.	Each Reliability Coordinator adjacent to the Transmission Service Provider's area.				
MOD-001-1a	R4.6.	Each Transmission Service Provider whose area is adjacent to the Transmission Service Provider's area.				
MOD-001-1a	R5.	The Transmission Service Provider shall make available the current ATCID to all of the entities specified in R4. [Time Horizon: Operations Planning]	Disclosure of methodologies is covered by proposed R5			
MOD-001-1a	R6.	When calculating Total Transfer Capability (TTC) or Total Flowgate Capability (TFC) the Transmission Operator shall use assumptions no more limiting than those used in the planning of operations for the corresponding time period studied, providing such planning of operations has been performed for that time period. [Time Horizon: Operations Planning]	Proposed R1 requires disclosure of methods for determining TTC/TFC but does explicitly state that TOPs must use assumptions no more limiting than those used in the planning of operations for the corresponding time period studied.	NAESB should consider whether these requirements are necessary from a market perspective. The MOD A SDT, however, does not recommend setting a hard limit, such as "no more limiting." Depending on the region, the determination of TFC, TTC, AFC and ATC has varying methods and degree's of similarity to the planning of operations. While a comparison between the two may be of merit to insure that there is no inappropriate conduct, a hard limit has the potential to create a situation where the entity must choose between violating a NERC Standard or violating a NAESB standard.		
MOD-001-1a	R7.	When calculating ATC or AFC the Transmission Service Provider shall use assumptions no more limiting than those used in the planning of operations for the corresponding time period studied, providing such planning of operations has been performed for that time period. [Time Horizon: Operations Planning]	Proposed R2 requires disclosure of methods for determining ATC/AFC but does explicitly state that TSPs must use assumptions no more limiting than those used in the planning of operations for the corresponding time period studied.			
MOD-001-1a	R8.	Each Transmission Service Provider that calculates ATC shall recalculate ATC at a minimum on the following frequency, unless none of the calculated values identified in the ATC equation have changed: [Time Horizon: Operations Planning]	Proposed R2 requires disclosure of practice but does not establish frequencies.		NAESB should review this requirement and determine if there is a business need to establish calculation frequencies for ATC.	
MOD-001-1a	R8.1.	Hourly values, once per hour. Transmission Service Providers are allowed up to 175 hours per calendar year during which calculations are not required to be performed, despite a change in a calculated value identified in the ATC equation.	Proposed R2 requires disclosure of practice which could include how failures of the automated systems is handled.	NAESB should review this requirement and determine if there is a business need to limit or qualify permissible computer down time.		
MOD-001-1a	R8.2.	Daily values, once per day.	See R8 response	see R8		
MOD-001-1a	R8.3.	Monthly values, once per week.	See R8 response	see R8		
MOD-001-1a	R9.	Within thirty calendar days of receiving a request by any Transmission Service Provider, Planning Coordinator, Reliability Coordinator, or Transmission Operator for data from the list below solely for use in the requestor's ATC or AFC calculations, each Transmission Service Provider receiving said request shall begin to make the requested data available to the requestor, subject to the conditions specified in R9.1 and R9.2: [Time Horizon: Operations Planning] Truncated.. Detailed list of items removed for brevity.	Proposed R6 covers data sharing. The requirements are detailed in what the requesting entity must do and what the entity responding must do. There is still a time parameter for responding to requests within 45 calendar days. These cells are yellow because the requirement parts are not clearly spelled out.			
MOD-001-1a	R9.1.	The Transmission Service Provider shall make its own current data available, in the format maintained by the Transmission Service Provider, for up to 13 months into the future (subject to confidentiality and security requirements).	Proposed R6 covers data sharing. The requirements are detailed in what the requesting entity must do and what the entity responding must do. There is still a time parameter for responding to requests within 45 calendar days. These cells are yellow because the requirement parts are not clearly spelled out.			
MOD-001-1a	R9.1.1.	If the Transmission Service Provider uses the data requested in its transfer or Flowgate capability calculations, it shall make the data used available	Proposed R6 covers data sharing. The requirements are detailed in what the requesting entity must do and what the entity responding must do. There is still a time parameter for responding to requests within 45 calendar days. These cells are yellow because the requirement parts are not clearly spelled out.			
MOD-001-1a	R9.1.2.	If the Transmission Service Provider does not use the data requested in its transfer or Flowgate capability calculations, but maintains that data, it shall make that data available	Proposed R6 covers data sharing. The requirements are detailed in what the requesting entity must do and what the entity responding must do. There is still a time parameter for responding to requests within 45 calendar days. These cells are yellow because the requirement parts are not clearly spelled out.			

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MOD-001-1a	R9.1.3.	If the Transmission Service Provider does not use the data requested in its transfer or Flowgate capability calculations, and does not maintain that data, it shall not be required to make that data available	Proposed R6 covers data sharing. The requirements are detailed in what the requesting entity must do and what the entity responding must do. There is still a time parameter for responding to requests within 45 calendar days. These cells are yellow because the requirement parts are not clearly spelled out.		
MOD-001-1a	R9.2.	This data shall be made available by the Transmission Provider on the schedule specified by the requestor (but no more frequently than once per hour, unless mutually agreed to by the requestor and the provider).	Proposed R6 covers data sharing. The requirements are detailed in what the requesting entity must do and what the entity responding must do. There is still a time parameter for responding to requests within 45 calendar days. These cells are yellow because the requirement parts are not clearly spelled out.		
MOD-004-1	R1.	The Transmission Service Provider that maintains CBM shall prepare and keep current a "Capacity Benefit Margin Implementation Document" (CBMID) that includes, at a minimum, the following information: [Time Horizon: Operations Planning, Long-term Planning]	R3 requires disclosure of method but does not recommend a particular method or technique.	The proposed standard will require registered entities that use Capacity Benefit Margin (CBM) to have a Capacity Benefit Margin (CBMID) that reflects its current practices for determining CBM. The proposed Reliability Standard does not dictate how CBM must be calculated.	
MOD-004-1	R1.1.	The process through which a Load-Serving Entity within a Balancing Authority Area associated with the Transmission Service Provider, or the Resource Planner associated with that Balancing Authority Area, may ensure that its need for Transmission capacity to be set aside as CBM will be reviewed and accommodated by the Transmission Service Provider to the extent Transmission capacity is available	R3	NAESB should review MOD-004 and determine if there is a business need for NAESB to establish one or more methods of determining CBM and to establish guidelines for CBM's use.	
MOD-004-1	R1.2.	The procedure and assumptions for establishing CBM for each Available Transfer Capability (ATC) Path or Flowgate.	R3	NAESB should review MOD-004 and determine if there is a business need for NAESB to establish one or more methods of determining CBM and to establish guidelines for CBM's use.	
MOD-004-1	R1.3.	The procedure for a Load-Serving Entity or Balancing Authority to use Transmission capacity set aside as CBM, including the manner in which the Transmission Service Provider will manage situations where the requested use of CBM exceeds the amount of CBM available.	R3	NAESB should review MOD-004 and determine if there is a business need for NAESB to establish one or more methods of determining CBM and to establish guidelines for CBM's use.	
MOD-004-1	R2.	The Transmission Service Provider that maintains CBM shall make available its current CBMID to the Transmission Operators, Transmission Service Providers, Reliability Coordinators, Transmission Planners, Resource Planners, and Planning Coordinators that are within or adjacent to the Transmission Service Provider's area, and to the Load Serving Entities and Balancing Authorities within the Transmission Service Provider's area, and notify those entities of any changes to the CBMID prior to the effective date of the change. [Time Horizon: Operations Planning]	Proposed R5.3.2 covers making available the CBMID if not publicly posted on OASIS or its company website. The notification requirement has not been retained as the posting of the CBMID is notification. It has been updated to also address security concerns where confidentiality plans a role.	The requirement to send an unsolicited communication to various entities was removed based on industry feedback that this requirement did not contribute to reliability and presented an administrative burden. However, NAESB should consider if this has market implications.	
MOD-004-1	R3.	Each Load-Serving Entity determining the need for Transmission capacity to be set aside as CBM for imports into a Balancing Authority Area shall determine that need by: [Time Horizon: Operations Planning]			
MOD-004-1	R3.1.	Using one or more of the following to determine the GCIR: Loss of Load Expectation (LOLE) studies Loss of Load Probability (LOLP) studies Deterministic risk-analysis studies Reserve margin or resource adequacy requirements established by other entities, such as municipalities, state commissions, regional transmission organizations, independent system operators, Regional Reliability Organizations, or regional entities		NAESB should review MOD-004 and determine if there is a business need for NAESB to establish one or more methods of determining CBM and to establish guidelines for CBM's use.	
MOD-004-1	R3.2.	Identifying expected import path(s) or source region(s).			
MOD-004-1	R4.	Each Resource Planner determining the need for Transmission capacity to be set aside as CBM for imports into a Balancing Authority Area shall determine that need by: [Time Horizon: Operations Planning]			
MOD-004-1	R4.1.	Using one or more of the following to determine the GCIR: Loss of Load Expectation (LOLE) studies Loss of Load Probability (LOLP) studies Deterministic risk-analysis studies Reserve margin or resource adequacy requirements established by other entities, such as municipalities, state commissions, regional transmission organizations, independent system operators, Regional Reliability Organizations, or regional entities		NAESB should review MOD-004 and determine if there is a business need for NAESB to establish one or more methods of determining CBM and to establish guidelines for CBM's use.	

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MOD-004-1	R4.2.	Identifying expected import path(s) or source region(s).				
MOD-004-1	R5.	At least every 13 months, the Transmission Service Provider that maintains CBM shall establish a CBM value for each ATC Path or Flowgate to be used for ATC or Available Flowgate Capability (AFC) calculations during the 13 full calendar months (months 2-14) following the current month (the month in which the Transmission Service Provider is establishing the CBM values). This value shall: [Time Horizon: Operations Planning]				
MOD-004-1	R5.1.	Reflect consideration of each of the following if available: Any studies (as described in R3.1) performed by Load-Serving Entities for loads within the Transmission Service Provider's area Any studies (as described in R4.1) performed by Resource Planners for loads within the Transmission Service Provider's area Any reserve margin or resource adequacy requirements for loads within the Transmission Service Provider's area established by other entities, such as municipalities, state commissions, regional transmission organizations, independent system operators, Regional Reliability Organizations, or regional entities		NAESB should review MOD-004 and determine if there is a business need for NAESB to establish one or more methods of determining CBM and to establish guidelines for CBM's use.		
MOD-004-1	R5.2.	Be allocated as follows: For ATC Paths, based on the expected import paths or source regions provided by Load-Serving Entities or Resource Planners For Flowgates, based on the expected import paths or source regions provided by Load-Serving Entities or Resource Planners and the distribution factors associated with those paths or regions, as determined by the Transmission Service Provider				
MOD-004-1	R6.	At least every 13 months, the Transmission Planner shall establish a CBM value for each ATC Path or Flowgate to be used in planning during each of the full calendar years two through ten following the current year (the year in which the Transmission Planner is establishing the CBM values). This value shall: [Time Horizon: Long-term Planning]				
MOD-004-1	R6.1.	Reflect consideration of each of the following if available: Any studies (as described in R3.1) performed by Load-Serving Entities for loads within the Transmission Planner's area Any studies (as described in R4.1) performed by Resource Planners for loads within the Transmission Planner's area Any reserve margin or resource adequacy requirements for loads within the Transmission Planner's area established by other entities, such as municipalities, state commissions, regional transmission organizations, independent system operators, Regional Reliability Organizations, or regional entities		NAESB should review MOD-004 and determine if there is a business need for NAESB to establish one or more methods of determining CBM and to establish guidelines for CBM's use.		
MOD-004-1	R6.2.	Be allocated as follows: For ATC Paths, based on the expected import paths or source regions provided by Load-Serving Entities or Resource Planners For Flowgates, based on the expected import paths or source regions provided by Load-Serving Entities or Resource Planners and the distribution factors associated with those paths or regions, as determined by the Transmission Planner.				
MOD-004-1	R7.	Less than 31 calendar days after the establishment of CBM, the Transmission Service Provider that maintains CBM shall notify all the Load-Serving Entities and Resource Planners that determined they had a need for CBM on the Transmission Service Provider's system of the amount of CBM set aside. [Time Horizon: Operations Planning]	The notification component of Proposed R3 has not been retained but R6 require sharing of data and documents upon request.	NAESB should review MOD-004 and determine if there is a business need for NAESB to establish one or more guidelines for communicating CBM values to those utilities that use it.		
MOD-004-1	R8.	Less than 31 calendar days after the establishment of CBM, the Transmission Planner shall notify all the Load-Serving Entities and Resource Planners that determined they had a need for CBM on the system being planned by the Transmission Planner of the amount of CBM set aside. [Time Horizon: Operations Planning]	The notification component of Proposed R3 has not been retained but R6 require sharing of data and documents upon request.	NAESB should review MOD-004 and determine if there is a business need for NAESB to establish one or more guidelines for communicating CBM values to those utilities that use it.		
MOD-004-1	R9.	The Transmission Service Provider that maintains CBM and the Transmission Planner shall each provide (subject to confidentiality and security requirements) copies of the applicable supporting data, including any models, used for determining CBM or allocating CBM over each ATC Path or Flowgate to the following: [Time Horizon: Operations Planning, Long-term Planning]				
MOD-004-1	R9.1.	Each of its associated Transmission Operators within 30 calendar days of their making a request for the data.	Proposed R5 requires disclosure of CBMID and response to any clarifying questions. R6 requires disclosure of data to another TSP or TOP.			

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MOD-004-1	R9.2.	To any Transmission Service Provider, Reliability Coordinator, Transmission Planner, Resource Planner, or Planning Coordinator within 30 calendar days of their making a request for the data.			
MOD-004-1	R10.	The Load-Serving Entity or Balancing Authority shall request to import energy over firm Transfer Capability set aside as CBM only when experiencing a declared NERC Energy Emergency Alert (EEA) 2 or higher. [Time Horizon: Same-day Operations]		NAESB should review MOD-004 and determine if there is a business need for NAESB to establish one or more guidelines for communicating CBM values to those utilities that use it.	
MOD-004-1	R11.	When reviewing an Arranged Interchange using CBM, all Balancing Authorities and Transmission Service Providers shall waive, within the bounds of reliable operation, any Real-time timing and ramping requirements. [Time Horizon: Same-day Operations]		NAESB should review MOD-004 and determine if there is a business need for NAESB to establish one or more guidelines for communicating CBM values to those utilities that use it.	
MOD-004-1	R12.	The Transmission Service Provider that maintains CBM shall approve, within the bounds of reliable operation, any Arranged Interchange using CBM that is submitted by an "energy deficient entity " under an EEA 2 if: [Time Horizon: Same-day Operations]		NAESB should review MOD-004 and determine if there is a business need for NAESB to establish one or more guidelines for communicating CBM values to those utilities that use it.	
MOD-004-1	R12.1.	The CBM is available			
MOD-004-1	R12.2.	The EEA 2 is declared within the Balancing Authority Area of the "energy deficient entity," and			
MOD-004-1	R12.3.	The Load of the "energy deficient entity" is located within the Transmission Service Provider's area.			
MOD-008-1	R1.	Each Transmission Operator shall prepare and keep current a TRM Implementation Document (TRMID) that includes, as a minimum, the following information: [Time Horizon: Operations Planning]	Proposed R3: Requires Disclosure of Practice		
MOD-008-1	R1.1.	Identification of (on each of its respective ATC Paths or Flowgates) each of the following components of uncertainty if used in establishing TRM, and a description of how that component is used to establish a TRM value: - Aggregate Load forecast. - Load distribution uncertainty. - Forecast uncertainty in Transmission system topology (including, but not limited to, forced or unplanned outages and maintenance outages). - Allowances for parallel path (loop flow) impacts. - Allowances for simultaneous path interactions. - Variations in generation dispatch (including, but not limited to, forced or unplanned outages, maintenance outages and location of future generation). - Short-term System Operator response (Operating Reserve actions). - Reserve sharing requirements. - Inertial response and frequency bias.	Proposed R3: Requires Disclosure of Practice. The various components listed to the left are not explicitly spelled out.	NAESB should review MOD-008-1 for identifying the elements in column C, at a minimum, within the TOPs TRMID.	
MOD-008-1	R1.2.	The description of the method used to allocate TRM across ATC Paths or Flowgates.			
MOD-008-1	R1.3.	The identification of the TRM calculation used for the following time periods:			
MOD-008-1	R1.3.1.	Same day and real-time.			
MOD-008-1	R1.3.2.	Day-ahead and pre-schedule.			
MOD-008-1	R1.3.3.	Beyond day-ahead and pre-schedule, up to thirteen months ahead.			
MOD-008-1	R2.	Each Transmission Operator shall only use the components of uncertainty from R1.1 to establish TRM, and shall not include any of the components of Capacity Benefit Margin (CBM). Transmission capacity set aside for reserve sharing agreements can be included in TRM. [Time Horizon: Operations Planning]		NAESB should review and determine if a business practice rule is needed regarding the double counting of CBM and TRM and could develop specific measures to test for such double counting.	
MOD-008-1	R3.	Each Transmission Operator shall make available its TRMID, and if requested, underlying documentation (if any) used to determine TRM, in the format used by the Transmission Operator, to any of the following who make a written request no more than 30 calendar days after receiving the request. [Time Horizon: Operations Planning] • Transmission Service Providers • Reliability Coordinators • Planning Coordinators • Transmission Planner • Transmission Operators	Proposed R5		
MOD-008-1	R4.	Each Transmission Operator that maintains TRM shall establish TRM values in accordance with the TRMID at least once every 13 months. [Time Horizon: Operations Planning]		NAESB should consider adding this time parameter for establishing TRM values.	
MOD-008-1	R5.	The Transmission Operator that maintains TRM shall provide the TRM values to its Transmission Service Provider(s) and Transmission Planner(s) no more than seven calendar days after a TRM value is initially established or subsequently changed. [Time Horizon: Operations Planning]		NAESB should consider adding this frequency update in a business practice. There may not be a need to mandate that the TOP send the TRM values to the TSP.	

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MOD-028-1	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 Total Transfer Capability (TTC): [Time Horizon: Operations Planning]				
MOD-028-1	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 can be validated.	Requirement R1 of the proposed NERC standard requires entities that calculate TTC or TFC to have a written methodology or methodologies for determining TFC or TTC values. Although no longer required under NERC's standards, it is expected that entities will continue to calculate values to account for this information.	NAESB should consider this information.		
MOD-028-1	R1.2.	A description of the manner in which the Transmission Operator will account for Interchange Schedules in the calculation of TTC.		NAESB should consider adding this description.		
MOD-028-1	R1.3.	Any contractual obligations for allocation of TTC.		NAESB should consider any contractual obligation for allocation of TTC.		
MOD-028-1	R1.4.	A description of the manner in which Contingencies are identified for use in the TTC process.		NAESB should consider this description.		
MOD-028-1	R1.5.	The following information on how source and sink for transmission service is accounted for in ATC calculations including:		NAESB should consider this accounting of.		
MOD-028-1	R1.5.1.	Define if the source used for Available Transfer Capability (ATC) calculations is obtained from the source field or the Point of Receipt (POR) field of the transmission reservation	Requirement R2 of the proposed NERC standard requires entities to have an ATCID. Although no longer required under NERC's standards, it is expected that entities will continue to calculate values for these time ranges and describe those calculations in its ATCID.	NAESB should consider this definition.		
MOD-028-1	R1.5.2.	Define if the sink used for ATC calculations is obtained from the sink field or the Point of Delivery (POD) field of the transmission reservation		NAESB should consider this definition.		
MOD-028-1	R1.5.3.	The source/sink or POR/POD identification and mapping to the model.		NAESB should consider this identification.		
MOD-028-1	R1.5.4.	If the Transmission Service Provider's ATC calculation process involves a grouping of generation, the ATCID must identify how these generators participate in the group.		NAESB should consider this identification.		
MOD-028-1	R2.	When calculating TTC for ATC Paths, the Transmission Operator shall use a Transmission model that contains all of the following: [Time Horizon: Operations Planning]				
MOD-028-1	R2.1.	Modeling data and topology of its Reliability Coordinator's area of responsibility. Equivalent representation of radial lines and facilities 161 kV or below is allowed.	Proposed R1.2 requires the use of these elements to the extent that they impact the determination of TFC or TTC.	NAESB should consider this area for the TOPs Transmission model.		
MOD-028-1	R2.2.	Modeling data and topology (or equivalent representation) for immediately adjacent and beyond Reliability Coordination areas.	Proposed R1.2 requires the use of these elements to the extent that they impact the determination of TFC or TTC.	NAESB should consider these areas for the TOPs Transmission model.		
MOD-028-1	R2.3.	Facility Ratings specified by the Generator Owners and Transmission Owners.	R1.1.1 includes Facility Ratings to be included in a TOPs methodology.			
MOD-028-1	R3.	When calculating TTCs for ATC Paths, the Transmission Operator shall include the following data for the Transmission Service Provider's area. The Transmission Operator shall also include the following data associated with Facilities that are explicitly represented in the Transmission model, as provided by adjacent Transmission Service Providers and any other Transmission Service Providers with which coordination agreements have been executed: [Time Horizon: Operations Planning]	Proposed R1.2 requires the use of these elements to the extent that they impact the determination of TFC or TTC.	NAESB should consider this for the TOPs Transmission model.		
MOD-028-1	R3.1.	For on-peak and off-peak intra-day and next-day TTCs, use the following (as well as any other values and additional parameters as specified in the ATCID):				
MOD-028-1	R3.1.1.	Expected generation and Transmission outages, additions, and retirements, included as specified in the ATCID.	Proposed R2.1.2 includes transmission topology, additions, and retirements. R2.1.4 includes planned outages. R2.1.7 covers generation dispatch, additions, and retirements.	NAESB should consider whether to be specific in its TTC calculations for on-peak and off-peak intra-day and next-day TTCs.		
MOD-028-1	R3.1.2.	Load forecast for the applicable period being calculated.	Proposed R2.1.6 includes Load forecasts, but is not specific in saying for the applicable period being calculated.	NAESB should consider whether to be specific in its TTC calculations for on-peak and off-peak intra-day and next-day TTCs.		
MOD-028-1	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.	Proposed R2.1.7 includes generator dispatch, but is not prescriptive.	NAESB should consider whether to include all designated network resources that are committed or have the legal obligation to run in a business practice.		

FERC Approved Standards

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					<p>GREEN: Proposed MOD-001-2 covers the existing requirement and NAESB need not consider adoption.</p> <p>YELLOW: Proposed MOD-001-2 partially covers the existing requirement and NAESB should consider whether any of the elements of the existing requirement should be adopted for commercial purposes.</p> <p>RED: Proposed MOD-001-2 does not address this requirement and NAESB should consider adoption.</p> <p>GRAY: Overarching requirement containing a list of requirement parts.</p>
MOD-028-1	R3.2.	For days two through 31 TTCs and for months two through 13 TTCs, use the following (as well as any other values and internal parameters as specified in the ATCID):			
MOD-028-1	R3.2.1.	Expected generation and Transmission outages, additions, and Retirements, included as specified in the ATCID.	Proposed R2.1.2 includes transmission topology, additions, and retirements. R2.1.4 includes planned outages. R2.1.7 covers generation dispatch, additions, and retirements.	NAESB should consider whether to be specific in its TTC calculations for days two through 31 and months two through 13.	
MOD-028-1	R3.2.2.	Daily load forecast for the days two through 31 TTCs being calculated and monthly forecast for months two through 13 months TTCs being calculated.	Proposed R2.1.6 includes Load forecasts.	NAESB should consider whether to be specific in its TTC calculations for days two through 31 and months two through 13.	
MOD-028-1	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.	Proposed R2.1.7 includes generator dispatch, but is not prescriptive in including all designated network resources and other resources that are committed or have the legal obligation to run.	NAESB should consider whether to include all designated network resources that are committed or have the legal obligation to run in a business practice.	
MOD-028-1	R4.	When calculating TTCs for ATC Paths, the Transmission Operator shall meet all of the following conditions: [Time Horizon: Operations Planning]			
MOD-028-1	R4.1.	Use all Contingencies meeting the criteria described in the ATCID.	Proposed R1.1 and R1.2		
MOD-028-1	R4.2.	Respect any contractual allocations of TTC.	Proposed R1 requires disclosure of practice but does not explicitly state for the entity to respect any contractual allocations of TTC.	NAESB should review and determine if rules are needed for respecting contractual allocations. However considering that a "contractual allocations" implies there is already a contract or agreement in place, further regulation of that agreement may be unnecessary.	
MOD-028-1	R4.3.	Include, for each time period, the Firm Transmission Service expected to be scheduled as specified in the ATCID (filtered to reduce or eliminate duplicate impacts from transactions using Transmission service from multiple Transmission Service Providers) for the Transmission Service Provider, 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, as specified in the ATCID, has been identified 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, as specified in the ATCID, has been identified in the reservation and the point can be mapped to an "equivalence" or "aggregate representation" in the Transmission Service Provider's Transmission model, use the modeled equivalence or aggregate as the source. - If the source, as specified in the ATCID, has been identified in the reservation and the point cannot be mapped to a discretely modeled point, an "equivalence," or an "aggregate representation" in the Transmission Service Provider's Transmission model, use the immediately adjacent Balancing Authority associated with the Transmission Service Provider from which the power is to be received as the source. - If the source, as specified in the ATCID, has not been identified in the reservation, use the immediately adjacent Balancing Authority associated with the Transmission Service Provider from which the power is to be received as the source. - If the sink, as specified in the ATCID, has been identified 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, as specified in the ATCID, has been identified in the reservation and the point can be mapped to an "equivalence" or "aggregate representation" in the Transmission Service	Requirement R2 of the proposed NERC standard requires entities to have an ATCID. Although no longer required under NERC's standards, it is expected that entities will continue to calculate values for these time ranges and describe those calculations in its ATCID.	NAESB should review and determines if rules are needed for the elements listed in 4.3.	
MOD-028-1	R5.	Each Transmission Operator shall establish TTC for each ATC Path as defined below: [Time Horizon: Operations Planning]			
MOD-028-1	R5.1.	At least once within the seven calendar days prior to the specified period for TTCs used in hourly and daily ATC calculations.			
MOD-028-1	R5.2.	At least once per calendar month for TTCs used in monthly ATC calculations.			
MOD-028-1	R5.3.	Within 24 hours of the unexpected outage of a 500 kV or higher transmission Facility or a transformer with a low-side voltage of 200 kV or higher for TTCs in effect during the anticipated duration of the outage, provided such outage is expected to last 24 hours or longer.			
MOD-028-1	R6.	Each Transmission Operator shall establish TTC for each ATC Path using the following process: [Time Horizon: Operations Planning]			

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MOD-028-1	R6.1.	Determine the incremental Transfer Capability for each ATC 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 5% or greater .	Incremental Transfer Capability has not been retained.	Incremental Transfer Capability is a concept inside of the Area Interchange Method, and the reaching of System Operating Limits and how the system is adjusted is required to be included per the standard. The remaining parts of this requirement just relate to details on how to perform the calculation which are well detailed in various places. NAESB should review this requirement but the ATCSDT does not believe additional work by NAESB is required.		
MOD-028-1	R6.2.	If the limit in step R6.1 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.	Incremental Transfer Capability has not been retained.	See R6.1.		
MOD-028-1	R6.3.	Use (as the TTC) the lesser of: <input type="checkbox"/> The sum of the incremental Transfer Capability and the impacts of Firm Transmission Services, as specified in the Transmission Service Provider's ATCID, that were included in the study model, or <input type="checkbox"/> The sum of Facility Ratings of all ties comprising the ATC Path.	Proposed R1 requires disclosure of methods for determining TTC/TFC but does explicitly state that TOPs must use the lesser of the sum of ITC and impacts of Firm Transmission Services and the sum of Facility Ratings of all ties.	NAESB should review and determine if guidelines are needed that limit TTC to the sum of ties. The new standard doesn't prevent "Sum of Facility Ratings" as a limit on the path, however it doesn't prescribe it either. "Sum of Facility Ratings" is a commercial concept and should be considered by NAESB.		
MOD-028-1	R6.4.	For ATC Paths whose capacity uses jointly-owned or allocated Facilities, limit TTC for each Transmission Service Provider so the TTC does not exceed each Transmission Service Provider's contractual rights.	Proposed R1 requires disclosure of methods for determining TTC/TFC but does explicitly state that TOPs must limit TTC so it does not exceed each TSP's contractual rights.	NAESB could set guidelines regarding TTC values being lower than contractual share, however that may already be covered by contractual obligations.		
MOD-028-1	R7.	The Transmission Operator shall provide the Transmission Service Provider of that ATC Path with the most current value for TTC for that ATC Path no more than: [Time Horizon: Operations Planning]	Proposed R1 requires disclosure of methods for determining TTC/TFC but does explicitly state that TOPs shall provide the most current value to the TSP on specified time intervals. Proposed R6 covers data sharing for ongoing and one-time requests.	NAESB should consider setting guidelines on the calculations of firm and non-firm ATC for an ATC Path for specified periods.		
MOD-028-1	R7.1.	One calendar day after its determination for TTCs used in hourly and daily ATC calculations.				
MOD-028-1	R7.2.	Seven calendar days after its determination for TTCs used in monthly ATC calculations.				
MOD-028-1	R8.	When calculating Existing Transmission Commitments (ETCs) for firm commitments (ETCF) for all time periods for an ATC Path the Transmission Service Provider shall use the following algorithm: [Time Horizon: Operations Planning] See Standard for Formula	The algorithm for calculating ETC is not retained.	NAESB should consider setting guidelines on what values go in ETC and require the disclosure of how certain types of contracts are handled.		
MOD-028-1	R9.	When calculating ETC for non-firm commitments (ETCNF) for all time periods for an ATC Path the Transmission Service Provider shall use the following algorithm: [Time Horizon: Operations Planning] See Standard for Formula				
MOD-028-1	R10.	When calculating firm ATC for an ATC Path for a specified period, the Transmission Service Provider shall utilize the following algorithm: [Time Horizon: Operations Planning] See Standard for Formula				
MOD-028-1	R11.	When calculating non-firm ATC for a ATC Path for a specified period, the Transmission Service Provider shall use the following algorithm: [Time Horizon: Operations Planning] See Standard for Formula	The algorithm for calculating firm and non-firm ATC for an ATC Path for a specific period is not retained.	NAESB should consider setting guidelines on the calculations of firm and non-firm ATC for an ATC Path for specified periods.		
MOD-029-1a	R1.	When calculating TTCs for ATC Paths, the Transmission Operator shall use a Transmission model which satisfies the following requirements: [Time Horizon: Operations Planning]				
MOD-029-1a	R1.1.	The model utilizes data and assumptions consistent with the time period being studied and that meets the following criteria:	Proposed R1.2 requires the use of these elements to the extent that they impact the determination of TFC or TTC.	NAESB should consider these output levels for the TOPs Transmission model.		
MOD-029-1a	R1.1.1.	Includes at least:				
MOD-029-1a	R1.1.1.1.	The Transmission Operator area. Equivalent representation of radial lines and facilities 161kV or below is allowed.	Proposed R1.2 requires the use of these elements to the extent that they impact the determination of TFC or TTC.	NAESB should consider this area for the TOPs Transmission model.		
MOD-029-1a	R1.1.1.2.	All Transmission Operator areas contiguous with its own Transmission Operator area. (Equivalent representation is allowed.)	Proposed R1.2 requires the use of these elements to the extent that they impact the determination of TFC or TTC.	NAESB should consider these areas for the TOPs Transmission model.		

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MOD-029-1a	R1.1.1.3.	Any other Transmission Operator area linked to the Transmission Operator's area by joint operating agreement. (Equivalent representation is allowed.)	Proposed R1.2 requires the use of these elements to the extent that they impact the determination of TFC or TTC.	NAESB should consider these joint operating agreements for the TOPs Transmission model.		
MOD-029-1a	R1.1.2.	Models all system Elements as in-service for the assumed initial conditions.	Proposed R1.2 requires the use of these elements to the extent that they impact the determination of TFC or TTC.	NAESB should consider these elements for the TOPs Transmission model.		
MOD-029-1a	R1.1.3.	Models all generation (may be either a single generator or multiple generators) that is greater than 20 MVA at the point of interconnection in the studied area.	Proposed R1.2 requires the use of these elements to the extent that they impact the determination of TFC or TTC.	NAESB should consider generation for the TOPs Transmission model.		
MOD-029-1a	R1.1.4.	Models phase shifters in non-regulating mode, unless otherwise specified in the Available Transfer Capability Implementation Document (ATCID).	Proposed R1.2 requires the use of these elements to the extent that they impact the determination of TFC or TTC.	NAESB should consider phase shifters for the TOPs Transmission model.		
MOD-029-1a	R1.1.5.	Uses Load forecast by Balancing Authority.	Proposed R1.2.6 addresses Load forecast.			
MOD-029-1a	R1.1.6.	Uses Transmission Facility additions and retirements.	Proposed R1.2.2 includes transmission additions and retirements.			
MOD-029-1a	R1.1.7.	Uses Generation Facility additions and retirements.	Proposed R1.2.7 includes generation additions and retirements.			
MOD-029-1a	R1.1.8.	Uses Special Protection System (SPS) models where currently existing or projected for implementation within the studied time horizon.	Proposed R1 and R2 does not address SPS models explicitly.	NAESB should consider this requirement, however the ATCSDT believes this is basic modeling information already described under R1.2 and R2.1 and that further specificity is not required.		
MOD-029-1a	R1.1.9.	Models series compensation for each line at the expected operating level unless specified otherwise in the ATCID.	Proposed does not address series compensation.	NAESB should consider this requirement, however the ATCSDT believes this is basic modeling information already described under R1.2 and R2.1 and that further specificity is not required.		
MOD-029-1a	R1.1.10.	Includes any other modeling requirements or criteria specified in the ATCID.	Proposed R1 and R2: whatever is in the ATCID is what the entity must follow			
MOD-029-1a	R1.2.	Uses Facility Ratings as provided by the Transmission Owner and Generator Owner	Proposed R1.1.1 includes Facility Ratings to be included in a TOPs methodology.			
MOD-029-1a	R2.	The Transmission Operator shall use the following process to determine TTC: [Time Horizon: Operations Planning]				
MOD-029-1a	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 TTC (maximum flow or reliability limit) that can be simulated on the ATC Path while at the same time satisfying all planning criteria contingencies as follows:	Proposed R1.2.1 addresses the simulation of transfers performed through the adjustment of generation, Load or both.			
MOD-029-1a	R2.1.1.	When modeling normal conditions, all Transmission Elements will be modeled at or below 100% of their continuous rating.	Proposed R1.1 & R1.2 ensure entities describe the method for account for SOLs, Facility Ratings, other limits, as well as various elements that impact the determining of TFC or TTC, but does not explicitly call for situations when modeling normal conditions.	NAESB should consider this component when determining TTC while satisfying this planning criteria contingency.		
MOD-029-1a	R2.1.2.	When modeling contingencies the system shall demonstrate transient, dynamic and voltage stability, with no Transmission Element modeled above its Emergency Rating.	Proposed R1.1 ensures entities describe the method used to account for Facility Ratings, system voltage limits, transient stability limits, voltage stability limits, and other SOLs. However, the proposed language does not explicitly call out for no Transmission Elements to be modeled above its Emergency Rating.	NAESB should consider this component when determining TTC while satisfying this planning criteria contingency.		
MOD-029-1a	R2.1.3.	Uncontrolled separation shall not occur.	Proposed R1.1 & R1.2 ensure entities describe the method for account for SOLs, Facility Ratings, other limits, as well as various elements that impact the determining of TFC or TTC, but does not explicitly call for uncontrolled separation to not occur.	NAESB should consider this component when determining TTC while satisfying this planning criteria contingency.		

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MOD-029-1a	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. If the TTC in the prevailing flow direction is dependent on a Special Protection System (SPS), set the TTC for the non-prevailing flow direction equal to the greater of the maximum flow that can be simulated in the non-prevailing flow direction or the maximum TTC that can be achieved in the prevailing flow direction without use of a SPS.	Proposed R1.2	NAESB should consider this as a business practice to provide a result when a reliability constraint can't be reached. This level of information is appropriate in an instructional text but is not a reliability requirement.		
MOD-029-1a	R2.3.	For an ATC Path whose capacity is limited by contract, set TTC on the ATC Path at the lesser of the maximum allowable contract capacity or the reliability limit as determined by R2.1.	Proposed R1: Disclosure	NAESB should consider those ATC Paths who's capacity is limited by contract and how the setting of TTC is affected.		
MOD-029-1a	R2.4.	For an ATC Path 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.	There are various methods for accomplishing this between existing MOD-028, MOD-029, and MOD-030, and R1 of MOD-001-2 just requires disclosure without prescribing a method.	NAESB should consider requiring TOPs to develop a nomogram describing the interaction of the paths who TTC varies due to simultaneous interactions with one or more other paths.		
MOD-029-1a	R2.5.	The Transmission Operator shall identify when the TTC for the ATC Path being studied has an adverse impact on 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. The Transmission Operator shall include the resolution of this adverse impact in its study report for the ATC Path.	There are various methods for accomplishing this between existing MOD-028, MOD-029, and MOD-030, and R1 of MOD-001-2 just requires disclosure without prescribing a method.	NAESB should consider on stating how the TTC for an ATC Path has an adverse impact on the TTC value of any existing path.		
MOD-029-1a	R2.6.	Where multiple ownership of Transmission rights exists on an ATC Path, allocate TTC of that ATC Path in accordance with the contractual agreement made by the multiple owners of that ATC Path.	Proposed R1: Disclosure	NAESB should consider cases where there are multiple owners of transmission rights on an ATC Path and how that relates to the allocation of TTC and that contractual obligations are met.		
MOD-029-1a	R2.7.	For ATC Paths whose path rating, adjusted for seasonal variance, was established, known and used in operation since January 1, 1994, and no action has been taken to have the path rated using a different method, set the TTC at that previously established amount.	Proposed R1: Disclosure	This is allowed under R1, but not prescribed since there is no similar concept under MOD-028 or MOD-030. Therefore, NAESB may consider this setting of TTC for Rated System Path users.		
MOD-029-1a	R2.8.	Create a study report that describes the steps above that were undertaken (R2.1 – R2.7), including the contingencies and assumptions used, when determining the TTC and the results of the study. Where three phase fault damping is used to determine stability limits, that report shall also identify the percent used and include justification for use unless specified otherwise in the ATCID.	Proposed R1: Disclosure and Demonstration of use. Study reports are an example of evidence within a Measure, but it is not spelled out specifically.	NAESB should consider this requirement as a business practice when determining TTC based on the various components above.		
MOD-029-1a	R3.	Each Transmission Operator shall establish the TTC at the lesser of the value calculated in R2 or any System Operating Limit (SOL) for that ATC Path. [Time Horizon: Operations Planning]	Proposed R1.1 includes Facility ratings, system voltage limits, transient and voltage stability limits, and other SOLs for the TOP to establish TTC values.	R1.1 states that TTC must account for SOL, but doesn't require (or forbid) the use of a lower value. Therefore, NAESB may consider this prescriptiveness.		
MOD-029-1a	R4.	Within seven calendar days of the finalization of the study report, the Transmission Operator shall make available to the Transmission Service Provider of the ATC 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 ATC Path. [Time Horizon: Operations Planning]	Proposed R6 requires disclosure of data and R5 requires disclosure of methods and responding to requests for clarification.			
MOD-029-1a	R5.	When calculating ETC for firm Existing Transmission Commitments (ETCF) for a specified period for an ATC Path, the Transmission Service Provider shall use the algorithm below: [Time Horizon: Operations Planning] See Standard for Formula	The algorithm for calculating ETC is not retained.	NAESB should consider setting guidelines on what values go in ETC and require the disclosure of how certain types of contracts are handled.		
MOD-029-1a	R6.	When calculating ETC for non-firm Existing Transmission Commitments (ETCNF) for all time horizons for an ATC Path the Transmission Service Provider shall use the following algorithm: [Time Horizon: Operations Planning] See Standard for Formula				
MOD-029-1a	R7.	When calculating firm ATC for an ATC Path for a specified period, the Transmission Service Provider shall use the following algorithm: [Time Horizon: Operations Planning] See Standard for Formula				
MOD-029-1a	R8.	When calculating non-firm ATC for an ATC Path for a specified period, the Transmission Service Provider shall use the following algorithm: [Time Horizon: Operations Planning] See Standard for Formula	The algorithm for calculating firm and non-firm ATC for an ATC Path for a specific period is not retained.	NAESB should consider setting guidelines on the calculations of firm and non-firm ATC for an ATC Path for specified periods.		
MOD-030-2	R1.	The Transmission Service Provider shall include in its "Available Transfer Capability Implementation Document" (ATCID): [Time Horizon: Operations Planning]				

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MOD-030-2	R1.1.	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.	Requirement R2 of the proposed NERC standard requires entities to have an ATCID. Although no longer required under NERC's standards, it is expected that entities will continue to calculate values for these time ranges and describe those calculations in its ATCID. Entities, through proposed R5 and R6 requests, may also have this criteria used by the TOP.	NAESB should consider the criteria for the TOP to identify sets of Facilities as Flowgates.		
MOD-030-2	R1.2.	The following information on how source and sink for transmission service is accounted for in AFC calculations including:	Requirement R2 of the proposed NERC standard requires entities to have an ATCID. Although no longer required under NERC's standards, it is expected that entities will continue to calculate values for these time ranges and describe those calculations in its ATCID.	NAESB should consider how source and sinks are accounted for.		
MOD-030-2	R1.2.1.	Define if the source used for AFC calculations is obtained from the source field or the Point of Receipt (POR) field of the transmission reservation.		NAESB should consider how source and sinks are accounted for.		
MOD-030-2	R1.2.2.	Define if the sink used for AFC calculations is obtained from the sink field or the Point of Delivery (POD) field of the transmission reservation.		NAESB should consider how source and sinks are accounted for.		
MOD-030-2	R1.2.3.	The source/sink or POR/POD identification and mapping to the model.		NAESB should consider how source and sinks are accounted for.		
MOD-030-2	R1.2.4.	If the Transmission Service Provider's AFC calculation process involves a grouping of generators, the ATCID must identify how these generators participate in the group.		NAESB should consider the grouping of generators.		
MOD-030-2	R2.	The Transmission Operator shall perform the following: [Time Horizon: Operations Planning]				
MOD-030-2	R2.1.	Include Flowgates used in the AFC process based, at a minimum, on the following criteria:	Proposed R1 and R2			
MOD-030-2	R2.1.1.	Results of a first Contingency transfer analysis for ATC Paths internal to a Transmission Operator's system up to the path capability such that at a minimum the first three limiting Elements and their worst associated Contingency combinations with an OTDF of at least 5% and within the Transmission Operator's system are included as Flowgates.	R2 and R1.3.2. R1.3.2 states Each Transmission Operator that uses the Area Interchange or Rated System Path Methodology shall describe the process it uses to account for requested constraints that have a five percent or greater distribution factor for a transfer between areas in the TTC determination; otherwise the requested constraint is not required to be included. When testing transfers involving the requesting Transmission Operators area, the requested constraint may be excluded.	NAESB should consider these criteria in including Flowgates.		
MOD-030-2	R2.1.1.1.	Use first Contingency criteria consistent with those first Contingency criteria used in planning of operations for the applicable time periods, including use of Special Protection Systems.				
MOD-030-2	R2.1.1.2.	Only the most limiting element in a series configuration needs to be included as a Flowgate.				
MOD-030-2	R2.1.1.3.	If any limiting element is kept within its limit for its associated worst Contingency by operating within the limits of another Flowgate, then no new Flowgate needs to be established for such limiting elements or Contingencies.				
MOD-030-2	R2.1.2.	Results of a first Contingency transfer analysis from all adjacent Balancing Authority source and sink (as defined in the ATCID) combinations up to the path capability such that at a minimum the first three limiting Elements and their worst associated Contingency combinations with an Outage Transfer Distribution Factor (OTDF) of at least 5% and within the Transmission Operator's system are included as Flowgates unless the interface between such adjacent Balancing Authorities is accounted for using another ATC methodology.	Proposed R2 and R1.3.1. R1.3.1 states that Each Transmission Operator that uses the Flowgate Methodology shall include in its methodology an impact test process for including requested constraints. If a generator to Load transfer in a registered entity's area or a transfer to a neighboring registered entity impact the requested constraint by five percent or greater, the requested constraint shall be included in the TFC determination, otherwise the requested constraint is not required to be included.	NAESB should consider these criteria in including Flowgates.		
MOD-030-2	R2.1.2.1.	Use first Contingency criteria consistent with those first Contingency criteria used in planning of operations for the applicable time periods, including use of Special Protection Systems.				
MOD-030-2	R2.1.2.2.	Only the most limiting element in a series configuration needs to be included as a Flowgate.				
MOD-030-2	R2.1.2.3.	If any limiting element is kept within its limit for its associated worst Contingency by operating within the limits of another Flowgate, then no new Flowgate needs to be established for such limiting elements or Contingencies.				
MOD-030-2	R2.1.3.	Any limiting Element/Contingency combination at least within its Reliability Coordinator's Area that has been subjected to an Interconnection-wide congestion management procedure within the last 12 months, unless the limiting Element/Contingency combination is accounted for using another ATC methodology or was created to address temporary operating conditions.				

FERC Approved Standards

Standard Number	Req.	Text of Requirement	Whether Proposed MOD-001-2 Addresses the Existing Requirement	Recommended NAESB Action		
					GREEN: Proposed MOD-001-2 covers the existing requirement and NAESB need not consider adoption. YELLOW: Proposed MOD-001-2 partially covers the existing requirement and NAESB should consider whether any of the elements of the existing requirement should be adopted for commercial purposes. RED: Proposed MOD-001-2 does not address this requirement and NAESB should consider adoption. GRAY: Overarching requirement containing a list or requirement parts.	
MOD-030-2	R2.1.4.	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:	Proposed R1.3			
MOD-030-2	R2.1.4.1.	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) or Outage Transfer Distribution Factor (OTDF) 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 or OTDF impact on the Flowgate. - The Transmission Operator may utilize distribution factors less than 5% if desired.	Proposed R1.3.1			
MOD-030-2	R2.1.4.2.	The limiting Element/Contingency combination is included in the requesting Transmission Service Provider's methodology.	Proposed R1.3			
MOD-030-2	R2.2.	At a minimum, establish a list of Flowgates by creating, modifying, or deleting Flowgate definitions at least once per calendar year.	Proposed R1			
MOD-030-2	R2.3.	At a minimum, establish a list of Flowgates by creating, modifying, or deleting Flowgates that have been requested as part of R2.1.4 within thirty calendar days from the request.	Proposed R1			
MOD-030-2	R2.4.	Establish 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.	Proposed R1.1			
MOD-030-2	R2.5.	At a minimum, establish the TFC once per calendar year.	Proposed R1			
MOD-030-2	R2.5.1.	If notified of a change in the Rating by the Transmission Owner that would affect the TFC of a flowgate used in the AFC process, the TFC should be updated within seven calendar days of the notification.	Proposed R1.1			
MOD-030-2	R2.6.	Provide the Transmission Service Provider with the TFCs within seven calendar days of their establishment.	Proposed R1			
MOD-030-2	R3.	The Transmission Operator shall make available to the Transmission Service Provider a Transmission model to determine Available Flowgate Capability (AFC) that meets the following criteria: [Time Horizon: Operations Planning]	Proposed R6 requires data sharing			
MOD-030-2	R3.1.	Contains generation Facility Ratings, such as generation maximum and minimum output levels, specified by the Generator Owners of the Facilities within the model.	Proposed R1.2, R2.1 contain information regarding Facility Ratings but does not explicitly call out output levels.	NAESB should consider these output levels for the TOPs Transmission model.		
MOD-030-2	R3.2.	Updated at least once per day for AFC calculations for intra-day, next day, and days two through 30.	Proposed R6 requires data sharing on requested frequency but does not explicitly call out for updates at least month a month for this time period.	NAESB should consider these updates for the TOPs Transmission model.		
MOD-030-2	R3.3.	Updated at least once per month for AFC calculations for months two through 13.	Proposed R6 requires data sharing on requested frequency but does not explicitly call out for updates at least month a month for this time period.	NAESB should consider these updates for the TOPs Transmission model.		
MOD-030-2	R3.4.	Contains modeling data and system topology for the Facilities within its Reliability Coordinator's Area. Equivalent representation of radial lines and Facilities 161kV or below is allowed.	Proposed R1.2, R2.1 contain information regarding modeling data and system topology but does not explicitly call out immediate adjacent and beyond RC areas.	NAESB should consider this for the TOPs Transmission model.		
MOD-030-2	R3.5.	Contains modeling data and system topology (or equivalent representation) for immediately adjacent and beyond Reliability Coordination Areas.	Proposed R1.2, R2.1 contain information regarding modeling data and system topology but does not explicitly call out immediate adjacent and beyond RC areas.	NAESB should consider this for the TOPs Transmission model.		

FERC Approved Standards

Standard Number	Req.	Text of Requirement	Whether Proposed MOD-001-2 Addresses the Existing Requirement	Recommended NAESB Action	
					<p>GREEN: Proposed MOD-001-2 covers the existing requirement and NAESB need not consider adoption.</p> <p>YELLOW: Proposed MOD-001-2 partially covers the existing requirement and NAESB should consider whether any of the elements of the existing requirement should be adopted for commercial purposes.</p> <p>RED: Proposed MOD-001-2 does not address this requirement and NAESB should consider adoption.</p> <p>GRAY: Overarching requirement containing a list or requirement parts.</p>
MOD-030-2	R4.	<p>When calculating AFCs, the Transmission Service Provider shall represent the impact of Transmission Service as follows: [Time Horizon: Operations Planning]</p> <ul style="list-style-type: none"> - If the source, as specified in the ATCID, has been identified 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, as specified in the ATCID, has been identified in the reservation and the point can be mapped to an "equivalence" or "aggregate" representation in the Transmission Service Provider's Transmission model, use the modeled equivalence or aggregate as the source. - If the source, as specified in the ATCID, has been identified in the reservation and the point cannot be mapped to a discretely modeled point or an "equivalence" representation in the Transmission Service Provider's Transmission model, use the immediately adjacent Balancing Authority associated with the Transmission Service Provider from which the power is to be received as the source. - If the source, as specified in the ATCID, has not been identified in the reservation use the immediately adjacent Balancing Authority associated with the Transmission Service Provider from which the power is to be received as the source. - If the sink, as specified in the ATCID, has been identified 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, as specified in the ATCID, has been identified in the reservation and the point can be mapped to an "equivalence" or "aggregate" representation in the Transmission Service Provider's Transmission model, use the modeled equivalence or aggregate as the sink. 	Proposed R1.2, R2.1		
MOD-030-2	R5.	When calculating AFCs, the Transmission Service Provider shall: [Time Horizon: Operations Planning]			
MOD-030-2	R5.1.	Use the models provided by the Transmission Operator.	Proposed R2.1		
MOD-030-2	R5.2.	Include in the transmission model expected generation and Transmission outages, additions, and retirements within the scope of the model as specified in the ATCID and in effect during the applicable period of the AFC calculation for the Transmission Service Provider's area, all adjacent Transmission Service Providers, and any Transmission Service Providers with which coordination agreements have been executed.	Proposed R2.1		
MOD-030-2	R5.3.	For external Flowgates, identified in R2.1.4, use the AFC provided by the Transmission Service Provider that calculates AFC for that Flowgate.	Proposed R2.2		
MOD-030-2	R6.	When calculating the impact of ETC for firm commitments (ETCFI) for all time periods for a Flowgate, the Transmission Service Provider shall sum the following: [Time Horizon: Operations Planning]	Proposed R2: Disclosure of Expected Transmission uses		
MOD-030-2	R6.1.	The impact of firm Network Integration Transmission Service, including the impacts of generation to load, in the model referenced in R5.2 for the Transmission Service Provider's area, based on:	Proposed R2: Disclosure of Expected Transmission uses		
MOD-030-2	R6.1.1.	Load forecast for the time period being calculated, including Native Load and Network Service load	Proposed R2.1.6 calls for how the methodology for determining AFC or ATC values for Load forecast if the element impacts the determination of AFC or ATC.		
MOD-030-2	R6.1.2.	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 specified in the Transmission Service Provider's ATCID.			
MOD-030-2	R6.2.	The impact of any firm Network Integration Transmission Service, including the impacts of generation to load in the model referenced in R5.2 and has a distribution factor equal to or greater than the percentage used to curtail in the Interconnection-wide congestion management procedure used by the Transmission Service Provider, for all adjacent Transmission Service Providers and any other Transmission Service Providers with which coordination agreements have been executed based on:	Proposed R2.1 describes the method used to account for the elements that have an impact on the determination of AFC or ATC, but does not explicitly call out the impact of any firm Network Integration Transmission Service.		

FERC Approved Standards

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					<p>GREEN: Proposed MOD-001-2 covers the existing requirement and NAESB need not consider adoption.</p> <p>YELLOW: Proposed MOD-001-2 partially covers the existing requirement and NAESB should consider whether any of the elements of the existing requirement should be adopted for commercial purposes.</p> <p>RED: Proposed MOD-001-2 does not address this requirement and NAESB should consider adoption.</p> <p>GRAY: Overarching requirement containing a list of requirement parts.</p>	
MOD-030-2	R6.2.1.	Load forecast for the time period being calculated, including Native Load and Network Service load	Proposed R2.1.6 calls for how the methodology for determining AFC or ATC values for Load forecast if the element impacts the determination of AFC or ATC.	NAESB should consider setting guidelines on what values go in ETC and require the disclosure of how certain types of contracts are handled.		
MOD-030-2	R6.2.2.	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 specified in the Transmission Service Provider's ATCID.				
MOD-030-2	R6.3.	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.	Proposed R2 requires disclosure of Expected Transmission uses.			
MOD-030-2	R6.4.	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 having a distribution factor equal to or greater than the percentage used to curtail in the Interconnection-wide congestion management procedure used by the Transmission Service Provider, for all adjacent Transmission Service Providers and any other Transmission Service Providers with which coordination agreements have been executed.	Proposed R2 requires disclosure of Expected Transmission uses.			
MOD-030-2	R6.5.	The impact of any Grandfathered firm obligations expected to be scheduled or expected to flow for the Transmission Service Provider's area.				
MOD-030-2	R6.6.	The impact of any Grandfathered firm obligations expected to be scheduled or expected to flow that have a distribution factor equal to or greater than the percentage used to curtail in the Interconnection-wide congestion management procedure used by the Transmission Service Provider, for all adjacent Transmission Service Providers and any other Transmission Service Providers with which coordination agreements have been executed.				
MOD-030-2	R6.7.	The impact of other firm services determined by the Transmission Service Provider.	Proposed R2 requires disclosure of Expected Transmission uses.			
MOD-030-2	R7.	When calculating the impact of ETC for non-firm commitments (ETCNFI) for all time periods for a Flowgate the Transmission Service Provider shall sum: [Time Horizon: Operations Planning]	Proposed R2 requires disclosure, but does not explicitly call out for the calculations of ETC for all time periods for Flowgates.	NAESB should consider setting guidelines on what values go in ETC and require the disclosure of how certain types of contracts are handled.		
MOD-030-2	R7.1.	The impact of all confirmed non-firm Point-to-Point Transmission Service expected to be scheduled for the Transmission Service Provider's area.				
MOD-030-2	R7.2.	The impact of any confirmed non-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, that have a distribution factor equal to or greater than the percentage used to curtail in the Interconnection-wide congestion management procedure used by the Transmission Service Provider, for all adjacent Transmission Service Providers and any other Transmission Service Providers with which coordination agreements have been executed.				
MOD-030-2	R7.3.	The impact of any Grandfathered non-firm obligations expected to be scheduled or expected to flow for the Transmission Service Provider's area.				
MOD-030-2	R7.4.	The impact of any Grandfathered non-firm obligations expected to be scheduled or expected to flow that have a distribution factor equal to or greater than the percentage used to curtail in the Interconnection-wide congestion management procedure used by the Transmission Service Provider, for all adjacent Transmission Service Providers and any other Transmission Service Providers with which coordination agreements have been executed.				
MOD-030-2	R7.5.	The impact of non-firm Network Integration Transmission Service serving Load within the Transmission Service Provider's area (i.e., secondary service), to include load growth, and losses not otherwise included in Transmission Reliability Margin or Capacity Benefit Margin.				
MOD-030-2	R7.6.	The impact of any non-firm Network Integration Transmission Service (secondary service) with a distribution factor equal to or greater than the percentage used to curtail in the Interconnection-wide congestion management procedure used by the Transmission Service Provider, filtered to reduce or eliminate duplicate impacts from transactions using Transmission service from multiple Transmission Service Providers, for all adjacent Transmission Service Providers and any other Transmission Service Providers with which coordination agreements have been executed.				
MOD-030-2	R7.7.	The impact of other non-firm services determined by the Transmission Service Provider.				

FERC Approved Standards

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					GREEN: Proposed MOD-001-2 covers the existing requirement and NAESB need not consider adoption. YELLOW: Proposed MOD-001-2 partially covers the existing requirement and NAESB should consider whether any of the elements of the existing requirement should be adopted for commercial purposes. RED: Proposed MOD-001-2 does not address this requirement and NAESB should consider adoption. GRAY: Overarching requirement containing a list or requirement parts.	
MOD-030-2	R8.	When calculating firm AFC for a Flowgate for a specified period, the Transmission Service Provider shall use the following algorithm (subject to allocation processes described in the ATCID): [Time Horizon: Operations Planning] See Standard for Formula	The algorithm for calculating firm and non-firm AFC for a Flowgate has not been retained.	NAESB should consider adding a business practice for the TSP to use the algorithm in this requirement.		
MOD-030-2	R9.	When calculating non-firm AFC for a Flowgate for a specified period, the Transmission Service Provider shall use the following algorithm (subject to allocation processes described in the ATCID): [Time Horizon: Operations Planning] See Standard for Formula		NAESB should consider adding a business practice for the TSP to use the algorithm in this requirement.		
MOD-030-2	R10.	Each Transmission Service Provider shall recalculate AFC, utilizing the updated models described in R3.2, R3.3, and R5, at a minimum on the following frequency, unless none of the calculated values identified in the AFC equation have changed: [Time Horizon: Operations Planning]	Proposed R2 requires disclosure of the AFC calculations, but is not explicit in the hourly, daily, and monthly values for AFC as well as the frequency of updates.	NAESB should consider adding a business practice to provide the recalculating of AFC based on the frequencies below unless none of the calculated values have changed.		
MOD-030-2	R10.1.	For hourly AFC, once per hour. Transmission Service Providers are allowed up to 175 hours per calendar year during which calculations are not required to be performed, despite a change in a calculated value identified in the AFC equation.		NAESB should consider adding a business practice to provide the recalculating of AFC based on the frequencies below unless none of the calculated values have changed.		
MOD-030-2	R10.2.	For daily AFC, once per day.		NAESB should consider adding a business practice to provide the recalculating of AFC based on the frequencies below unless none of the calculated values have changed.		
MOD-030-2	R10.3.	For monthly AFC, once per week.		NAESB should consider adding a business practice to provide the recalculating of AFC based on the frequencies below unless none of the calculated values have changed.		
MOD-030-2	R11.	When converting Flowgate AFCs to ATCs for ATC Paths, the Transmission Service Provider shall convert those values based on the following algorithm: [Time Horizon: Operations Planning] See Standard for Formula		The algorithm for converting Flowgate AFCs to ATCs for ATC Paths has not been retained.	NAESB should consider adding a business practice for the TSP to use the algorithm in this requirement for converting AFC values to ATC values for ATC paths.	

A. Introduction

- 1. Title:** Available Transmission System Capability
- 2. Number:** MOD-001-1a
- 3. Purpose:** To ensure that calculations are performed by Transmission Service Providers to maintain awareness of available transmission system capability and future flows on their own systems as well as those of their neighbors
- 4. Applicability:**
 - 4.1.** Transmission Service Provider.
 - 4.2.** Transmission Operator.
- 5. Proposed Effective Date:** Immediately after approval of applicable regulatory authorities.

B. Requirements

- R1.** Each Transmission Operator shall select one of the methodologies¹ listed below for calculating Available Transfer Capability (ATC) or Available Flowgate Capability (AFC) for each ATC Path per time period identified in R2 for those Facilities within its Transmission operating area: [*Violation Risk Factor: Lower*] [*Time Horizon: Operations Planning*]
- The Area Interchange Methodology, as described in MOD-028
 - The Rated System Path Methodology, as described in MOD-029
 - The Flowgate Methodology, as described in MOD-030
- R2.** Each Transmission Service Provider shall calculate ATC or AFC values as listed below using the methodology or methodologies selected by its Transmission Operator(s): [*Violation Risk Factor: Lower*] [*Time Horizon: Operations Planning*]
- R2.1.** Hourly values for at least the next 48 hours.
 - R2.2.** Daily values for at least the next 31 calendar days.
 - R2.3.** Monthly values for at least the next 12 months (months 2-13).
- 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 or AFC calculations can be validated.
 - R3.2.** A description of the manner in which the Transmission Service Provider will account for counterflows including:

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

- R3.2.1. How confirmed Transmission reservations, expected Interchange and internal counterflow are addressed in firm and non-firm ATC or AFC calculations.
- R3.2.2. A rationale for that accounting specified in R3.2.
- R3.3. The identity of the Transmission Operators and Transmission Service Providers from which the Transmission Service Provider receives data for use in calculating ATC or AFC.
- R3.4. The identity of the Transmission Service Providers and Transmission Operators to which it provides data for use in calculating transfer or Flowgate capability.
- R3.5. A description of the allocation processes listed below that are applicable to the Transmission Service Provider:
 - Processes used to allocate transfer or Flowgate capability among multiple lines or sub-paths within a larger ATC Path or Flowgate.
 - Processes used to allocate transfer or Flowgate capabilities among multiple owners or users of an ATC Path or Flowgate.
 - Processes used to allocate transfer or Flowgate capabilities between Transmission Service Providers to address issues such as forward looking congestion management and seams coordination.
- R3.6. A description of how generation and transmission outages are considered in transfer or Flowgate capability calculations, including:
 - R3.6.1. The criteria used to determine when an outage that is in effect part of a day impacts a daily calculation.
 - R3.6.2. The criteria used to determine when an outage that is in effect part of a month impacts a monthly calculation.
 - R3.6.3. How outages from other Transmission Service Providers that can not be mapped to the Transmission model used to calculate transfer or Flowgate capability are addressed.
- R4. The Transmission Service Provider shall notify the following entities before implementing a new or revised ATCID: [*Violation Risk Factor: Lower*] [*Time Horizon: Operations Planning*]
 - R4.1. Each Planning Coordinator associated with the Transmission Service Provider's area.
 - R4.2. Each Reliability Coordinator associated with the Transmission Service Provider's area.
 - R4.3. Each Transmission Operator associated with the Transmission Service Provider's area.
 - R4.4. Each Planning Coordinator adjacent to the Transmission Service Provider's area.

- R4.5.** Each Reliability Coordinator adjacent to the Transmission Service Provider’s area.
- R4.6.** Each Transmission Service Provider whose area is adjacent to the Transmission Service Provider’s area.
- R5.** The Transmission Service Provider shall make available the current ATCID to all of the entities specified in R4. *[Violation Risk Factor: Lower] [Time Horizon: Operations Planning]*
- R6.** When calculating Total Transfer Capability (TTC) or Total Flowgate Capability (TFC) the Transmission Operator shall use assumptions no more limiting than those used in the planning of operations for the corresponding time period studied, providing such planning of operations has been performed for that time period. *[Violation Risk Factor: Lower] [Time Horizon: Operations Planning]*
- R7.** When calculating ATC or AFC the Transmission Service Provider shall use assumptions no more limiting than those used in the planning of operations for the corresponding time period studied, providing such planning of operations has been performed for that time period. *[Violation Risk Factor: Lower] [Time Horizon: Operations Planning]*
- R8.** Each Transmission Service Provider that calculates ATC shall recalculate ATC at a minimum on the following frequency, unless none of the calculated values identified in the ATC equation have changed: *[Violation Risk Factor: Lower] [Time Horizon: Operations Planning]*
- R8.1.** Hourly values, once per hour. Transmission Service Providers are allowed up to 175 hours per calendar year during which calculations are not required to be performed, despite a change in a calculated value identified in the ATC equation.
- R8.2.** Daily values, once per day.
- R8.3.** Monthly values, once per week.
- R9.** Within thirty calendar days of receiving a request by any Transmission Service Provider, Planning Coordinator, Reliability Coordinator, or Transmission Operator for data from the list below solely for use in the requestor’s ATC or AFC calculations, each Transmission Service Provider receiving said request shall begin to make the requested data available to the requestor, subject to the conditions specified in R9.1 and R9.2: *[Violation Risk Factor: Lower] [Time Horizon: Operations Planning]*
- Expected generation and Transmission outages, additions, and retirements.
 - Load forecasts.
 - Unit commitments and order of dispatch, 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:

Note that the North American Energy Standards Board (NAESB) is developing the companion standards that address the posting of ATC information, including supporting information such as that described in R9.

- Dispatch Order
- Participation Factors
- Block Dispatch
- Aggregated firm capacity set-aside for Network Integration Transmission Service and aggregated non-firm capacity set aside for Network Integration Transmission Service (i.e. Secondary Service).
- Firm and non-firm Transmission reservations.
- Aggregated capacity set-aside for Grandfathered obligations
- Firm roll-over rights.
- Any firm and non-firm adjustments applied by the Transmission Service Provider to reflect parallel path impacts.
- Power flow models and underlying assumptions.
- 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
- Facility Ratings.
- Any other services that impact Existing Transmission Commitments (ETCs).
- Values of Capacity Benefit Margin (CBM) and Transmission Reliability Margin (TRM) for all ATC Paths or Flowgates.
- Values of Total Flowgate Capability (TFC) and AFC for any Flowgates considered by the Transmission Service Provider receiving the request when selling Transmission service.
- Values of TTC and ATC for all ATC Paths for those Transmission Service Providers receiving the request that do not consider Flowgates when selling Transmission Service.
- Source and sink identification and mapping to the model.

R9.1. The Transmission Service Provider shall make its own current data available, in the format maintained by the Transmission Service Provider, for up to 13 months into the future (subject to confidentiality and security requirements).

R9.1.1. If the Transmission Service Provider uses the data requested in its transfer or Flowgate capability calculations, it shall make the data used available

R9.1.2. If the Transmission Service Provider does not use the data requested in its transfer or Flowgate capability calculations, but maintains that data, it shall make that data available

R9.1.3. If the Transmission Service Provider does not use the data requested in its transfer or Flowgate capability calculations, and does not maintain that data, it shall not be required to make that data available

R9.2. This data shall be made available by the Transmission Provider on the schedule specified by the requestor (but no more frequently than once per hour, unless mutually agreed to by the requester and the provider).

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 of the specified methodologies per time period in R2 for use in determining Transfer Capabilities of those Facilities for each ATC Path within the Transmission Operator's operating area. (R1).

M2. The Transmission Service Provider shall provide ATC or AFC values and identification of the selected methodologies along with other evidence (such as written documentation, processes, or data) to show it calculated ATC or AFC for the following using the selected methodology or methodologies chosen as part of R1 (R2):

- There has been at least 48 hours of hourly values calculated at all times. (R2.1)
- There has been at least 31 consecutive calendar days of daily values calculated at all times. (R2.2)
- There has been at least the next 12 months of monthly values calculated at all times (Months 2-13). (R2.3)

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 evidence (such as dated electronic mail messages, mail receipts, or voice recordings) that it has notified the entities specified in R4 before a new or revised ATCID was implemented. (R4)

M5. The Transmission Service Provider shall provide evidence (such as a demonstration) that the current ATCID is available to all of the entities specified in R4, as required by R5. (R5)

M6. The Transmission Operator shall provide a copy of the assumptions (such as contingencies, loop flow, generation re-dispatch, switching operating guides or data sources for load forecast and facility outages) used to calculate TTC or TFC as well as other evidence (such as copies of operations planning studies, models, supporting information, or data) to show that the assumptions used in determining TTC or TFC are no more limiting than those used in planning of operations for the corresponding time period studied. Alternatively the Transmission Operator may demonstrate that the same load flow cases are used for both TTC or TFC and Operations Planning.

When different inputs to the calculations are used because the calculations are performed at different times, such that the most recent information is used in any calculation, a difference in that input data shall not be considered to be a difference in assumptions. (R6)

- M7.** The Transmission Service Provider shall provide a copy of the assumptions (such as contingencies, loop flow, generation re-dispatch, switching operating guides or data sources for load forecast and facility outages) used to calculate ATC or AFC as well as other evidence (such as copies of operations planning studies, models, supporting information, or data) to show that the assumptions used in determining ATC or AFC are no more limiting than those used in planning of operations for the corresponding time period studied. Alternatively the Transmission Service Provider may demonstrate that the same load flow cases are used for both AFC and Operations Planning. When different inputs to the calculations are used because the calculations are performed at different times, such that the most recent information is used in any calculation, a difference in that input data shall not be considered to be a difference in assumptions. (R7)
- M8.** The Transmission Service Provider calculating ATC shall provide evidence (such as logs or data) that it has calculated the hourly, daily, and monthly values on at least the minimum frequencies specified in R8 or provide evidence (such as data, procedures, or software documentation) that the calculated values identified in the ATC equation have not changed. (R8)
- M9.** The Transmission Service Provider shall provide a copy of the dated request, if any, for ATC or AFC data as well as evidence to show it responded to that request (such as logs or data) within thirty calendar days of receiving the request, and the requested data items were made available in accordance with R9. (R9)

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 and Transmission Service Provider shall keep data or evidence to show compliance as identified below unless directed by its Compliance Enforcement Authority to retain specific evidence for a longer period of time as part of an investigation:

- The Transmission Operator shall maintain its current selected method(s) for calculating ATC or AFC 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, R6, R7, 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 R5 for the most recent three calendar years plus the current year.
- The Transmission Operator shall maintain evidence to show compliance with R6 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

R #	Lower VSL	Moderate VSL	High VSL	Severe VSL
R1.	N/A	N/A	N/A	The Transmission Operator did not select one of the specified methodologies for each ATC Path per time period identified in R2 for those Facilities within its Transmission operating area.
R2.	<p>One or more of the following:</p> <ul style="list-style-type: none"> ▪ The Transmission Service Provider has calculated hourly ATC or AFC values for more than the next 30 hours but less than the next 48 hours. ▪ Has calculated daily ATC or AFC values for more than the next 21 calendar days but less than the next 31 calendar days. ▪ Has calculated monthly ATC or AFC values for more than the next 9 months but less than the next 12 months. 	<p>One or more of the following:</p> <ul style="list-style-type: none"> ▪ The Transmission Service Provider has calculated hourly ATC or AFC values for more than the next 20 hours but less than the next 31 hours. ▪ Has calculated daily ATC or AFC values for more than the next 14 calendar days but less than the next 22 calendar days. ▪ Has calculated monthly ATC or AFC values for more than the next 6 months but less than the next 10 months. 	<p>One or more of the following:</p> <ul style="list-style-type: none"> ▪ The Transmission Service Provider has calculated hourly ATC or AFC values for more than the next 10 hours but less than the next 21 hours. ▪ Has calculated daily ATC or AFC values for more than the next 7 calendar days but less than the next 15 calendar days. ▪ Has calculated monthly ATC or AFC values for more than the next 3 months but less than the next 7 months. 	<p>One or more of the following:</p> <ul style="list-style-type: none"> ▪ The Transmission Service Provider has calculated hourly ATC or AFC values for less than the next 11 hours. ▪ Has calculated daily ATC or AFC values for less than the next 8 calendar days. ▪ Has calculated monthly ATC or AFC values for less than the next 4 months. ▪ 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.	<p>The Transmission Service Provider has an ATCID that does not incorporate changes made more than six months but not more than one year ago.</p> <p>OR</p> <p>The Transmission Service Provider has an ATCID, but it does not include one or two of the information items described in R3.</p>	<p>The Transmission Service Provider has an ATCID that does not incorporate changes made a year or more ago.</p> <p>OR</p> <p>The Transmission Service Provider does not have an ATCID, or its ATCID does not include three or more of the information items described in R3.</p>

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R #	Lower VSL	Moderate VSL	High VSL	Severe VSL
R4.	The Transmission Service Provider notified one or more of the parties specified in R4 of a new or modified ATCID after, but not more than 30 calendar days after, its implementation.	The Transmission Service Provider notified one or more of the parties specified in R4 of a new or modified ATCID more than 30, but not more than 60, calendar days after its implementation.	The Transmission Service Provider notified one or more of the parties specified in R4 of a new or modified ATCID more than 60, but not more than 90, calendar days after its implementation.	The Transmission Service Provider notified one or more of the parties specified in R4 of a new or modified ATCID more than 90 calendar days after its implementation. OR The Transmission Service Provider did not notify one or more of the parties specified in R4 of a new or modified ATCID for more than 90 calendar days after its implementation.
R5.	N/A	N/A	N/A	The Transmission Service Provider did not make the ATCID available to the parties described in R4.
R6.	The Transmission Operator determined TTC or TFC using assumptions more limiting than those used in planning of operations for the studied time period for more than zero ATC Paths or Flowgates, but not more than 5% of all ATC Paths or Flowgates or 1 ATC Path or Flowgate (whichever is greater).	The Transmission Operator determined TTC or TFC using assumptions more limiting than those used in planning of operations for the studied time period for more than 5% of all ATC Paths or Flowgates or 1 ATC Path or Flowgate (whichever is greater), but not more than 10% of all ATC Paths or Flowgates or 2 ATC Paths or Flowgates (whichever is greater).	The Transmission Operator determined TTC or TFC using assumptions more limiting than those used in planning of operations for the studied time period for more than 10% of all ATC Paths or Flowgates or 2 ATC Path or Flowgate (whichever is greater), but not more than 15% of all ATC Paths or Flowgates or 3 ATC Paths or Flowgates (whichever is greater).	The Transmission Operator determined TTC or TFC using assumptions more limiting than those used in planning of operations for the studied time period for more than 15% of all ATC Paths or Flowgates or more than 3 ATC Paths or Flowgates (whichever is greater).
R7	The Transmission Service Provider determined ATC or AFC using assumptions more limiting than those used in planning of operations for the studied time period for more than zero ATC Paths or Flowgates, but not more	The Transmission Service Provider determined ATC or AFC using assumptions more limiting than those used in planning of operations for the studied time period for more than 5% of all ATC Paths or Flowgates or 1 ATC Path	The Transmission Service Provider determined ATC or AFC using assumptions more limiting than those used in planning of operations for the studied time period for more than 10%, of all ATC Paths or Flowgates or 2 ATC	The Transmission Service Provider determined ATC or AFC using assumptions more limiting than those used in planning of operations for the studied time period for more than 15% of all ATC Paths or Flowgates or more

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R #	Lower VSL	Moderate VSL	High VSL	Severe VSL
	than 5% of all ATC Paths or Flowgates or 1 ATC Path or Flowgate (whichever is greater).	or Flowgate (whichever is greater), but not more than 10% of all ATC Paths or Flowgates or 2 ATC Paths or Flowgates (whichever is greater).	Path or Flowgate (whichever is greater), but not more than 15% of all ATC Paths or Flowgates or 3 ATC Paths or Flowgates (whichever is greater).	than 3 ATC Paths or Flowgates (whichever is greater).
R8.	<p>One or more of the following:</p> <ul style="list-style-type: none"> ▪ For Hourly, the values described in the ATC equation changed and the Transmission Service provider did not calculate for one or more hours but not more than 15 hours, and was in excess of the 175-hour per year requirement. ▪ For Daily, the values described in the ATC equation changed and the Transmission Service provider did not calculate for one or more calendar days but not more than 3 calendar days. ▪ For Monthly, the values described in the ATC equation changed and the Transmission Service provider did not calculate for seven or more calendar days, but less than 14 calendar days. 	<p>One or more of the following:</p> <ul style="list-style-type: none"> ▪ For Hourly, the values described in the ATC equation changed and the Transmission Service provider did not calculate for more than 15 hours but not more than 20 hours, and was in excess of the 175-hour per year requirement. ▪ For Daily, the values described in the ATC equation changed and the Transmission Service provider did not calculate for more than 3 calendar days but not more than 4 calendar days. ▪ For Monthly, the values described in the ATC equation changed and the Transmission Service provider did not calculate for 14 or more calendar days, but less than 21 calendar days. 	<p>One or more of the following:</p> <ul style="list-style-type: none"> ▪ For Hourly, the values described in the ATC equation changed and the Transmission Service provider did not calculate for more than 20 hours but not more than 25 hours, and was in excess of the 175-hour per year requirement. <p>For Daily, the values described in the ATC equation changed and the Transmission Service provider did not calculate for more than 4 calendar days but not more than 5 calendar days.</p> <ul style="list-style-type: none"> ▪ For Monthly, the values described in the ATC equation changed and the Transmission Service provider did not calculate for 21 or more calendar days, but less than 28 calendar days. 	<p>One or more of the following:</p> <ul style="list-style-type: none"> ▪ For Hourly, the values described in the ATC equation changed and the Transmission Service provider did not calculate for more than 25 hours, and was in excess of the 175-hour per year requirement. ▪ For Daily, the values described in the ATC equation changed and the Transmission Service provider did not calculate for more than 5 calendar days. ▪ For Monthly, the values described in the ATC equation changed and the Transmission Service provider did not calculate for 28 or more calendar days.

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R #	Lower VSL	Moderate VSL	High VSL	Severe VSL
R9	N/A	<p>The Transmission Service Provider made the requested data items specified in R9 available to the requesting entities specified within the requirement, per the schedule specified in the request, subject to the limitations specified in R9, available more than 30 calendar days but less than 45 calendar days after receiving a request.</p>	<p>The Transmission Service Provider made the requested data items specified in R9 available to the requesting entities specified within the requirement, per the schedule specified in the request, subject to the limitations specified in R9, available 45 calendar days or more but less than 60 calendar days after receiving a request.</p>	<p>The Transmission Service Provider did not make the requested data items specified in R9 available to the requesting entities specified within the requirement, per the schedule specified in the request, subject to the limitations specified in R9, available for 60 calendar days or more after receiving a request.</p>

Version History

Version	Date	Action	Change Tracking
1	8/26/2008	Adopted by the Board of Trustees	
1a	Board approved 11/05/2009	Interpretation of R2 and R8	Interpretation (Project 2009-15)

Appendix 1

Requirement Number and Text of Requirement
<p>MOD-001-01 Requirement R2:</p> <p>R2. Each Transmission Service Provider shall calculate ATC or AFC values as listed below using the methodology or methodologies selected by its Transmission Operator(s):</p> <ul style="list-style-type: none"> R2.1. Hourly values for at least the next 48 hours. R2.2. Daily values for at least the next 31 calendar days. R2.3. Monthly values for at least the next 12 months (months 2-13). <p>MOD-001-01 Requirement R8:</p> <p>R8. Each Transmission Service Provider that calculates ATC shall recalculate ATC at a minimum on the following frequency, unless none of the calculated values identified in the ATC equation have changed:</p> <ul style="list-style-type: none"> R8.1. Hourly values, once per hour. Transmission Service Providers are allowed up to 175 hours per calendar year during which calculations are not required to be performed, despite a change in a calculated value identified in the ATC equation. R8.2. Daily values, once per day. R8.3. Monthly values, once per week.
Question #1
<p>Is the “advisory ATC” used under the NYISO tariff subject to the ATC calculation and recalculation requirements in MOD-001-1 Requirements R2 and R8? If not, is it necessary to document the frequency of “advisory” calculations in the responsible entity’s Available Transfer Capability Implementation Document?</p>
Response to Question #1
<p>Requirements R2 and R8 of MOD-001-1 are both related to Requirement R1, which defines that ATC methodologies are to be applied to specific “ATC Paths.” The NERC definition of ATC Path is “Any combination of Point of Receipt and Point of Delivery for which ATC is calculated; and any Posted Path.” Based on a review of the language included in this request, the NYISO Open Access Transmission Tariff, and other information posted on the NYISO Web site, it appears that the NYISO does indeed have multiple ATC Paths, which are subject to the calculation and recalculation requirements in Requirements R2 and R8. It appears from reviewing this information that ATC is defined in the NYISO tariff in the same manner in which NERC defines it, making it difficult to conclude that NYISO’s “advisory ATC” is not the same as ATC. In addition, it appears that pre-scheduling is permitted on certain external paths, making the calculation of ATC prior to day ahead necessary on those paths.</p> <p>The second part of NYISO’s question is only applicable if the first part was answered in the</p>

negative and therefore will not be addressed.

Requirement Number and Text of Requirement

MOD-029-01 Requirements R5 and R6:

R5. When calculating ETC for firm Existing Transmission Commitments (ETC_F) for a specified period for an ATC Path, the Transmission Service Provider shall use the algorithm below:

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

Where:

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

GF_F is the firm capacity set aside for grandfathered Transmission Service and contracts for energy and/or Transmission Service, where executed prior to the effective date of a Transmission Service Provider’s Open Access Transmission Tariff or “safe harbor tariff.”

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 as specified in the ATCID.

R6. When calculating ETC for non-firm Existing Transmission Commitments (ETC_{NF}) for all time horizons for an ATC Path the Transmission Service Provider shall use the following algorithm:

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

Where:

$NITS_{NF}$ is the non-firm capacity set aside for Network Integration Transmission Service serving Load (i.e., secondary service), to include losses, and load growth not otherwise included in Transmission Reliability Margin or Capacity Benefit Margin.

GF_{NF} is the non-firm capacity set aside for grandfathered Transmission Service and contracts for energy and/or Transmission Service, where executed prior to the

effective date of a Transmission Service Provider's Open Access Transmission Tariff or "safe harbor tariff."

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 transmission service as specified in the ATCID.

Question #2

Could OS_F in MOD-029-1 Requirement R5 and OS_{NF} in MOD-029-1 Requirement R6 be calculated using Transmission Flow Utilization in the determination of ATC?

Response to Question #2

This request for interpretation and the NYISO Open Access Transmission Tariff describe the NYISO's concept of "Transmission Flow Utilization;" however, it is unclear whether or not Native Load, Point-to-Point Transmission Service, Network Integration Transmission Service, or any of the other components explicitly defined in Requirements R5 and R6 are incorporated into "Transmission Flow Utilization." Provided that "Transmission Flow Utilization" does not include Native Load, Point-to-Point Transmission Service, Network Integration Transmission Service, or any of the other components explicitly defined in Requirements R5 and R6, it is appropriate to be included within the "Other Services" term. However, if "Transmission Flow Utilization" does incorporate those components, then simply including "Transmission Flow Utilization" in "Other Service" would be inappropriate.

*** FOR INFORMATIONAL PURPOSES ONLY ***

Enforcement Dates: Standard MOD-001-1a — Available Transmission System Capability

United States

Standard	Requirement	Enforcement Date	Inactive Date
MOD-001-1a	All	04/01/2011	

A. Introduction

1. **Title:** Capacity Benefit Margin
2. **Number:** MOD-004-1
3. **Purpose:** To promote the consistent and reliable calculation, verification, preservation, and use of Capacity Benefit Margin (CBM) to support analysis and system operations.
4. **Applicability:**
 - 4.1. Load-Serving Entities.
 - 4.2. Resource Planners.
 - 4.3. Transmission Service Providers.
 - 4.4. Balancing Authorities.
 - 4.5. Transmission Planners, when their associated Transmission Service Provider has elected to maintain CBM.
5. **Effective Date:** First day of the first calendar quarter that is twelve months beyond the date that this standard is 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 this standard is approved by the NERC Board of Trustees.

B. Requirements

- R1. The Transmission Service Provider that maintains CBM 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, Long-term Planning*]
 - R1.1. The process through which a Load-Serving Entity within a Balancing Authority Area associated with the Transmission Service Provider, or the Resource Planner associated with that Balancing Authority Area, may ensure that its need for Transmission capacity to be set aside as CBM will be reviewed and accommodated by the Transmission Service Provider to the extent Transmission capacity is available.
 - R1.2. The procedure and assumptions for establishing CBM for each Available Transfer Capability (ATC) Path or Flowgate.
 - R1.3. The procedure for a Load-Serving Entity or Balancing Authority to use Transmission capacity set aside as CBM, including the manner in which the Transmission Service Provider will manage situations where the requested use of CBM exceeds the amount of CBM available.
- R2. The Transmission Service Provider that maintains CBM shall make available its current CBMID to the Transmission Operators, Transmission Service Providers, Reliability Coordinators, Transmission Planners, Resource Planners, and Planning Coordinators that are within or adjacent to the Transmission Service Provider’s area, and to the Load Serving Entities and Balancing Authorities within the Transmission Service Provider’s

area, and notify those entities of any changes to the CBMID prior to the effective date of the change. [*Violation Risk Factor: Lower*] [*Time Horizon: Operations Planning*]

- R3.** Each Load-Serving Entity determining the need for Transmission capacity to be set aside as CBM for imports into a Balancing Authority Area shall determine that need by: [*Violation Risk Factor: Lower*] [*Time Horizon: Operations Planning*]

R3.1. Using one or more of the following to determine the GCIR:

- Loss of Load Expectation (LOLE) studies
- Loss of Load Probability (LOLP) studies
- Deterministic risk-analysis studies
- Reserve margin or resource adequacy requirements established by other entities, such as municipalities, state commissions, regional transmission organizations, independent system operators, Regional Reliability Organizations, or regional entities

R3.2. Identifying expected import path(s) or source region(s).

- R4.** Each Resource Planner determining the need for Transmission capacity to be set aside as CBM for imports into a Balancing Authority Area shall determine that need by: [*Violation Risk Factor: Lower*] [*Time Horizon: Operations Planning*]

R4.1. Using one or more of the following to determine the GCIR:

- Loss of Load Expectation (LOLE) studies
- Loss of Load Probability (LOLP) studies
- Deterministic risk-analysis studies
- Reserve margin or resource adequacy requirements established by other entities, such as municipalities, state commissions, regional transmission organizations, independent system operators, Regional Reliability Organizations, or regional entities

R4.2. Identifying expected import path(s) or source region(s).

- R5.** At least every 13 months, the Transmission Service Provider that maintains CBM shall establish a CBM value for each ATC Path or Flowgate to be used for ATC or Available Flowgate Capability (AFC) calculations during the 13 full calendar months (months 2-14) following the current month (the month in which the Transmission Service Provider is establishing the CBM values). This value shall: [*Violation Risk Factor: Lower*] [*Time Horizon: Operations Planning*]

R5.1. Reflect consideration of each of the following if available:

- Any studies (as described in R3.1) performed by Load-Serving Entities for loads within the Transmission Service Provider's area
- Any studies (as described in R4.1) performed by Resource Planners for loads within the Transmission Service Provider's area

- Any reserve margin or resource adequacy requirements for loads within the Transmission Service Provider's area established by other entities, such as municipalities, state commissions, regional transmission organizations, independent system operators, Regional Reliability Organizations, or regional entities
- R5.2.** Be allocated as follows:
- For ATC Paths, based on the expected import paths or source regions provided by Load-Serving Entities or Resource Planners
 - For Flowgates, based on the expected import paths or source regions provided by Load-Serving Entities or Resource Planners and the distribution factors associated with those paths or regions, as determined by the Transmission Service Provider
- R6.** At least every 13 months, the Transmission Planner shall establish a CBM value for each ATC Path or Flowgate to be used in planning during each of the full calendar years two through ten following the current year (the year in which the Transmission Planner is establishing the CBM values). This value shall: [*Violation Risk Factor: Lower*] [*Time Horizon: Long-term Planning*]
- R6.1.** Reflect consideration of each of the following if available:
- Any studies (as described in R3.1) performed by Load-Serving Entities for loads within the Transmission Planner's area
 - Any studies (as described in R4.1) performed by Resource Planners for loads within the Transmission Planner's area
 - Any reserve margin or resource adequacy requirements for loads within the Transmission Planner's area established by other entities, such as municipalities, state commissions, regional transmission organizations, independent system operators, Regional Reliability Organizations, or regional entities
- R6.2.** Be allocated as follows:
- For ATC Paths, based on the expected import paths or source regions provided by Load-Serving Entities or Resource Planners
 - For Flowgates, based on the expected import paths or source regions provided by Load-Serving Entities or Resource Planners and the distribution factors associated with those paths or regions, as determined by the Transmission Planner.
- R7.** Less than 31 calendar days after the establishment of CBM, the Transmission Service Provider that maintains CBM shall notify all the Load-Serving Entities and Resource Planners that determined they had a need for CBM on the Transmission Service Provider's system of the amount of CBM set aside. [*Violation Risk Factor: Lower*] [*Time Horizon: Operations Planning*]
- R8.** Less than 31 calendar days after the establishment of CBM, the Transmission Planner shall notify all the Load-Serving Entities and Resource Planners that determined they

had a need for CBM on the system being planned by the Transmission Planner of the amount of CBM set aside. [*Violation Risk Factor: Lower*] [*Time Horizon: Operations Planning*]

R9. The Transmission Service Provider that maintains CBM and the Transmission Planner shall each provide (subject to confidentiality and security requirements) copies of the applicable supporting data, including any models, used for determining CBM or allocating CBM over each ATC Path or Flowgate to the following: [*Violation Risk Factor: Lower*] [*Time Horizon: Operations Planning, Long-term Planning*]

R9.1. Each of its associated Transmission Operators within 30 calendar days of their making a request for the data.

R9.2. To any Transmission Service Provider, Reliability Coordinator, Transmission Planner, Resource Planner, or Planning Coordinator within 30 calendar days of their making a request for the data.

R10. The Load-Serving Entity or Balancing Authority shall request to import energy over firm Transfer Capability set aside as CBM only when experiencing a declared NERC Energy Emergency Alert (EEA) 2 or higher. [*Violation Risk Factor: Lower*] [*Time Horizon: Same-day Operations*]

R11. When reviewing an Arranged Interchange using CBM, all Balancing Authorities and Transmission Service Providers shall waive, within the bounds of reliable operation, any Real-time timing and ramping requirements. [*Violation Risk Factor: Medium*] [*Time Horizon: Same-day Operations*]

R12. The Transmission Service Provider that maintains CBM shall approve, within the bounds of reliable operation, any Arranged Interchange using CBM that is submitted by an “energy deficient entity¹” under an EEA 2 if: [*Violation Risk Factor: Medium*] [*Time Horizon: Same-day Operations*]

R12.1. The CBM is available

R12.2. The EEA 2 is declared within the Balancing Authority Area of the “energy deficient entity,” and

R12.3. The Load of the “energy deficient entity” is located within the Transmission Service Provider’s area.

C. Measures

M1. Each Transmission Service Provider that maintains CBM shall produce its CBMID evidencing inclusion of all information specified in R1. (R1)

M2. Each Transmission Service Provider that maintains CBM shall have evidence (such as dated logs and data, copies of dated electronic messages, or other equivalent evidence) to show that it made the current CBMID available to the Transmission Operators, Transmission Service Providers, Reliability Coordinators, Transmission Planners, and Planning Coordinators specified in R2, and that prior to any change to the CBMID, it notified those entities of the change. (R2)

¹ See Attachment 1-EOP-002-0 for explanation.

- M3.** Each Load-Serving Entity that determined a need for Transmission capacity to be set aside as CBM shall provide evidence (including studies and/or requirements) that it met the criteria in R3. (R3)
- M4.** Each Resource Planner that determined a need for Transmission capacity to be set aside as CBM shall provide evidence (including studies and/or requirements) that it met the criteria in R4. (R4)
- M5.** Each Transmission Service Provider that maintains CBM shall provide evidence (such as studies, requirements, and dated CBM values) that it established 13 months of CBM values consistent with the requirements in R5.1 and allocated the values consistent with the requirements in R5.2. (Note that CBM values may legitimately be zero.) (R5)
- M6.** Each Transmission Planner with an associated Transmission Service Provider that maintains CBM shall provide evidence (such as studies, requirements, and dated CBM values) that it established CBM values for years two through ten consistent with the requirements in R6.1 and allocated the values consistent with the requirements in R6.2. Inclusion of GCIR based on R6.1 and R6.2 within the transmission base case meets this requirement. (Note that CBM values may legitimately be zero.) (R6)
- M7.** Each Transmission Service Provider that maintains CBM shall provide evidence (such as dated e-mail, data, or other records) that it notified the entities described in R7 of the amount of CBM set aside. (R7)
- M8.** Each Transmission Planner with an associated Transmission Service Provider that maintains CBM shall provide evidence (such as e-mail, data, or other records) that it notified the entities described in R8 of the amount of CBM set aside. (R8)
- M9.** Each Transmission Service Provider that maintains CBM and each Transmission Planner shall 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 R9. (R9)
- M10.** Each Load-Serving Entity and Balancing Authority shall provide evidence (such as logs, copies of tag data, or other data from its Reliability Coordinator) that at the time it requested to import energy using firm Transfer Capability set aside as CBM, it was in an EEA 2 or higher. (R10)
- M11.** Each Balancing Authority and Transmission Service Provider shall provide evidence (such as operating logs and tag data) that it waived Real-time timing and ramping requirements when approving an Arranged Interchange using CBM (R11)
- M12.** Each Transmission Service Provider that maintains CBM 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 Arranged Interchange meeting the criteria in R12. (R12)

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 that maintains CBM shall maintain its current, in force CBMID and any prior versions of the CBMID that were in force during the past three calendar years plus the current year to show compliance with R1.
- The Transmission Service Provider that maintains CBM shall maintain evidence to show compliance with R2, R5, R7, R9, and R12 for the most recent three calendar years plus the current year.
- The Load-Serving Entity shall each maintain evidence to show compliance with R3 and R10 for the most recent three calendar years plus the current year.
- The Resource Planner shall each maintain evidence to show compliance with R4 for the most recent three calendar years plus the current year.
- The Transmission Planner shall maintain evidence to show compliance with R6, R8, and R9 for the most recent three calendar years plus the current year.
- The Balancing Authority shall maintain evidence to show compliance with R10 and R11 for the most recent three calendar years plus the current year.
- The Transmission Service Provider shall maintain evidence to show compliance with R11 for the most recent three calendar years plus the current year.
- 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 subsequently submitted 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.

Violation Severity Levels

R #	Lower VSL	Moderate VSL	High VSL	Severe VSL
R1.	<p>The Transmission Service Provider that maintains CBM has a CBMID that does not incorporate changes that have been made within the last three months.</p>	<p>The Transmission Service Provider that maintains CBM has a CBMID that does not incorporate changes that have been made more than three, but not more than six, months ago.</p> <p style="text-align: center;">OR</p> <p>The CBM maintaining Transmission Service Provider’s CBMID does not address one of the sub requirements.</p>	<p>The Transmission Service Provider that maintains CBM has a CBMID that does not incorporate changes that have been made more than six, but not more than twelve, months ago.</p> <p style="text-align: center;">OR</p> <p>The CBM maintaining Transmission Service Provider’s CBMID does not address two of the sub requirements.</p>	<p>The Transmission Service Provider that maintains CBM has a CBMID that does not incorporate changes that have been made more than twelve months ago.</p> <p style="text-align: center;">OR</p> <p>The Transmission Service Provider that maintains CBM does not have a CBMID;</p> <p style="text-align: center;">OR</p> <p>The CBM maintaining Transmission Service Provider’s CBMID does not address three of the sub requirements.</p>
R2.	<p>The Transmission Service Provider that maintains CBM notifies one or more of the entities specified in R2 of a change in the CBM ID after the effective date of the change, but not more than 30 calendar days after the effective date of the change.</p>	<p>The Transmission Service Provider that maintains CBM notifies one or more of the entities specified in R2 of a change in the CBM ID 30 or more calendar days but not more than 60 calendar days after the effective date of the change.</p>	<p>The Transmission Service Provider that maintains CBM notifies one or more of the entities specified in R2 of a change in the CBM ID 60 or more calendar days but not more than 90 calendar days after the effective date of the change.</p> <p style="text-align: center;">OR</p> <p>The Transmission Service Provider that maintains CBM made available the CBMID to at least one, but not all, of the entities specified in R2.</p>	<p>The Transmission Service Provider that maintains CBM notifies one or more of the entities specified in R2 of a change in the CBM ID more than 90 calendar days after the effective date of the change.</p> <p style="text-align: center;">OR</p> <p>The Transmission Service Provider that maintains CBM made available the CBMID to none of the entities specified in R2.</p>

Standard MOD-004-1 — Capacity Benefit Margin

R #	Lower VSL	Moderate VSL	High VSL	Severe VSL
R3.		<p>The Load-Serving Entity did not use one of the methods described in R3.1</p> <p style="text-align: center;">OR</p> <p>The Load-Serving Entity did not identify paths or regions as described in R3.2</p>		<p>The Load-Serving Entity did not use one of the methods described in R3.1</p> <p style="text-align: center;">AND</p> <p>The Load-Serving Entity did not identify paths or regions as described in R3.2</p>
R4		<p>The Resource Planner did not use one of the methods described in R4.1</p> <p style="text-align: center;">OR</p> <p>The Resource Planner did not identify paths or regions as described in R4.2</p>		<p>The Resource Planner did not use one of the methods described in R4.1</p> <p style="text-align: center;">AND</p> <p>The Resource Planner did not identify paths or regions as described in R4.2</p>
R5.	<p>The Transmission Service Provider that maintains CBM established CBM more than 13 months, but not more than 16 months, after the last time the values were established.</p>	<p>The Transmission Service Provider that maintains CBM established CBM more than 16 months, but not more than 19 months, after the last time the values were established.</p> <p style="text-align: center;">OR</p> <p>The Transmission Service Provider that maintains CBM did not consider one or more of the items described in R5.1 that was available.</p> <p style="text-align: center;">OR</p> <p>The Transmission Service Provider that maintains CBM did not base the allocation on one or more paths or regions as</p>	<p>The Transmission Service Provider that maintains CBM established CBM more than 19 months, but not more than 22 months, after the last time the values were established.</p>	<p>The Transmission Service Provider that maintains CBM established CBM more than 22 months after the last time the values were established.</p> <p style="text-align: center;">OR</p> <p>The Transmission Service Provider that maintains CBM failed to establish an initial value for CBM.</p> <p style="text-align: center;">OR</p> <p>The Transmission Service Provider that maintains CBM did not consider one or more of the items described in R5.1 that was available, and did not base the allocation on one or more</p>

Standard MOD-004-1 — Capacity Benefit Margin

R #	Lower VSL	Moderate VSL	High VSL	Severe VSL
		described in R5.2.		paths or regions as described in R5.2
R6.	<p>The Transmission Planner with an associated Transmission Service Provider that maintains CBM established CBM for each of the years 2 through 10 more than 13 months, but not more than 16 months, after the last time the values were established.</p>	<p>The Transmission Planner with an associated Transmission Service Provider that maintains CBM established CBM for each of the years 2 through 10 more than 16 months, but not more than 19 months, after the last time the values were established.</p> <p style="text-align: center;">OR</p> <p>The Transmission Planner with an associated Transmission Service Provider that maintains CBM did not consider one or more of the items described in R6.1 that was available.</p> <p style="text-align: center;">OR</p> <p>The Transmission Planner with an associated Transmission Service Provider that maintains CBM did not base the allocation</p>	<p>The Transmission Planner with an associated Transmission Service Provider that maintains CBM established CBM for each of the years 2 through 10 more than 19 months, but not more than 22 months, after the last time the values were established.</p>	<p>The Transmission Planner with an associated Transmission Service Provider that maintains CBM established CBM for each of the years 2 through 10 more than 22 months after the last time the values were established.</p> <p style="text-align: center;">OR</p> <p>The Transmission Planner with an associated Transmission Service Provider that maintains CBM failed to establish an initial value for CBM for each of the years 2 through 10.</p> <p style="text-align: center;">OR</p> <p>The Transmission Planner with an associated Transmission Service Provider that maintains CBM did not consider one or more of the items described in</p>

Standard MOD-004-1 — Capacity Benefit Margin

R #	Lower VSL	Moderate VSL	High VSL	Severe VSL
		on one or more paths or regions as described in R6.2		R6.1 that was available, and did not base the allocation on one or more paths or regions as described in R6.2
R7.	The Transmission Service Provider that maintains CBM notified all the entities as required, but did so in 31 or more days, but less than 45 days.	The Transmission Service Provider that maintains CBM notified all the entities as required, but did so in 45 or more days, but less than 60 days.	The Transmission Service Provider that maintains CBM notified all the entities as required, but did so in 60 or more days, but less than 75 days. OR The Transmission Service Provider that maintains CBM notified at least one, but not all, of the entities as required.	The Transmission Service Provider that maintains CBM notified all the entities as required, but did so in 75 or more days, OR The Transmission Service Provider that maintains CBM notified none of the entities as required.
R8.	The Transmission Planner with an associated Transmission Service Provider that maintains CBM notified all the entities as required, but did so in 31 or more days, but less than 45 days.	The Transmission Planner with an associated Transmission Service Provider that maintains CBM notified all the entities as required, but did so in 45 or more days, but less than 60 days.	The Transmission Planner with an associated Transmission Service Provider that maintains CBM notified all the entities as required, but did so in 60 or more days, but less than 75 days. OR The Transmission Planner with	The Transmission Planner with an associated Transmission Service Provider that maintains CBM notified all the entities as required, but did so in 75 or more days, OR The Transmission Planner with an associated Transmission

Standard MOD-004-1 — Capacity Benefit Margin

R #	Lower VSL	Moderate VSL	High VSL	Severe VSL
			an associated Transmission Service Provider that maintains CBM notified at least one, but not all, of the entities as required.	Service Provider that maintains CBM notified none of the entities as required.
R9.	The Transmission Service Provider or Transmission Planner provided a requester specified in R9 with the supporting data, including models, used to allocate CBM more than 30, but not more than 45, days after the submission of the request.	The Transmission Service Provider or Transmission Planner provided a requester specified in R9 with the supporting data, including models, used to allocate CBM more than 45, but not more than 60, days after the submission of the request.	The Transmission Service Provider or Transmission Planner provided a requester specified in R9 with the supporting data, including models, used to allocate CBM more than 60, but not more than 75, days after the submission of the request. OR The Transmission Service Provider or Transmission Planner provided at least one, but not all, of the requesters specified in R9 with the supporting data, including models, used to allocate CBM.	The Transmission Service Provider or Transmission Planner provided a requester specified in R9 with the supporting data, including models, used to allocate CBM more than 75 days after the submission of the request. OR The Transmission Service Provider or Transmission Planner provided none of the requesters specified in R9 with the supporting data, including models, used to allocate CBM.
R10.	N/A	N/A	N/A	A Load-Serving Entity or Balancing Authority requested to schedule energy over CBM while not in an EEA 2 or higher.
R11.	N/A	N/A	N/A	A Balancing Authority or Transmission Service Provider denied an Arranged Interchange using CBM based on timing or ramping requirements without a reliability reason to do so.

Standard MOD-004-1 — Capacity Benefit Margin

R #	Lower VSL	Moderate VSL	High VSL	Severe VSL
R12.	N/A	N/A	N/A	The Transmission Service Provider failed to approve an Arranged Interchange for CBM that met the criteria described in R12 without a reliability reason to do so.

*** FOR INFORMATIONAL PURPOSES ONLY ***

Enforcement Dates: Standard MOD-004-1 — Capacity Benefit Margin

United States

Standard	Requirement	Enforcement Date	Inactive Date
MOD-004-1	All	04/01/2011	

A. Introduction

1. **Title:** **Transmission Reliability Margin Calculation Methodology**
2. **Number:** **MOD-008-1**
3. **Purpose:** To promote the consistent and reliable calculation, verification, preservation, and use of Transmission Reliability Margin (TRM) to support analysis and system operations.
4. **Applicability:**
 - 4.1. Transmission Operators that maintain TRM.
5. **Proposed Effective Date:** First day of the first calendar quarter that is twelve months beyond the date this standard is 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 this standard 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 ATC Paths or Flowgates) each of the following components of uncertainty if used in establishing TRM, and a description of how that component is used to establish a TRM value:
 - Aggregate Load forecast.
 - Load distribution uncertainty.
 - Forecast uncertainty in Transmission system topology (including, but not limited to, forced or unplanned outages and maintenance outages).
 - Allowances for parallel path (loop flow) impacts.
 - Allowances for simultaneous path interactions.
 - Variations in generation dispatch (including, but not limited to, forced or unplanned outages, maintenance outages and location of future generation).
 - Short-term System Operator response (Operating Reserve actions).
 - Reserve sharing requirements.
 - Inertial response and frequency bias.
 - R1.2. The description of the method used to allocate TRM across ATC Paths or Flowgates.
 - R1.3. The identification of the TRM calculation used for the following time periods:
 - R1.3.1. Same day and real-time.
 - R1.3.2. Day-ahead and pre-schedule.
 - R1.3.3. Beyond day-ahead and pre-schedule, up to thirteen months ahead.

- R2.** Each Transmission Operator shall only use the components of uncertainty from R1.1 to establish TRM, and shall not include any of the components of Capacity Benefit Margin (CBM). Transmission capacity set aside for reserve sharing agreements can be included in TRM. [*Violation Risk Factor: Lower*] [*Time Horizon: Operations Planning*]
- R3.** Each Transmission Operator shall make available its TRMID, and if requested, underlying documentation (if any) used to determine TRM, in the format used by the Transmission Operator, to any of the following who make a written request no more than 30 calendar days after receiving the request. [*Violation Risk Factor: Lower*] [*Time Horizon: Operations Planning*]
- Transmission Service Providers
 - Reliability Coordinators
 - Planning Coordinators
 - Transmission Planner
 - Transmission Operators
- R4.** Each Transmission Operator that maintains TRM shall establish TRM values in accordance with the TRMID at least once every 13 months. [*Violation Risk Factor: Lower*] [*Time Horizon: Operations Planning*]
- R5.** The Transmission Operator that maintains TRM shall provide the TRM values to its Transmission Service Provider(s) and Transmission Planner(s) no more than seven calendar days after a TRM value is initially established or subsequently changed. [*Violation Risk Factor: Lower*] [*Time Horizon: Operations Planning*]

C. Measures

- M1.** Each Transmission Operator shall produce its TRMID evidencing inclusion of all specified information in R1. (R1)
- M2.** Each Transmission Operator shall provide evidence including its TRMID, TRM values, CBM values, or other evidence, (such as written documentation, study reports, documentation of its CBM process, 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.** Each Transmission Operator shall provide a dated copy of any request from an entity described in R3. The Transmission Operator shall also provide evidence (such as copies of emails or postal receipts that show the recipient, date and contents) that the requested documentation (such as work papers and load flow cases) was made available within the specified timeframe to the requestor. (R3)
- M4.** Each Transmission Operator shall provide evidence (such as logs, study report, review notes, or data) that it established TRM values at least once every thirteen months for each of the TRM time periods. (R4)
- M5.** Each Transmission Operator shall provide evidence (such as logs, email, website postings) that it provided their Transmission Service Provider(s) and Transmission Planner(s) with the updated TRM value 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 keep data or evidence to show compliance as identified below unless directed by its Compliance Enforcement Authority to retain specific evidence for a longer period of time as part of an investigation:

- 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 Operator 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 VSL	High VSL	Severe VSL
R1.	The Transmission Operator has a TRMID that does not incorporate changes made up to three months ago.	<p>The Transmission Operator has a TRMID that does not incorporate changes that have been made three or more months ago but less than six months ago.</p> <p style="text-align: center;">OR</p> <p>The Transmission Operator's TRMID does not address one of the following:</p> <ul style="list-style-type: none"> ▪ R1.1 ▪ R1.2 ▪ Any one or more of the following: <ul style="list-style-type: none"> ○ R1.3.1, R1.3.2 or R1.3.3 	<p>The Transmission Operator has a TRMID that does not incorporate changes that have been made six or more months ago but less than one year ago.</p> <p style="text-align: center;">OR</p> <p>The Transmission Operator's TRMID does not address two of the following:</p> <ul style="list-style-type: none"> ▪ R1.1 ▪ R1.2 ▪ Any one or more of the following: <ul style="list-style-type: none"> ○ R1.3.1, R1.3.2 or R1.3.3 	<p>The Transmission Operator has a TRMID that does not incorporate changes that have been made one year ago or more.</p> <p style="text-align: center;">OR</p> <p>The Transmission Operator does not have a TRMID.</p> <p style="text-align: center;">OR</p> <p>The Transmission Operator's TRMID does not address three of the following:</p> <ul style="list-style-type: none"> ▪ R1.1 ▪ R1.2 ▪ Any one or more of the following: <ul style="list-style-type: none"> ○ R1.3.1, R1.3.2 or R1.3.3
R2.	N/A	N/A	N/A	<p>One or both of the following:</p> <ul style="list-style-type: none"> ▪ The Transmission Operator included elements of uncertainty not defined in R1 in their establishment of TRM. ▪ The Transmission Operator included components of CBM in TRM.
R3.	The Transmission Operator made the TRMID available to a requesting entity specified in R3 but provided TRMID in more than 30 days but less than 45 days.	The Transmission Operator made the TRMID available to a requesting entity specified in R3 but provided TRMID in 45 days or more but less than 60 days.	The Transmission Operator made the TRMID available to a requesting entity specified in R3 but provided TRMID in 60 days or more but less than 90 days.	The Transmission Operator did not make the TRMID available for 90 days or more.

Standard MOD-008-1 — TRM Calculation Methodology

<p>R4</p>	<p>The Transmission Operator established TRM values on schedule BUT the values were incomplete or incorrect. Not more than 5% or 1 value (whichever is greater) were incorrect or missing.</p>	<p>The Transmission Operator did not establish TRM within thirteen months of the previous determination, and the last determination was not more than 15 months ago</p> <p>OR</p> <p>The Transmission Operator established TRM values on schedule BUT the values were incomplete. More than 5%, or 1 value (which ever is greater) were incorrect or missing, but not more than 10% or 2 values (whichever is greater).</p>	<p>The Transmission Operator did not establish TRM within 15 months of the previous determination, and the last determination was not more than 18 months ago.</p> <p>OR</p> <p>The Transmission Operator established TRM values on schedule BUT the values were incomplete or incorrect. More than 10% or 2 values (which ever is greater) were incorrect or missing, but not more than 15% or 3 values.</p>	<p>The Transmission Operator did not establish TRM</p> <p>OR</p> <p>The last determination of TRM was more than 18 months ago.</p> <p>OR</p> <p>The Transmission Operator established TRM values on schedule BUT the values were incomplete or incorrect. More than 15% or 3 values (which ever is greater) were incorrect or missing.</p>
<p>R5</p>	<p>The Transmission Operator did provide the TRM values to all entities specified in more than 7 days but less than 14 days.</p> <p>OR</p> <p>The Transmission Operator did provide TRM values on schedule BUT the values were incomplete or did not match those determined in R4. Not more than 5% or 1 value (which ever is greater) were incorrect or missing.</p>	<p>The Transmission Operator did provide the TRM values to all entities specified in 14 days or more, but less than 30 days.</p> <p>OR</p> <p>The Transmission Operator did provide TRM values on schedule BUT the values were incomplete or did not match those determined in R4. More than 5% or 1 value (which ever is greater) were incorrect or missing, but not more than 10% or 2 values (whichever is greater).</p>	<p>The Transmission Operator did provide the TRM values to all entities specified in 30 days or more, but less than 60 days.</p> <p>OR</p> <p>The Transmission Operator did provide TRM values on schedule BUT the values were incomplete or did not match those determined in R4. More than 10% or 2 values (which ever is greater) were incorrect or missing, but not more than 15% or 3 values.</p>	<p>The Transmission Operator did not provide the TRM values to all entities specified within 60 days of the change.</p> <p>OR</p> <p>The Transmission Operator did provide TRM values on schedule BUT the values were incomplete or did not match those determined in R4. More than 15% or 3 values (which ever is greater) were incorrect or missing.</p>

*** FOR INFORMATIONAL PURPOSES ONLY ***

Enforcement Dates: Standard MOD-008-1 — Transmission Reliability Margin Calculation Methodology

United States

Standard	Requirement	Enforcement Date	Inactive Date
MOD-008-1	All	04/01/2011	

A. Introduction

1. **Title: Area Interchange Methodology**
2. **Number: MOD-028-2**
3. **Purpose:** To increase consistency and reliability in the development and documentation of Transfer Capability calculations for short-term use performed by entities using the Area Interchange Methodology to support analysis and system operations.
4. **Applicability:**
 - 4.1. Each Transmission Operator that uses the Area Interchange Methodology to calculate Total Transfer Capabilities (TTCs) for ATC Paths.
 - 4.2. Each Transmission Service Provider that uses the Area Interchange Methodology to calculate Available Transfer Capabilities (ATCs) for ATC Paths.
5. **Proposed Effective Date:** In those jurisdictions where regulatory approval is required, this standard shall become effective on the first day of the first calendar quarter after applicable regulatory approval. In those jurisdictions where no regulatory approval is required, this standard shall become effective on the first day of the first calendar quarter after Board of Trustees approval.

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 Total Transfer Capability (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 can 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.
 - R1.5. The following information on how source and sink for transmission service is accounted for in ATC calculations including:
 - R1.5.1. Define if the source used for Available Transfer Capability (ATC) calculations is obtained from the source field or the Point of Receipt (POR) field of the transmission reservation
 - R1.5.2. Define if the sink used for ATC calculations is obtained from the sink field or the Point of Delivery (POD) field of the transmission reservation

- R1.5.3.** The source/sink or POR/POD identification and mapping to the model.
- R1.5.4.** If the Transmission Service Provider's ATC calculation process involves a grouping of generation, the ATCID must identify how these generators participate in the group.
- R2.** When calculating TTC for ATC Paths, the Transmission Operator shall use a Transmission model that contains all of the following: *[Violation Risk Factor: Lower]* *[Time Horizon: Operations Planning]*
 - R2.1.** Modeling data and topology of its Reliability Coordinator's area of responsibility. Equivalent representation of radial lines and facilities 161 kV or below is allowed.
 - 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 ATC Paths, the Transmission Operator shall include the following data for the Transmission Service Provider's area. The Transmission Operator shall also include the following data associated with Facilities that are explicitly represented in the Transmission model, as provided by adjacent Transmission Service Providers and any other Transmission Service Providers with which coordination agreements have been executed: *[Violation Risk Factor: Lower]* *[Time Horizon: Operations Planning]*
 - R3.1.** For TTCs, use the following (as well as any other values and additional parameters as specified in the ATCID):
 - R3.1.1.** Expected generation and Transmission outages, additions, and retirements, included as specified in the ATCID.
 - R3.1.2.** A daily or hourly load forecast for TTCs used in current-day and next-day ATC calculations.
 - R3.1.3.** A daily load forecast for TTCs used in ATC calculations for days two through 31.
 - R3.1.4.** A monthly load forecast for TTCs used in ATC calculations for months two through 13 months TTCs.
 - R3.1.5.** 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 ATC Paths, the Transmission Operator shall meet all of the following conditions: *[Violation Risk Factor: Lower]* *[Time Horizon: Operations Planning]*
 - R4.1.** Use all Contingencies meeting the criteria described in the ATCID.
 - R4.2.** Respect any contractual allocations of TTC.

- R4.3.** Include, for each time period, the Firm Transmission Service expected to be scheduled as specified in the ATCID (filtered to reduce or eliminate duplicate impacts from transactions using Transmission service from multiple Transmission Service Providers) for the Transmission Service Provider, 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, as specified in the ATCID, has been identified 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, as specified in the ATCID, has been identified in the reservation and the point can be mapped to an “equivalence” or “aggregate representation” in the Transmission Service Provider’s Transmission model, use the modeled equivalence or aggregate as the source.
 - If the source, as specified in the ATCID, has been identified in the reservation and the point cannot be mapped to a discretely modeled point, an “equivalence,” or an “aggregate representation” in the Transmission Service Provider’s Transmission model, use the immediately adjacent Balancing Authority associated with the Transmission Service Provider from which the power is to be received as the source.
 - If the source, as specified in the ATCID, has not been identified in the reservation, use the immediately adjacent Balancing Authority associated with the Transmission Service Provider from which the power is to be received as the source.
 - If the sink, as specified in the ATCID, has been identified 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, as specified in the ATCID, has been identified in the reservation and the point can be mapped to an “equivalence” or “aggregate representation” in the Transmission Service Provider’s Transmission model, use the modeled equivalence or aggregate as the sink.
 - If the sink, as specified in the ATCID, has been identified in the reservation and the point can not be mapped to a discretely modeled point, an “equivalence,” or an “aggregate representation” in the Transmission Service Provider’s Transmission model, use the immediately adjacent Balancing Authority associated with the Transmission Service Provider to which the power is to be delivered as the sink.
 - If the sink, as specified in the ATCID, has not been identified in the reservation, use the immediately adjacent Balancing Authority associated with the Transmission Service Provider to which the power is being delivered as the sink.

- R5.** Each Transmission Operator shall establish TTC for each ATC Path as defined below:
[Violation Risk Factor: Lower] [Time Horizon: Operations Planning]
- R5.1.** At least once within the seven calendar days prior to the specified period for TTCs used in hourly and daily ATC calculations.
- R5.2.** At least once per calendar month for TTCs used in monthly ATC calculations.
- R5.3.** Within 24 hours of the unexpected outage of a 500 kV or higher transmission Facility or a transformer with a low-side voltage of 200 kV or higher for TTCs in effect during the anticipated duration of the outage, provided such outage is expected to last 24 hours or longer.
- R6.** Each Transmission Operator shall establish TTC for each ATC Path using the following process: *[Violation Risk Factor: Lower] [Time Horizon: Operations Planning]*
- R6.1.** Determine the incremental Transfer Capability for each ATC 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 5% or greater¹.
- R6.2.** If the limit in step R6.1 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.
- R6.3.** Use (as the TTC) the lesser of:
- The sum of the incremental Transfer Capability and the impacts of Firm Transmission Services, as specified in the Transmission Service Provider’s ATCID, that were included in the study model, or
 - The sum of Facility Ratings of all ties comprising the ATC Path.
- R6.4.** For ATC Paths whose capacity uses jointly-owned or allocated Facilities, limit TTC for each Transmission Service Provider so the TTC does not exceed each Transmission Service Provider’s contractual rights.
- R7.** The Transmission Operator shall provide the Transmission Service Provider of that ATC Path with the most current value for TTC for that ATC Path no more than:
[Violation Risk Factor: Lower] [Time Horizon: Operations Planning]
- R7.1.** One calendar day after its determination for TTCs used in hourly and daily ATC calculations.
- R7.2.** Seven calendar days after its determination for TTCs used in monthly ATC calculations.

¹ The Transmission operator may honor distribution factors less than 5% if desired.

- R8.** When calculating Existing Transmission Commitments (ETCs) for firm commitments (ETC_F) for all time periods for an ATC Path the Transmission Service Provider shall use the following algorithm: [*Violation Risk Factor: Lower*] [*Time Horizon: Operations Planning*]

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

Where:

- $NITS_F$** is the firm capacity set aside for Network Integration Transmission Service (including the capacity used to serve bundled load within the Transmission Service Provider's area with external sources) on ATC Paths that serve as interfaces with other Balancing Authorities.
- GF_F** is the firm capacity set aside for Grandfathered Firm Transmission Service and contracts for energy and/or Transmission Service, where executed prior to the effective date of a Transmission Service Provider's Open Access Transmission Tariff or safe harbor tariff on ATC Paths that serve as interfaces with other Balancing Authorities.
- 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 firm 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 from other ATC Paths of the Transmission Service Provider as specified in the ATCID.
- R9.** When calculating ETC for non-firm commitments (ETC_{NF}) for all time periods for an ATC 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 set aside for Network Integration Transmission Service (i.e., secondary service, including the capacity used to serve bundled load within the Transmission Service Provider's area with external sources) reserved on ATC Paths that serve as interfaces with other Balancing Authorities.
- GF_{NF}** is the non-firm capacity reserved for Grandfathered Non-Firm Transmission Service and contracts for energy and/or Transmission Service, where executed prior to the effective date of a Transmission Service Provider's Open Access Transmission Tariff or safe harbor tariff on ATC Paths that serve as interfaces with other Balancing Authorities.

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 Transmission Service, including any other firm adjustments to reflect impacts from other ATC Paths of the Transmission Service Provider as specified in the ATCID.

- R10.** When calculating firm ATC for an ATC Path for a specified period, the Transmission Service Provider shall utilize the following algorithm: [*Violation Risk Factor: Lower*] [*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 ATC Path for that period.

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

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

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

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

Postbacks_F are changes to firm ATC due to a change in the use of Transmission Service for that period, as defined in Business Practices.

counterflows_F are adjustments to firm ATC as determined by the Transmission Service Provider and specified in the ATCID.

- R11.** When calculating non-firm ATC for a ATC Path for a specified period, the Transmission Service Provider shall use the following algorithm: [*Violation Risk Factor: Lower*] [*Time Horizon: Operations Planning*]

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

Where:

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

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

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

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

CBM_S is the Capacity Benefit Margin for the ATC Path that has been scheduled without a separate reservation during that period.

TRM_U is the Transmission Reliability Margin for the ATC Path that has not been released for sale (unreleased) as non-firm capacity by the Transmission Service Provider during that period.

Postbacks_{NF} are changes to non-firm ATC due to a change in the use of Transmission Service for that period, as defined in Business Practices.

counterflows_{NF} are adjustments to non-firm ATC as determined by the Transmission Service Provider and specified in the 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.** Each 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.** Each 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 as specified in the ATCID. (R3)
- M4.** Each Transmission Operator shall provide the contingencies used in determining TTC and the ATCID as evidence to show that the contingencies described in the ATCID were included in the determination of TTC. (R4)
- M5.** Each Transmission Operator shall provide copies of contracts that contain requirements to allocate TTCs and TTC values to show that any contractual allocations of TTC were respected as required in R4.2. (R4)
- M6.** Each Transmission Operator shall provide evidence (such as copies of coordination agreements, reservations, interchange transactions, or other documentation) to show that firm reservations were used to estimate scheduled interchange, the modeling of scheduled interchange was based on the rules described in R4.3, and that estimated scheduled interchange was included in the determination of TTC. (R4)
- M7.** Each Transmission Operator shall provide evidence (such as logs and data and dated copies of requests from the Transmission Service Provider to establish TTCs at specific intervals) that TTCs have been established at least once in the calendar week prior to the specified period for TTCs used in hourly and daily ATC calculations, at least once per calendar month for TTCs used in monthly ATC calculations, and within 24 hours of the unexpected outage of a 500 kV or higher transmission Facility or a autotransformer with a low-side voltage of 200 kV or higher for TTCs in effect during the anticipated duration of the outage; provided such outage is expected to last 24 hours or longer in duration per the specifications in R5.(R5)
- M8.** Each Transmission Operator shall provide evidence (such as written documentation) that TTCs have been calculated using the process described in R6. (R6)
- M9.** Each 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 it provided its Transmission Service Provider with the most current values for TTC in accordance with R7. (R7)

- M10.** The Transmission Service Provider shall demonstrate compliance with R8 by recalculating firm ETC for any specific time period as described in (MOD-001 R2), using the algorithm defined in R8 and with data used to calculate the specified value for the designated time period. The data used must meet the requirements specified in MOD-028-2 and the ATCID. To account for differences that may occur when recalculating the value (due to mixing automated and manual processes), any recalculated value that is within +/- 15% or 15 MW, whichever is greater, of the originally calculated value, is evidence that the Transmission Service Provider used the algorithm in R8 to calculate its firm ETC. (R8)
- M11.** The Transmission Service Provider shall demonstrate compliance with R9 by recalculating non-firm ETC for any specific time period as described in (MOD-001 R2), using the algorithm defined in R9 and with data used to calculate the specified value for the designated time period. The data used must meet the requirements specified in MOD-028-2 and the ATCID. To account for differences that may occur when recalculating the value (due to mixing automated and manual processes), any recalculated value that is within +/- 15% or 15 MW, whichever is greater, of the originally calculated value, is evidence that the Transmission Service Provider used the algorithm in R8 to calculate its non-firm ETC. (R9)
- M12.** Each Transmission Service Provider shall produce the supporting documentation for the processes used to implement the algorithm that calculates firm ATCs, as required in R10. Such documentation must show that only the variables allowed in R10 were used to calculate firm ATCs, and that the processes use the current values for the variables as determined in the requirements or definitions. Note that any variable may legitimately be zero if the value is not applicable or calculated to be zero (such as counterflows, TRM, CBM, etc...). The supporting documentation may be provided in the same form and format as stored by the Transmission Service Provider. (R10)
- M13.** Each Transmission Service Provider shall produce the supporting documentation for the processes used to implement the algorithm that calculates non-firm ATCs, as required in R11. Such documentation must show that only the variables allowed in R11 were used to calculate non-firm ATCs, and that the processes use the current values for the variables as determined in the requirements or definitions. Note that any variable may legitimately be zero if the value is not applicable or calculated to be zero (such as counterflows, TRM, CBM, etc...). The supporting documentation may be provided in the same form and format as stored by the Transmission Service Provider. (R11)

D. Compliance

1. Compliance Monitoring Process

1.1. Compliance Enforcement Authority

For entities that do not work for the Regional Entity, the Regional Entity shall serve as the Compliance Enforcement Authority.

For functional entities that work for their Regional Entity, the ERO or a Regional Entity approved by the ERO and FERC or other applicable governmental authorities shall serve as the Compliance Enforcement Authority.

1.2. Data Retention

The following evidence retention periods identify the period of time an entity is required to retain specific evidence to demonstrate compliance. For instances where the evidence retention period specified below is shorter than the time since the last audit, the Compliance Enforcement Authority may ask an entity to provide other evidence to show that it was compliant for the full time period since the last audit.

The Transmission Operator and Transmission Service Provider shall keep data or evidence to show compliance as identified below unless directed by its Compliance Enforcement Authority to retain specific evidence for a longer period of time as part of an investigation:

- 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 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 R4, R5, R6 and R7 for the most recent 12 months.
- The Transmission Service Provider shall retain evidence to show compliance in calculating hourly values required in R8 and R9 for the most recent 14 days; evidence to show compliance in calculating daily values required in R8 and R9 for the most recent 30 days; and evidence to show compliance in calculating monthly values required in R8 and R9 for the most recent 60 days.
- The Transmission Service Provider shall retain evidence to show compliance with R10 and R11 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.

1.3. Compliance Monitoring and Enforcement Processes:

The following processes may be used:

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

1.4. Additional Compliance Information

None.

2. Violation Severity Levels

R #	Lower VSL	Moderate VSL	High VSL	Severe VSL
R1.	<p>The Transmission Service Provider has an ATCID but it is missing one of the following:</p> <ul style="list-style-type: none"> ▪ R1.1 ▪ R1.2 ▪ R1.3 ▪ R1.4 ▪ R1.5 (any one or more of its sub-subrequirements) 	<p>The Transmission Service Provider has an ATCID but it is missing two of the following:</p> <ul style="list-style-type: none"> ▪ R1.1 ▪ R1.2 ▪ R1.3 ▪ R1.4 ▪ R1.5 (any one or more of its sub-subrequirements) 	<p>The Transmission Service Provider has an ATCID but it is missing three of the following:</p> <ul style="list-style-type: none"> ▪ R1.1 ▪ R1.2 ▪ R1.3 ▪ R1.4 ▪ R1.5 (any one or more of its sub-subrequirements) 	<p>The Transmission Service Provider has an ATCID but it is missing more than three of the following:</p> <ul style="list-style-type: none"> ▪ R1.1 ▪ R1.2 ▪ R1.3 ▪ R1.4 ▪ R1.5 (any one or more of its sub-subrequirements)
R2.	<p>The Transmission Operator used one to ten Facility Ratings that were different from those specified by a Transmission or Generator Owner in their Transmission model.</p>	<p>The Transmission Operator used eleven to twenty Facility Ratings that were different from those specified by a Transmission or Generator Owner in their Transmission model.</p>	<p>One or both of the following:</p> <ul style="list-style-type: none"> • The Transmission Operator used twenty-one to thirty Facility Ratings that were different from those specified by a Transmission or Generator Owner in their Transmission model. • The Transmission Operator did not use a Transmission model that includes modeling data and topology (or equivalent representation) for one adjacent Reliability Coordinator Area. 	<p>One or more of the following:</p> <ul style="list-style-type: none"> • The Transmission Operator used more than thirty Facility Ratings that were different from those specified by a Transmission or Generator Owner in their Transmission model. • The Transmission Operator's model includes equivalent representation of non-radial facilities greater than 161 kV for its own Reliability Coordinator Area. • The Transmission Operator did not use a Transmission model that includes modeling data and topology (or equivalent representation) for two or more adjacent Reliability Coordinator

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R #	Lower VSL	Moderate VSL	High VSL	Severe VSL
				Areas.
R3.	The Transmission Operator did not include in the TTC process one to ten expected generation and Transmission outages, additions or retirements as specified in the ATCID.	The Transmission Operator did not include in the TTC process eleven to twenty-five expected generation and Transmission outages, additions or retirements as specified in the ATCID.	The Transmission Operator did not include in the TTC process twenty-six to fifty expected generation and Transmission outages, additions or retirements as specified in the ATCID.	One or more of the following: <ul style="list-style-type: none"> • The Transmission Operator did not include in the TTC process more than fifty expected generation and Transmission outages, additions or retirements as specified in the ATCID. • The Transmission Operator did not include the Load forecast or unit commitment in its TTC calculation as described in R3.
R4.	The Transmission Operator did not model reservations' sources or sinks as described in R4.3 for more than zero reservations, but not more than 5% of all reservations; or 1 reservation, whichever is greater.	The Transmission Operator did not model reservations' sources or sinks as described in R4.3 for more than 5%, but not more than 10% of all reservations; or 2 reservations, whichever is greater.	The Transmission Operator did not model reservations' sources or sinks as described in R4.3 for more than 10%, but not more than 15% of all reservations; or 3 reservations, whichever is greater.	One or more of the following: <ul style="list-style-type: none"> • The Transmission Operator did not include in the TTC calculation the contingencies that met the criteria described in the ATCID. • The Transmission Operator did not respect contractual allocations of TTC. • The Transmission Operator did not model reservations' sources or sinks as described in R4.3 for more than 15% of all reservations; or more than 3 reservations, whichever is greater. • The Transmission Operator did not use firm reservations to estimate interchange or did not

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R #	Lower VSL	Moderate VSL	High VSL	Severe VSL
				utilize that estimate in the TTC calculation as described in R4.3.
R5.	<p>One or more of the following:</p> <ul style="list-style-type: none"> The Transmission Operator did not establish TTCs for use in hourly or daily ATCs within 7 calendar days but did establish the values within 10 calendar days The Transmission Operator did not establish TTCs for use in monthly ATCs during a calendar month but did establish the values within the next consecutive calendar month 	<p>One or more of the following:</p> <ul style="list-style-type: none"> The Transmission Operator did not establish TTCs for use in hourly or daily ATCs in 10 calendar days but did establish the values within 13 calendar days The Transmission Operator did not establish TTCs for use in monthly ATCs during a two consecutive calendar month period but did establish the values within the third consecutive calendar month 	<p>One or more of the following:</p> <ul style="list-style-type: none"> The Transmission Operator did not establish TTCs for used in hourly or daily ATCs in 13 calendar days but did establish the values within 16 calendar days The Transmission Operator did not establish TTCs for use in monthly ATCs during a three consecutive calendar month period but did establish the values within the fourth consecutive calendar month 	<p>One or more of the following:</p> <ul style="list-style-type: none"> The Transmission Operator did not establish TTCs for used in hourly or daily ATCs in 16 calendar days The Transmission Operator did not establish TTCs for use in monthly ATCs during a four or more consecutive calendar month period The Transmission Operator did not establish TTCs within 24 hrs of the triggers defined in R5.3
R6.	N/A	N/A	N/A	The Transmission Operator did not calculate TTCs per the process specified in R6.
R7.	<p>One or more of the following:</p> <ul style="list-style-type: none"> The Transmission Operator provided its Transmission Service Provider with its ATC Path TTCs used in hourly or daily ATC calculations more than one calendar day after their determination, but not been more than two calendar days after their determination. The Transmission Operator 	<p>One or more of the following:</p> <ul style="list-style-type: none"> The Transmission Operator provided its Transmission Service Provider with its ATC Path TTCs used in hourly or daily ATC calculations more than two calendar days after their determination, but not been more than three calendar days after their determination. The Transmission Operator 	<p>One or more of the following:</p> <ul style="list-style-type: none"> The Transmission Operator provided its Transmission Service Provider with its ATC Path TTCs used in hourly or daily ATC calculations more than three calendar days after their determination, but not been more than four calendar days after their determination. The Transmission Operator 	<p>One or more of the following:</p> <ul style="list-style-type: none"> The Transmission Operator provided its Transmission Service Provider with its ATC Path TTCs used in hourly or daily ATC calculations more than four calendar days after their determination. The Transmission Operator did not provide its Transmission Service Provider with its ATC Path TTCs used in hourly or

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R #	Lower VSL	Moderate VSL	High VSL	Severe VSL
	<p>has not provided its Transmission Service Provider with its ATC Path TTCs used in monthly ATC calculations more than seven calendar days after their determination, but not more than 14 calendar days since their determination.</p>	<p>has not provided its Transmission Service Provider with its ATC Path TTCs used in monthly ATC calculations more than 14 calendar days after their determination, but not been more than 21 calendar days after their determination.</p>	<p>has not provided its Transmission Service Provider with its ATC Path TTCs used in monthly ATC calculations more than 21 calendar days after their determination, but not been more than 28 calendar days after their determination.</p>	<p>daily ATC calculations.</p> <ul style="list-style-type: none"> • The Transmission Operator provided its Transmission Service Provider with its ATC Path TTCs used in monthly ATC calculations more than 28 calendar days after their determination. • The Transmission Operator did not provide its Transmission Service Provider with its ATC Path TTCs used in monthly ATC calculations.
R8.	<p>For a specified period, the Transmission Service Provider calculated a firm ETC with an absolute value different than that calculated in M10 for the same period, and the absolute value difference was more than 15% of the value calculated in the measure or 15MW, whichever is greater, but not more than 25% of the value calculated in the measure or 25MW, whichever is greater.</p>	<p>For a specified period, the Transmission Service Provider calculated a firm ETC with an absolute value different than that calculated in M10 for the same period, and the absolute value difference was more than 25% of the value calculated in the measure or 25MW, whichever is greater, but not more than 35% of the value calculated in the measure or 35MW, whichever is greater.</p>	<p>For a specified period, the Transmission Service Provider calculated a firm ETC with an absolute value different than that calculated in M10 for the same period, and the absolute value difference was more than 35% of the value calculated in the measure or 35MW, whichever is greater, but not more than 45% of the value calculated in the measure or 45MW, whichever is greater.</p>	<p>For a specified period, the Transmission Service Provider calculated a firm ETC with an absolute value different than that calculated in M10 for the same period, and the absolute value difference was more than 45% of the value calculated in the measure or 45MW, whichever is greater.</p>
R9.	<p>For a specified period, the Transmission Service Provider calculated a non-firm ETC with an absolute value different than that calculated in M11 for the same period, and the absolute value difference was more than 15% of the value calculated in the measure or 15MW, whichever is greater, but not</p>	<p>For a specified period, the Transmission Service Provider calculated a non-firm ETC with an absolute value different than that calculated in M11 for the same period, and the absolute value difference was more than 25% of the value calculated in the measure or 25MW, whichever is greater, but not</p>	<p>For a specified period, the Transmission Service Provider calculated a non-firm ETC with an absolute value different than that calculated in M11 for the same period, and the absolute value difference was more than 35% of the value calculated in the measure or 35MW, whichever is greater, but not</p>	<p>For a specified period, the Transmission Service Provider calculated a non-firm ETC with an absolute value different than that calculated in M11 for the same period, and the absolute value difference was more than 45% of the value calculated in the measure or 45MW, whichever is greater.</p>

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R #	Lower VSL	Moderate VSL	High VSL	Severe VSL
	more than 25% of the value calculated in the measure or 25MW, whichever is greater.	more than 35% of the value calculated in the measure or 35MW, whichever is greater.	more than 45% of the value calculated in the measure or 45MW, whichever is greater.	
R10.	The Transmission Service Provider did not use all the elements defined in R10 when determining firm ATC, or used additional elements, for more than zero ATC Paths, but not more than 5% of all ATC Paths or 1 ATC Path (whichever is greater).	The Transmission Service Provider did not use all the elements defined in R10 when determining firm ATC, or used additional elements, for more than 5% of all ATC Paths or 1 ATC Path (whichever is greater), but not more than 10% of all ATC Paths or 2 ATC Paths (whichever is greater).	The Transmission Service Provider did not use all the elements defined in R10 when determining firm ATC, or used additional elements, for more than 10% of all ATC Paths or 2 ATC Paths (whichever is greater), but not more than 15% of all ATC Paths or 3 ATC Paths (whichever is greater).	The Transmission Service Provider did not use all the elements defined in R10 when determining firm ATC, or used additional elements, for more than 15% of all ATC Paths or more than 3 ATC Paths (whichever is greater).
R11.	The Transmission Service Provider did not use all the elements defined in R11 when determining non-firm ATC, or used additional elements, for more than zero ATC Paths, but not more than 5% of all ATC Paths or 1 ATC Path (whichever is greater).	The Transmission Service Provider did not use all the elements defined in R11 when determining non-firm ATC, or used additional elements, for more than 5% of all ATC Paths or 1 ATC Path (whichever is greater), but not more than 10% of all ATC Paths or 2 ATC Paths (whichever is greater).	The Transmission Service Provider did not use all the elements defined in R11 when determining non-firm ATC, or used additional elements, for more than 10% of all ATC Paths or 2 ATC Paths (whichever is greater), but not more than 15% of all ATC Paths or 3 ATC Paths (whichever is greater).	The Transmission Service Provider did not use all the elements defined in R11 when determining non-firm ATC, or used additional elements, for more than 15% of all ATC Paths or more than 3 ATC Paths (whichever is greater).

Version History

Version	Date	Action	Change Tracking
1	August 26, 2008	Adopted by the Board of Trustees	
1	July 24, 2013	Updated VSLs based on June 24, 2013 approval.	
2	February 9, 2012	Adopted by the Board of Trustees	
2	July 24, 2013	FERC order issued July 18, 2013 approving MOD-028-2	

*** FOR INFORMATIONAL PURPOSES ONLY ***

Enforcement Dates: Standard MOD-028-2 — Area Interchange Methodology

United States

Standard	Requirement	Enforcement Date	Inactive Date
MOD-028-2	All	10/01/2013	

A. Introduction

1. **Title:** Rated System Path Methodology
2. **Number:** MOD-029-1a
3. **Purpose:** To increase consistency and reliability in the development and documentation of transfer capability calculations for short-term use performed by entities using the Rated System Path Methodology to support analysis and system operations.
4. **Applicability:**
 - 4.1. Each Transmission Operator that uses the Rated System Path Methodology to calculate Total Transfer Capabilities (TTCs) for ATC Paths.
 - 4.2. Each Transmission Service Provider that uses the Rated System Path Methodology to calculate Available Transfer Capabilities (ATCs) for ATC Paths.
5. **Proposed Effective Date:** Immediately after approval of applicable regulatory authorities.

B. Requirements

- R1. When calculating TTCs for ATC Paths, the Transmission Operator shall use a Transmission model which satisfies the following requirements: [*Violation Risk Factor: Lower*] [*Time Horizon: Operations Planning*]
 - R1.1. The model utilizes data and assumptions consistent with the time period being studied and that meets the following criteria:
 - R1.1.1. Includes at least:
 - R1.1.1.1. The Transmission Operator area. Equivalent representation of radial lines and facilities 161kV or below is allowed.
 - R1.1.1.2. All Transmission Operator areas contiguous with its own Transmission Operator area. (Equivalent representation is allowed.)
 - R1.1.1.3. Any other Transmission Operator area linked to the Transmission Operator's area by joint operating agreement. (Equivalent representation is allowed.)
 - R1.1.2. Models all system Elements as in-service for the assumed initial conditions.
 - R1.1.3. Models all generation (may be either a single generator or multiple generators) that is greater than 20 MVA at the point of interconnection in the studied area.
 - R1.1.4. Models phase shifters in non-regulating mode, unless otherwise specified in the Available Transfer Capability Implementation Document (ATCID).

- R1.1.5.** Uses Load forecast by Balancing Authority.
- R1.1.6.** Uses Transmission Facility additions and retirements.
- R1.1.7.** Uses Generation Facility additions and retirements.
- R1.1.8.** Uses Special Protection System (SPS) models where currently existing or projected for implementation within the studied time horizon.
- R1.1.9.** Models series compensation for each line at the expected operating level unless specified otherwise in the ATCID.
- R1.1.10.** Includes any other modeling requirements or criteria specified in the ATCID.
- R1.2.** Uses Facility Ratings as provided by the Transmission Owner and Generator Owner

- R2.** The Transmission Operator shall use the following process to determine TTC:
[Violation Risk Factor: Lower] [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 TTC (maximum flow or reliability limit) that can be simulated on the ATC Path while at the same time satisfying all planning criteria contingencies as follows:
 - R2.1.1.** When modeling normal conditions, all Transmission Elements will be modeled at or below 100% of their continuous rating.
 - R2.1.2.** When modeling contingencies the system shall demonstrate transient, dynamic and voltage stability, with no Transmission Element modeled above its Emergency Rating.
 - R2.1.3.** Uncontrolled separation shall not occur.
 - 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. If the TTC in the prevailing flow direction is dependant on a Special Protection System (SPS), set the TTC for the non-prevailing flow direction equal to the greater of the maximum flow that can be simulated in the non-prevailing flow direction or the maximum TTC that can be achieved in the prevailing flow direction without use of a SPS.
 - R2.3.** For an ATC Path whose capacity is limited by contract, set TTC on the ATC Path at the lesser of the maximum allowable contract capacity or the reliability limit as determined by R2.1.
 - R2.4.** For an ATC Path 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.** The Transmission Operator shall identify when the TTC for the ATC Path being studied has an adverse impact on 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. The Transmission Operator shall include the resolution of this adverse impact in its study report for the ATC Path.

- R2.6.** Where multiple ownership of Transmission rights exists on an ATC Path, allocate TTC of that ATC Path in accordance with the contractual agreement made by the multiple owners of that ATC Path.
- R2.7.** For ATC Paths whose path rating, adjusted for seasonal variance, was established, known and used in operation since January 1, 1994, and no action has been taken 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 above that were undertaken (R2.1 – R2.7), including the contingencies and assumptions used, when determining the TTC and the results of the study. Where three phase fault damping is used to determine stability limits, that report shall also identify the percent used and include justification for use unless specified otherwise in the ATCID.
- R3.** Each Transmission Operator shall establish the TTC at the lesser of the value calculated in R2 or any System Operating Limit (SOL) for that ATC Path. [*Violation Risk Factor: Lower*] [*Time Horizon: Operations Planning*]
- R4.** Within seven calendar days of the finalization of the study report, the Transmission Operator shall make available to the Transmission Service Provider of the ATC 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 ATC Path. [*Violation Risk Factor: Lower*] [*Time Horizon: Operations Planning*]
- R5.** When calculating ETC for firm Existing Transmission Commitments (ETC_F) for a specified period for an ATC Path, the Transmission Service Provider shall use the algorithm below: [*Violation Risk Factor: Lower*] [*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 set aside to serve peak Native Load forecast commitments for the time period being calculated, to include losses, and Native Load growth, 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 losses, and Load growth, not otherwise included in Transmission Reliability Margin or Capacity Benefit Margin.

GF_F is the firm capacity set aside for grandfathered Transmission Service and contracts for energy and/or Transmission Service, where executed prior to the

effective date of a Transmission Service Provider’s Open Access Transmission Tariff or “safe harbor tariff.”

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 as specified in the ATCID.

- R6.** When calculating ETC for non-firm Existing Transmission Commitments (ETC_{NF}) for all time horizons for an ATC 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 set aside for Network Integration Transmission Service serving Load (i.e., secondary service), to include losses, and load growth not otherwise included in Transmission Reliability Margin or Capacity Benefit Margin.

GF_{NF} is the non-firm capacity set aside for grandfathered Transmission Service and contracts for energy and/or Transmission Service, where executed prior to the effective date of a Transmission Service Provider’s Open Access Transmission Tariff or “safe harbor tariff.”

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 transmission service as specified in the ATCID.

- R7.** When calculating firm ATC for an ATC Path for a specified period, the Transmission Service Provider shall use the following algorithm: [*Violation Risk Factor: Lower*] [*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 ATC Path for that period.

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

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

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

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

Postbacks_F are changes to firm Available Transfer Capability due to a change in the use of Transmission Service for that period, as defined in Business Practices.

counterflows_F are adjustments to firm Available Transfer Capability as determined by the Transmission Service Provider and specified in their ATCID.

- R8.** When calculating non-firm ATC for an ATC 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 ATC Path for that period.

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

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

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

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

TRM_U is the Transmission Reliability Margin for the ATC Path that has not been released for sale (unreleased) as non-firm capacity by the Transmission Service Provider during that period.

Postbacks_{NF} are changes to non-firm Available Transfer Capability due to a change in the use of Transmission Service for that period, as defined in Business Practices.

counterflows_{NF} are adjustments to non-firm Available Transfer Capability as determined by the Transmission Service Provider and specified in its ATCID.

C. Measures

- M1.** Each Transmission Operator that uses the Rated System Path Methodology shall produce any Transmission model it used to calculate TTC for purposes of calculating ATC for each ATC Path, as required in R1, for the time horizon(s) to be examined. (R1)
 - M1.1.** Production shall be in the same form and format used by the Transmission Operator to calculate the TTC, as required in R1. (R1)
 - M1.2.** The Transmission model produced must include the areas listed in R1.1.1 (or an equivalent representation, as described in the requirement) (R1.1)
 - M1.3.** The Transmission model produced must show the use of the modeling parameters stated in R1.1.2 through R1.1.10; 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. (R1.1.2 through R1.1.10)
 - M1.4.** The Transmission Operator must provide evidence that the models used to determine TTC included Facility Ratings as provided by the Transmission Owner and Generator Owner. (R1.2)
- 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 (R1.1.4, R.1.1.9, and R1.1.10).
- M3.** Each Transmission Operator that uses the Rated System Path Methodology with paths with ratings established prior to January 1, 1994 shall provide evidence the path and its rating were established prior to January 1, 1994. (R2.7)
- M4.** 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)
- M5.** 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 R2 for each ATC Path, 2) Any corresponding SOLs for those ATC Paths, and 3) the TTC set by the Transmission Operator and given to the Transmission Service Provider for use in R7 and R8 for each ATC Path. (R3)
- 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. (R4)
- M7.** The Transmission Service Provider shall demonstrate compliance with R5 by recalculating firm ETC for any specific time period as described in (MOD-001 R2), using the algorithm defined in R5 and with data used to calculate the specified value for the designated time period. The data used must meet the requirements specified in MOD-029-1 and the ATCID. To account for differences that may occur when recalculating the value (due to mixing automated and manual processes), any recalculated value that is within +/- 15% or 15 MW, whichever is greater, of the

originally calculated value, is evidence that the Transmission Service Provider used the algorithm in R5 to calculate its firm ETC. (R5)

- M8.** The Transmission Service Provider shall demonstrate compliance with R5 by recalculating non-firm ETC for any specific time period as described in (MOD-001 R2), using the algorithm defined in R6 and with data used to calculate this specified value for the designated time period. The data used must meet the requirements specified in the MOD-029 and the ATCID. To account for differences that may occur when recalculating the value (due to mixing automated and manual processes), any recalculated value that is within +/- 15% or 15 MW, whichever is greater, of the originally calculated value, is evidence that the Transmission Service Provider used the algorithm in R6 to calculate its non-firm ETC. (R6)
- M9.** Each Transmission Service Provider shall produce the supporting documentation for the processes used to implement the algorithm that calculates firm ATCs, as required in R7. Such documentation must show that only the variables allowed in R7 were used to calculate firm ATCs, and that the processes use the current values for the variables as determined in the requirements or definitions. Note that any variable may legitimately be zero if the value is not applicable or calculated to be zero (such as counterflows, TRM, CBM, etc...). The supporting documentation may be provided in the same form and format as stored by the Transmission Service Provider. (R7)
- M10.** Each Transmission Service Provider shall produce the supporting documentation for the processes used to implement the algorithm that calculates non-firm ATCs, as required in R8. Such documentation must show that only the variables allowed in R8 were used to calculate non-firm ATCs, and that the processes use the current values for the variables as determined in the requirements or definitions. Note that any variable may legitimately be zero if the value is not applicable or calculated to be zero (such as counterflows, TRM, CBM, etc...). The supporting documentation may be provided in the same form and format as stored by the Transmission Service Provider. (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 and Transmission Service Provider shall keep data or evidence to show compliance as identified below unless directed by its Compliance Enforcement Authority to retain specific evidence for a longer period of time as part of an investigation:
- The Transmission Operator shall have its latest models used to determine TTC for R1. (M1)

- 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 evidence of any path and its rating that was established prior to January 1, 1994. (M3)
- The Transmission Operator shall retain the latest version and prior version of the TTC study reports to show compliance with R2. (M4)
- The Transmission Operator shall retain evidence for the most recent three calendar years plus the current year to show compliance with R3 and R4. (M5 and M6)
- The Transmission Service Provider shall retain evidence to show compliance in calculating hourly values required in R5 and R6 for the most recent 14 days; evidence to show compliance in calculating daily values required in R5 and R6 for the most recent 30 days; and evidence to show compliance in calculating daily values required in R5 and R6 for the most recent sixty days. (M7 and M8)
- The Transmission Service Provider shall retain evidence for the most recent three calendar years plus the current year to show compliance with R7 and R8. (M9 and M10)
- 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 VSL	High VSL	Severe VSL
R1.	<p>The Transmission Operator used a model that met all but one of the modeling requirements specified in R1.1.</p> <p style="text-align: center;">OR</p> <p>The Transmission Operator utilized one to ten Facility Ratings that were different from those specified by a Transmission Owner or Generation Owner in their Transmission model. (R1.2)</p>	<p>The Transmission Operator used a model that met all but two of the modeling requirements specified in R1.1.</p> <p style="text-align: center;">OR</p> <p>The Transmission Operator utilized eleven to twenty Facility Ratings that were different from those specified by a Transmission Owner or Generation Owner in their Transmission model. (R1.2)</p>	<p>The Transmission Operator used a model that met all but three of the modeling requirements specified in R1.1.</p> <p style="text-align: center;">OR</p> <p>The Transmission Operator utilized twenty-one to thirty Facility Ratings that were different from those specified by a Transmission Owner or Generation Owner in their Transmission model. (R1.2)</p>	<p>The Transmission Operator used a model that did not meet four or more of the modeling requirements specified in R1.1.</p> <p style="text-align: center;">OR</p> <p>The Transmission Operator utilized more than thirty Facility Ratings that were different from those specified by a Transmission Owner or Generation Owner in their Transmission model. (R1.2)</p>
R2	<p>One or both of the following:</p> <ul style="list-style-type: none"> The Transmission Operator did not calculate TTC using one of the items in sub-requirements R2.1-R2.6. The Transmission Operator does not include one required item in the study report required in R2.8. 	<p>One or both of the following:</p> <ul style="list-style-type: none"> The Transmission Operator did not calculate TTC using two of the items in sub-requirements R2.1-R2.6. The Transmission Operator does not include two required items in the study report required in R2.8. 	<p>One or both of the following:</p> <ul style="list-style-type: none"> The Transmission Operator did not calculate TTC using three of the items in sub-requirements R2.1-R2.6. The Transmission Operator does not include three required items in the study report required in R2.8. 	<p>One or more of the following:</p> <ul style="list-style-type: none"> The Transmission Operator did not calculate TTC using four or more of the items in sub-requirements R2.1-R2.6. The Transmission Operator did not apply R2.7. The Transmission Operator does not include four or more required items in the study report required in R2.8

Standard MOD-029-1a — Rated System Path Methodology

R #	Lower VSL	Moderate VSL	High VSL	Severe VSL
R3.	The Transmission Operator did not specify the TTC as the lesser of the TTC calculated using the process described in R2 or any associated SOL for more than zero ATC Paths, BUT, not more than 1% of all ATC Paths or 1 ATC Path (whichever is greater).	The Transmission Operator did not specify the TTC as the lesser of the TTC calculated using the process described in R2 or any associated SOL for more than 1% of all ATC Paths or 1 ATC Path (whichever is greater), BUT not more than 2% of all ATC Paths or 2 ATC Paths (whichever is greater).	The Transmission Operator did not specify the TTC as the lesser of the TTC calculated using the process described in R2 or any associated SOL for more than 2% of all ATC Paths or 2 ATC Paths (whichever is greater), BUT not more than 5% of all ATC Paths or 3 ATC Paths (whichever is greater).	The Transmission Operator did not specify the TTC as the lesser of the TTC calculated using the process described in R2 or any associated SOL, for more than 5% of all ATC Paths or 3 ATC Paths (whichever is greater).
R4.	The Transmission Operator provided the TTC and study report to the Transmission Service Provider 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 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 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 more than 28 calendar days after the report was finalized.
R5.	For a specified period, the Transmission Service Provider calculated a firm ETC with an absolute value different than that calculated in M7 for the same period, and the absolute value difference was more than 15% of the value calculated in the measure or 15MW, whichever is greater, but not more than 25% of the value calculated in the measure or 25MW, whichever is greater.	For a specified period, the Transmission Service Provider calculated a firm ETC with an absolute value different than that calculated in M7 for the same period, and the absolute value difference was more than 25% of the value calculated in the measure or 25MW, whichever is greater, but not more than 35% of the value calculated in the measure or 35MW, whichever is greater.	For a specified period, the Transmission Service Provider calculated a firm ETC with an absolute value different than that calculated in M7 for the same period, and the absolute value difference was more than 35% of the value calculated in the measure or 35MW, whichever is greater, but not more than 45% of the value calculated in the measure or 45MW, whichever is greater.	For a specified period, the Transmission Service Provider calculated a firm ETC with an absolute value different than that calculated in M7 for the same period, and the absolute value difference was more than 45% of the value calculated in the measure or 45MW, whichever is greater.
R6.	For a specified period, the Transmission Service Provider calculated a non-firm ETC with an absolute value different than that calculated in M8 for the same period, and the absolute	For a specified period, the Transmission Service Provider calculated a non-firm ETC with an absolute value different than that calculated in M8 for the same period, and the absolute	For a specified period, the Transmission Service Provider calculated a non-firm ETC with an absolute value different than that calculated in M8 for the same period, and the absolute	For a specified period, the Transmission Service Provider calculated a non-firm ETC with an absolute value different than that calculated in M8 for the same period, and the

Standard MOD-029-1a — Rated System Path Methodology

R #	Lower VSL	Moderate VSL	High VSL	Severe VSL
	value difference was more than 15% of the value calculated in the measure or 15MW, whichever is greater, but not more than 25% of the value calculated in the measure or 25MW, whichever is greater.	value difference was more than 25% of the value calculated in the measure or 25MW, whichever is greater, but not more than 35% of the value calculated in the measure or 35MW, whichever is greater.	value difference was more than 35% of the value calculated in the measure or 35MW, whichever is greater, but not more than 45% of the value calculated in the measure or 45MW, whichever is greater.	absolute value difference was more than 45% of the value calculated in the measure or 45MW, whichever is greater.
R7.	The Transmission Service Provider did not use all the elements defined in R7 when determining firm ATC, or used additional elements, for more than zero ATC Paths, but not more than 5% of all ATC Paths or 1 ATC Path (whichever is greater).	The Transmission Service Provider did not use all the elements defined in R7 when determining firm ATC, or used additional elements, for more than 5% of all ATC Paths or 1 ATC Path (whichever is greater), but not more than 10% of all ATC Paths or 2 ATC Paths (whichever is greater).	The Transmission Service Provider did not use all the elements defined in R7 when determining firm ATC, or used additional elements, for more than 10% of all ATC Paths or 2 ATC Paths (whichever is greater), but not more than 15% of all ATC Paths or 3 ATC Paths (whichever is greater).	The Transmission Service Provider did not use all the elements defined in R7 when determining firm ATC, or used additional elements, for more than 15% of all ATC Paths or more than 3 ATC Paths (whichever is greater).
R8.	The Transmission Service Provider did not use all the elements defined in R8 when determining non-firm ATC, or used additional elements, for more than zero ATC Paths, but not more than 5% of all ATC Paths or 1 ATC Path (whichever is greater).	The Transmission Service Provider did not use all the elements defined in R8 when determining non-firm ATC, or used additional elements, for more than 5% of all ATC Paths or 1 ATC Path (whichever is greater), but not more than 10% of all ATC Paths or 2 ATC Paths (whichever is greater).	The Transmission Service Provider did not use all the elements defined in R8 when determining non-firm ATC, or used additional elements, for more than 10% of all ATC Paths or 2 ATC Paths (whichever is greater), but not more than 15% of all ATC Paths or 3 ATC Paths (whichever is greater).	The Transmission Service Provider did not use all the elements defined in R8 when determining non-firm ATC, or used additional elements, for more than 15% of all ATC Paths or more than 3 ATC Paths (whichever is greater).

Version History

Version	Date	Action	Change Tracking
1	8/26/2008	Adopted by NERC Board of Trustees	
1a	Board approved 11/05/2009	Interpretation of R5 and R6	Interpretation (Project 2009-15)

Appendix 1

Requirement Number and Text of Requirement
<p>MOD-001-01 Requirement R2:</p> <p>R2. Each Transmission Service Provider shall calculate ATC or AFC values as listed below using the methodology or methodologies selected by its Transmission Operator(s):</p> <ul style="list-style-type: none"> R2.1. Hourly values for at least the next 48 hours. R2.2. Daily values for at least the next 31 calendar days. R2.3. Monthly values for at least the next 12 months (months 2-13). <p>MOD-001-01 Requirement R8:</p> <p>R8. Each Transmission Service Provider that calculates ATC shall recalculate ATC at a minimum on the following frequency, unless none of the calculated values identified in the ATC equation have changed:</p> <ul style="list-style-type: none"> R8.1. Hourly values, once per hour. Transmission Service Providers are allowed up to 175 hours per calendar year during which calculations are not required to be performed, despite a change in a calculated value identified in the ATC equation. R8.2. Daily values, once per day. R8.3. Monthly values, once per week.
<p>Question #1</p>
<p>Is the “advisory ATC” used under the NYISO tariff subject to the ATC calculation and recalculation requirements in MOD-001-1 Requirements R2 and R8? If not, is it necessary to document the frequency of “advisory” calculations in the responsible entity’s Available Transfer Capability Implementation Document?</p>
<p>Response to Question #1</p>
<p>Requirements R2 and R8 of MOD-001-1 are both related to Requirement R1, which defines that ATC methodologies are to be applied to specific “ATC Paths.” The NERC definition of ATC Path is “Any combination of Point of Receipt and Point of Delivery for which ATC is calculated; and any Posted Path.” Based on a review of the language included in this request, the NYISO Open Access Transmission Tariff, and other information posted on the NYISO Web site, it appears that the NYISO does indeed have multiple ATC Paths, which are subject to the calculation and recalculation requirements in Requirements R2 and R8. It appears from reviewing this information that ATC is defined in the NYISO tariff in the same manner in which NERC defines it, making it difficult to conclude that NYISO’s “advisory ATC” is not the same as ATC. In addition, it appears that pre-scheduling is permitted on certain external paths, making the calculation of ATC prior to day ahead necessary on those paths.</p> <p>The second part of NYISO’s question is only applicable if the first part was answered in the</p>

negative and therefore will not be addressed.

Requirement Number and Text of Requirement

MOD-029-01 Requirements R5 and R6:

R5. When calculating ETC for firm Existing Transmission Commitments (ETC_F) for a specified period for an ATC Path, the Transmission Service Provider shall use the algorithm below:

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

Where:

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

GF_F is the firm capacity set aside for grandfathered Transmission Service and contracts for energy and/or Transmission Service, where executed prior to the effective date of a Transmission Service Provider’s Open Access Transmission Tariff or “safe harbor tariff.”

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 as specified in the ATCID.

R6. When calculating ETC for non-firm Existing Transmission Commitments (ETC_{NF}) for all time horizons for an ATC Path the Transmission Service Provider shall use the following algorithm:

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

Where:

NITS_{NF} is the non-firm capacity set aside for Network Integration Transmission Service serving Load (i.e., secondary service), to include losses, and load growth not otherwise included in Transmission Reliability Margin or Capacity Benefit Margin.

GF_{NF} is the non-firm capacity set aside for grandfathered Transmission Service and contracts for energy and/or Transmission Service, where executed prior to the

effective date of a Transmission Service Provider’s Open Access Transmission Tariff or “safe harbor tariff.”

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 transmission service as specified in the ATCID.

Question #2

Could OS_F in MOD-029-1 Requirement R5 and OS_{NF} in MOD-029-1 Requirement R6 be calculated using Transmission Flow Utilization in the determination of ATC?

Response to Question #2

This request for interpretation and the NYISO Open Access Transmission Tariff describe the NYISO’s concept of "Transmission Flow Utilization;" however, it is unclear whether or not Native Load, Point-to-Point Transmission Service, Network Integration Transmission Service, or any of the other components explicitly defined in Requirements R5 and R6 are incorporated into "Transmission Flow Utilization." Provided that "Transmission Flow Utilization" does not include Native Load, Point-to-Point Transmission Service, Network Integration Transmission Service, or any of the other components explicitly defined in Requirements R5 and R6, it is appropriate to be included within the "Other Services" term. However, if "Transmission Flow Utilization" does incorporate those components, then simply including "Transmission Flow Utilization" in “Other Service” would be inappropriate.

*** FOR INFORMATIONAL PURPOSES ONLY ***

Enforcement Dates: Standard MOD-029-1a — Rated System Path Methodology

United States

Standard	Requirement	Enforcement Date	Inactive Date
MOD-029-1a	All	04/01/2011	

A. Introduction

1. **Title:** **Flowgate Methodology**
2. **Number:** **MOD-030-02**
3. **Purpose:** To increase consistency and reliability in the development and documentation of transfer capability calculations for short-term use performed by entities using the Flowgate Methodology to support analysis and system operations.
4. **Applicability:**
 - 4.1.1 Each Transmission Operator that uses the Flowgate Methodology to support the calculation of Available Flowgate Capabilities (AFCs) on Flowgates.
 - 4.1.2 Each Transmission Service Provider that uses the Flowgate Methodology to calculate AFCs on Flowgates.
5. **Proposed Effective Date:** The date upon which MOD-030-01 is currently scheduled to become effective.

B. Requirements

- R1. The Transmission Service Provider shall include in its “Available Transfer Capability Implementation Document” (ATCID): [*Violation Risk Factor: To Be Determined*] [*Time Horizon: Operations Planning*]
 - R1.1. 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.
 - R1.2. The following information on how source and sink for transmission service is accounted for in AFC calculations including:
 - R1.2.1. Define if the source used for AFC calculations is obtained from the source field or the Point of Receipt (POR) field of the transmission reservation.
 - R1.2.2. Define if the sink used for AFC calculations is obtained from the sink field or the Point of Delivery (POD) field of the transmission reservation.
 - R1.2.3. The source/sink or POR/POD identification and mapping to the model.
 - R1.2.4. If the Transmission Service Provider’s AFC calculation process involves a grouping of generators, the ATCID must identify how these generators participate in the group.
- R2. The Transmission Operator shall perform the following: [*Violation Risk Factor: To Be Determined*] [*Time Horizon: Operations Planning*]
 - R2.1. Include Flowgates used in the AFC process based, at a minimum, on the following criteria:
 - R2.1.1. Results of a first Contingency transfer analysis for ATC Paths internal to a Transmission Operator’s system up to the path capability such that at a minimum the first three limiting Elements and their worst associated Contingency combinations with an OTDF of at least 5% and within the Transmission Operator’s system are included as Flowgates.
 - R2.1.1.1. Use first Contingency criteria consistent with those first Contingency criteria used in planning of operations for the

applicable time periods, including use of Special Protection Systems.

R2.1.1.2. Only the most limiting element in a series configuration needs to be included as a Flowgate.

R2.1.1.3. If any limiting element is kept within its limit for its associated worst Contingency by operating within the limits of another Flowgate, then no new Flowgate needs to be established for such limiting elements or Contingencies.

R2.1.2. Results of a first Contingency transfer analysis from all adjacent Balancing Authority source and sink (as defined in the ATCID) combinations up to the path capability such that at a minimum the first three limiting Elements and their worst associated Contingency combinations with an Outage Transfer Distribution Factor (OTDF) of at least 5% and within the Transmission Operator's system are included as Flowgates unless the interface between such adjacent Balancing Authorities is accounted for using another ATC methodology.

R2.1.2.1. Use first Contingency criteria consistent with those first Contingency criteria used in planning of operations for the applicable time periods, including use of Special Protection Systems.

R2.1.2.2. Only the most limiting element in a series configuration needs to be included as a Flowgate.

R2.1.2.3. If any limiting element is kept within its limit for its associated worst Contingency by operating within the limits of another Flowgate, then no new Flowgate needs to be established for such limiting elements or Contingencies.

R2.1.3. Any limiting Element/Contingency combination at least within its Reliability Coordinator's Area that has been subjected to an Interconnection-wide congestion management procedure within the last 12 months, unless the limiting Element/Contingency combination is accounted for using another ATC methodology or was created to address temporary operating conditions.

R2.1.4. 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:

R2.1.4.1. 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) or Outage Transfer Distribution Factor (OTDF) 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 or OTDF impact on the Flowgate.

- The Transmission Operator may utilize distribution factors less than 5% if desired.

R2.1.4.2. The limiting Element/Contingency combination is included in the requesting Transmission Service Provider's methodology.

- R2.2.** At a minimum, establish a list of Flowgates by creating, modifying, or deleting Flowgate definitions at least once per calendar year.
- R2.3.** At a minimum, establish a list of Flowgates by creating, modifying, or deleting Flowgates that have been requested as part of R2.1.4 within thirty calendar days from the request.
- R2.4.** Establish 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.
- R2.5.** At a minimum, establish the TFC once per calendar year.
- R2.5.1.** If notified of a change in the Rating by the Transmission Owner that would affect the TFC of a flowgate used in the AFC process, the TFC should be updated within seven calendar days of the notification.
- R2.6.** Provide the Transmission Service Provider with the TFCs within seven calendar days of their establishment.

R3. The Transmission Operator shall make available to the Transmission Service Provider a Transmission model to determine Available Flowgate Capability (AFC) that meets the following criteria: [*Violation Risk Factor: To Be Determined*] [*Time Horizon: Operations Planning*]

- R3.1.** Contains generation Facility Ratings, such as generation maximum and minimum output levels, specified by the 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 system topology for the Facilities within its Reliability Coordinator's Area. Equivalent representation of radial lines and Facilities 161kV or below is allowed.
- R3.5.** Contains modeling data and system topology (or equivalent representation) for immediately adjacent and beyond Reliability Coordination Areas.

- R4.** When calculating AFCs, the Transmission Service Provider shall represent the impact of Transmission Service as follows: [*Violation Risk Factor: To Be Determined*] [*Time Horizon: Operations Planning*]
- If the source, as specified in the ATCID, has been identified 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, as specified in the ATCID, has been identified in the reservation and the point can be mapped to an "equivalence" or "aggregate" representation in the

Transmission Service Provider's Transmission model, use the modeled equivalence or aggregate as the source.

- If the source, as specified in the ATCID, has been identified in the reservation and the point cannot be mapped to a discretely modeled point or an "equivalence" representation in the Transmission Service Provider's Transmission model, use the immediately adjacent Balancing Authority associated with the Transmission Service Provider from which the power is to be received as the source.
- If the source, as specified in the ATCID, has not been identified in the reservation use the immediately adjacent Balancing Authority associated with the Transmission Service Provider from which the power is to be received as the source.
- If the sink, as specified in the ATCID, has been identified 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, as specified in the ATCID, has been identified in the reservation and the point can be mapped to an "equivalence" or "aggregate" representation in the Transmission Service Provider's Transmission model, use the modeled equivalence or aggregate as the sink.
- If the sink, as specified in the ATCID, has been identified in the reservation and the point cannot be mapped to a discretely modeled point or an "equivalence" representation in the Transmission Service Provider's Transmission model, use the immediately adjacent Balancing Authority associated with the Transmission Service Provider receiving the power as the sink.
- If the sink, as specified in the ATCID, has not been identified in the reservation use the immediately adjacent Balancing Authority associated with the Transmission Service Provider receiving the power as the sink.

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

R5.1. Use the models provided by the Transmission Operator.

R5.2. Include in the transmission model expected generation and Transmission outages, additions, and retirements within the scope of the model as specified in the ATCID and in effect during the applicable period of the AFC calculation for the Transmission Service Provider's area, all adjacent Transmission Service Providers, and any Transmission Service Providers with which coordination agreements have been executed.

R5.3. For external Flowgates, identified in R2.1.4, use the AFC provided by the Transmission Service Provider that calculates 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 the following: [*Violation Risk Factor: To Be Determined*] [*Time Horizon: Operations Planning*]

R6.1. The impact of firm Network Integration Transmission Service, including the impacts of generation to load, in the model referenced in R5.2 for the Transmission Service Provider's area, based on:

R6.1.1. Load forecast for the time period being calculated, including Native Load and Network Service load

- R6.1.2.** 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 specified in the Transmission Service Provider's ATCID.
 - R6.2.** The impact of any firm Network Integration Transmission Service, including the impacts of generation to load in the model referenced in R5.2 and has a distribution factor equal to or greater than the percentage¹ used to curtail in the Interconnection-wide congestion management procedure used by the Transmission Service Provider, for all adjacent Transmission Service Providers and any other Transmission Service Providers with which coordination agreements have been executed based on:
 - R6.2.1.** Load forecast for the time period being calculated, including Native Load and Network Service load
 - R6.2.2.** 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 specified in the Transmission Service Provider's ATCID.
 - R6.3.** 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.
 - R6.4.** 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 having a distribution factor equal to or greater than the percentage² used to curtail in the Interconnection-wide congestion management procedure used by the Transmission Service Provider, for all adjacent Transmission Service Providers and any other Transmission Service Providers with which coordination agreements have been executed.
 - R6.5.** The impact of any Grandfathered firm obligations expected to be scheduled or expected to flow for the Transmission Service Provider's area.
 - R6.6.** The impact of any Grandfathered firm obligations expected to be scheduled or expected to flow that have a distribution factor equal to or greater than the percentage³ used to curtail in the Interconnection-wide congestion management procedure used by the Transmission Service Provider, for all adjacent Transmission Service Providers and any other Transmission Service Providers with which coordination agreements have been executed.
 - R6.7.** The impact of other firm services determined by the Transmission Service Provider.
- 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: To Be Determined*] [*Time Horizon: Operations Planning*]

¹ A percentage less than that used in the Interconnection-wide congestion management procedure may be utilized.

² A percentage less than that used in the Interconnection-wide congestion management procedure may be utilized.

³ A percentage less than that used in the Interconnection-wide congestion management procedure may be utilized.

- R7.1.** The impact of all confirmed non-firm Point-to-Point Transmission Service expected to be scheduled for the Transmission Service Provider's area.
- R7.2.** The impact of any confirmed non-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, that have a distribution factor equal to or greater than the percentage⁴ used to curtail in the Interconnection-wide congestion management procedure used by the Transmission Service Provider, 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 obligations expected to be scheduled or expected to flow for the Transmission Service Provider's area.
- R7.4.** The impact of any Grandfathered non-firm obligations expected to be scheduled or expected to flow that have a distribution factor equal to or greater than the percentage⁵ used to curtail in the Interconnection-wide congestion management procedure used by the Transmission Service Provider, for all adjacent Transmission Service Providers and any other Transmission Service Providers with which coordination agreements have been executed.
- R7.5.** The impact of non-firm Network Integration Transmission Service serving Load within the Transmission Service Provider's area (i.e., secondary service), to include load growth, and losses not otherwise included in Transmission Reliability Margin or Capacity Benefit Margin.
- R7.6.** The impact of any non-firm Network Integration Transmission Service (secondary service) with a distribution factor equal to or greater than the percentage⁶ used to curtail in the Interconnection-wide congestion management procedure used by the Transmission Service Provider, filtered to reduce or eliminate duplicate impacts from transactions using Transmission service from multiple Transmission Service Providers, for all adjacent Transmission Service Providers and any other Transmission Service Providers with which coordination agreements have been executed.
- R7.7.** The impact of other non-firm services determined by the Transmission Service Provider.
- R8.** When calculating firm AFC for a Flowgate for a specified period, the Transmission Service Provider shall use the following algorithm (subject to allocation processes described in the ATCID): [*Violation Risk Factor: To Be Determined*] [*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.

⁴ A percentage less than that used in the Interconnection-wide congestion management procedure may be utilized.

⁵ A percentage less than that used in the Interconnection-wide congestion management procedure may be utilized.

⁶ A percentage less than that used in the Interconnection-wide congestion management procedure may be utilized.

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 changes to firm AFC due to a change in the use of Transmission Service for that period, as defined in Business Practices.

counterflows_{Fi} are adjustments to firm AFC as determined by the Transmission Service Provider and specified 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 (subject to allocation processes described in the ATCID): [*Violation Risk Factor: To Be Determined*] [*Time Horizon: Operations Planning*]

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

Where:

AFC_{NF} is the non-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.

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 (unreleased) for sale as non-firm capacity by the Transmission Service Provider during that period.

Postbacks_{NF} are changes to non-firm Available Flowgate Capability due to a change in the use of Transmission Service for that period, as defined in Business Practices.

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

- R10.** Each Transmission Service Provider shall recalculate AFC, utilizing the updated models described in R3.2, R3.3, and R5, at a minimum on the following frequency, unless none of the calculated values identified in the AFC equation have changed: [*Violation Risk Factor: To Be Determined*] [*Time Horizon: Operations Planning*]

R10.1. For hourly AFC, once per hour. Transmission Service Providers are allowed up to 175 hours per calendar year during which calculations are not required to be performed, despite a change in a calculated value identified in the AFC equation.

R10.2. For daily AFC, once per day.

R10.3. For monthly AFC, once per week.

- R11.** When converting Flowgate AFCs to ATCs for ATC Paths, the Transmission Service Provider shall convert those values based on the following algorithm: [*Violation Risk Factor: To Be Determined*] [*Time Horizon: Operations Planning*]

$$ATC = \min(P)$$

$$P = \{PATC_1, PATC_2, \dots, PATC_n\}$$

$$PATC_n = \frac{AFC_n}{DF_{np}}$$

Where:

ATC is the Available Transfer Capability.

P is the set of partial Available Transfer Capabilities 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 the percentage⁷ used to curtail in the Interconnection-wide congestion management procedure used by the Transmission Service Provider on an OTDF Flowgate or PTDF Flowgate.

PATC_n is the partial Available Transfer Capability for a path relative to a Flowgate *n*.

AFC_n is the Available Flowgate Capability 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 and information on how sources and sinks are accounted for 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 calendar year. (R2.2)
- M4.** The Transmission Operator shall provide evidence (such as logs and dated requests) that it updated the list of Flowgates within thirty calendar days from a request. (R2.3)
- M5.** The Transmission Operator shall provide evidence (such as data or models) that it determined the TFC for each Flowgate as defined in R2.4. (R2.4)
- M6.** The Transmission Operator shall provide evidence (such as logs) that it established the TFCs for each Flowgate in accordance with the timing defined in R2.5. (R2.5)
- M7.** 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. (R2.6)

⁷ A percentage less than that used in the Interconnection-wide congestion management procedure may be utilized.

- M8.** 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)
- 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 including the models received from Transmission Operators and other evidence (such as documentation and data) to show that it used the Transmission Operator's models in calculating AFC. (R5.1)
- M11.** 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 as specified in the ATCID. (R5.2)
- M12.** The Transmission Service Provider shall provide evidence (such as logs, electronic communications, and data) that AFCs provided by third parties on external Flowgates were used instead of those calculated by the Transmission Operator. (R5.3)
- M13.** The Transmission Service Provider shall demonstrate compliance with R6 by recalculating firm ETC for any specific time period as described in (MOD-001 R2), using the requirements defined in R6 and with data used to calculate the specified value for the designated time period. The data used must meet the requirements specified in this standard and the ATCID. To account for differences that may occur when recalculating the value (due to mixing automated and manual processes), any recalculated value that is within +/- 15% or 15 MW, whichever is greater, of the originally calculated value, is evidence that the Transmission Service Provider used the requirements defined in R6 to calculate its firm ETC. (R6)
- M14.** The Transmission Service Provider shall demonstrate compliance with R7 by recalculating non-firm ETC for any specific time period as described in (MOD-001 R2), using the requirements defined in R7 and with data used to calculate the specified value for the designated time period. The data used must meet the requirements specified in the standard and the ATCID. To account for differences that may occur when recalculating the value (due to mixing automated and manual processes), any recalculated value that is within +/- 15% or 15 MW, whichever is greater, of the originally calculated value, is evidence that the Transmission Service Provider used the requirements in R7 to calculate its non-firm ETC. (R7)
- M15.** Each Transmission Service Provider shall produce the supporting documentation for the processes used to implement the algorithm that calculates firm AFCs, as required in R8. Such documentation must show that only the variables allowed in R8 were used to calculate firm AFCs, and that the processes use the current values for the variables as determined in the requirements or definitions. Note that any variable may legitimately be zero if the value is not applicable or calculated to be zero (such as counterflows, TRM, CBM, etc...). The supporting documentation may be provided in the same form and format as stored by the Transmission Service Provider. (R8)
- M16.** Each Transmission Service Provider shall produce the supporting documentation for the processes used to implement the algorithm that calculates non-firm AFCs, as required in R9. Such documentation must show that only the variables allowed in R9 were used to calculate non-firm AFCs, and that the processes use the current values for the variables as determined in the requirements or definitions. Note that any variable may legitimately be zero if the

value is not applicable or calculated to be zero (such as counterflows, TRM, CBM, etc...). The supporting documentation may be provided in the same form and format as stored by the Transmission Service Provider. (R9)

M17. The Transmission Service Provider shall provide evidence (such as documentation, dated logs, and data) that it calculated AFC on the frequency defined in R10. (R10)

M18. The Transmission Service Provider shall provide evidence (such as documentation and data) when converting Flowgate AFCs to ATCs for ATC Paths, it follows the procedure described in R11. (R11)

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 and Transmission Service Provider shall keep data or evidence to show compliance as identified below unless directed by its Compliance Enforcement Authority to retain specific evidence for a longer period of time as part of an investigation:

- 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 determine flowgates and TFC 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 AFC is updated, whichever is longer.
- The Transmission Service Provider shall retain evidence to show compliance with R5, R8, R9, R10, and R11 for the most recent calendar year plus current year.
- The Transmission Service Provider shall retain evidence to show compliance in calculating hourly values required in R6 and R7 for the most recent 14 days; evidence to show compliance in calculating daily values required in R6 and R7 for the most recent 30 days; and evidence to show compliance in calculating monthly values required in R6 and R7 for the most recent sixty days.
- 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 VSL	High VSL	Severe VSL
R1.	The Transmission Service Provider does not include in its ATCID one or two of the sub-requirements listed under R1.2, or the sub-requirement is incomplete.	The Transmission Service Provider does not include in its ATCID three of the sub-requirements listed under R1.2, or the sub-requirement is incomplete.	The Transmission Service Provider does not include in its ATCID the information described in R1.1. OR The Transmission Service Provider does not include in its ATCID the information described in R1.2 (1.2.1, 1.2.2., 1.2.3, and 1.2.4 are missing).	The Transmission Service Provider does not include in its ATCID the information described in R1.1 and R1.2 (1.2.1, 1.2.2., 1.2.3, and 1.2.4 are missing).
R2.	One or more of the following: <ul style="list-style-type: none"> The Transmission Operator established its list of Flowgates less frequently than once per calendar year, but not more than three months late as described in R2.2. The Transmission Operator established its list of Flowgates more than thirty days, but not more than sixty days, following a request to create, modify or delete a flowgate as described in R2.3. The Transmission Operator has not updated its Flowgate TFC when notified by the Transmission Owner in more than 7 days, but it has not been more than 14 days 	One or more of the following: <ul style="list-style-type: none"> The Transmission Operator did not include a Flowgate in their AFC calculations that met the criteria described in R2.1. The Transmission Operator established its list of Flowgates more than three months late, but not more than six months late as described in R2.2. The Transmission Operator established its list of Flowgates more than sixty days, but not more than ninety days, following a request to create, modify or delete a flowgate as described in R2.3. The Transmission Operator 	One or more of the following: <ul style="list-style-type: none"> The Transmission Operator did not include two to five Flowgates in their AFC calculations that met the criteria described in R2.1. The Transmission Operator established its list of Flowgates more than six months late, but not more than nine months late as described in R2.2. The Transmission Operator established its list of Flowgates more than ninety days, but not more than 120 days, following a request to create, modify or delete a flowgate as described in R2.3. The Transmission Operator 	One or more of the following: <ul style="list-style-type: none"> The Transmission Operator did not include six or more Flowgates in their AFC calculations that met the criteria described in R2.1. The Transmission Operator established its list of Flowgates more than nine months late as described in R2.2. The Transmission Operator did not establish its list of internal Flowgates as described in R2.2. The Transmission Operator established its list of Flowgates more than 120 days following a request to create, modify or delete a flowgate as described in

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R #	Lower VSL	Moderate VSL	High VSL	Severe VSL
	<p>since the notification (R2.5.1)</p> <ul style="list-style-type: none"> 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>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> <ul style="list-style-type: none"> The Transmission Operator has not updated its Flowgate TFC when notified by the Transmission Owner in more than 14 days, but it has not been more than 21 days since the notification (R2.5.1) 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 determination. 	<p>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> <ul style="list-style-type: none"> The Transmission Operator has not updated its Flowgate TFCs when notified by the Transmission Owner in more than 21 days, but it has not been more than 28 days since the notification (R2.5.1) 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 not been more than 28 days (four weeks) since their determination. 	<p>R2.3.</p> <ul style="list-style-type: none"> The Transmission Operator did not establish its list of external Flowgates following a request to create, modify or delete an external flowgate as described in R2.3. The Transmission Operator did not determine the TFC for a flowgate as described in R2.4. 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. (R2.5) The Transmission Operator has not updated its Flowgate TFCs when notified by the Transmission Owner in more than 28 calendar days (R2.5.1) The Transmission Operator has not provided its Transmission Service Provider with its Flowgate TFCs in more than 28 days (4 weeks) of their determination.

R #	Lower VSL	Moderate VSL	High VSL	Severe VSL
R3.	<p>One or more of the following:</p> <ul style="list-style-type: none"> • The Transmission Operator used one to ten Facility Ratings that were different from those specified by a Transmission or Generator Owner in their Transmission model. • The Transmission Operator did not update the model per R3.2 for one or more calendar days but not more than 2 calendar days • The Transmission Operator did not update the model for per R3.3 for one or more months but not more than six weeks 	<p>One or more of the following:</p> <ul style="list-style-type: none"> • The Transmission Operator used eleven to twenty Facility Ratings that were different from those specified by a Transmission or Generator Owner in their Transmission model. • The Transmission Operator did not update the model per R3.2 for more than 2 calendar days but not more than 3 calendar days • The Transmission Operator did not update the model for per R3.3 for more than six weeks but not more than eight weeks 	<p>One or more of the following:</p> <ul style="list-style-type: none"> • The Transmission Operator used twenty-one to thirty Facility Ratings that were different from those specified by a Transmission or Generator Owner in their Transmission model. • The Transmission Operator did not update the model per R3.2 for more than 3 calendar days but not more than 4 calendar days • The Transmission Operator did not update the model for per R3.3 for more than eight weeks but not more than ten weeks 	<p>One or more of the following:</p> <ul style="list-style-type: none"> • The Transmission Operator did not update the model per R3.2 for more than 4 calendar days • The Transmission Operator did not update the model for per R3.3 for more than ten weeks • The Transmission Operator used more than thirty Facility Ratings that were different from those specified by a Transmission or Generator Owner in their Transmission model. • The Transmission operator did not include in the Transmission model detailed modeling data and topology for its own Reliability Coordinator area. • The Transmission operator did not include in the Transmission modeling data and topology for immediately adjacent and beyond Reliability Coordinator area.
R4.	<p>The Transmission Service Provider did not represent the impact of Transmission Service as described in R4 for more than zero, but not more than</p>	<p>The Transmission Service Provider did not represent the impact of Transmission Service as described in R4 for more than 5%, but not more than</p>	<p>The Transmission Service Provider did not represent the impact of Transmission Service as described in R4 for more than 10%, but not more than</p>	<p>The Transmission Service Provider did not represent the impact of Transmission Service as described in R4 for more than 15% of all reservations; or</p>

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R #	Lower VSL	Moderate VSL	High VSL	Severe VSL
	5% of all reservations; or more than zero, but not more than 1 reservation, whichever is greater..	10% of all reservations; or more than 1, but not more than 2 reservations, whichever is greater..	15% of all reservations; or more than 2, but not more than 3 reservations, whichever is greater..	more than 3 reservations, whichever is greater..
R5.	The Transmission Service Provider did not include in the AFC process one to ten expected generation or Transmission outages, additions or retirements within the scope of the model as specified in the ATCID.	The Transmission Service Provider did not include in the AFC process eleven to twenty-five expected generation and Transmission outages, additions or retirements within the scope of the model as specified in the ATCID.	The Transmission Service Provider did not include in the AFC process twenty-six to fifty expected generation and Transmission outages, additions or retirements within the scope of the model as specified in the ATCID.	One or more of the following: <ul style="list-style-type: none"> • The Transmission Service Provider did not use the model provided by the Transmission Operator. • The Transmission Service Provider did not include in the AFC process more than fifty expected generation and Transmission outages, additions or retirements within the scope of the model as specified in the ATCID. • The Transmission Service provider did not use AFC provided by a third party.
R6.	For a specified period, the Transmission Service Provider calculated a firm ETC with an absolute value different than that calculated in M13 for the same period, and the absolute value difference was more than 15% of the value calculated in the measure or 15MW, whichever is greater, but not more than 25% of the value calculated in the measure or	For a specified period, the Transmission Service Provider calculated a firm ETC with an absolute value different than that calculated in M13 for the same period, and the absolute value difference was more than 25% of the value calculated in the measure or 25MW, whichever is greater, but not more than 35% of the value calculated in the measure or	For a specified period, the Transmission Service Provider calculated a firm ETC with an absolute value different than that calculated in M13 for the same period, and the absolute value difference was more than 35% of the value calculated in the measure or 35MW, whichever is greater, but not more than 45% of the value calculated in the measure or	For a specified period, the Transmission Service Provider calculated a firm ETC with an absolute value different than that calculated in M13 for the same period, and the absolute value difference was more than 45% of the value calculated in the measure or 45MW, whichever is greater.

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R #	Lower VSL	Moderate VSL	High VSL	Severe VSL
	25MW, whichever is greater..	35MW, whichever is greater.	45MW, whichever is greater.	
R7.	For a specified period, the Transmission Service Provider calculated a non-firm ETC with an absolute value different than that calculated in M14 for the same period, and the absolute value difference was more than 15% of the value calculated in the measure or 15MW, whichever is greater, but not more than 25% of the value calculated in the measure or 25MW, whichever is greater.	For a specified period, the Transmission Service Provider calculated a non-firm ETC with an absolute value different than that calculated in M14 for the same period, and the absolute value difference was more than 25% of the value calculated in the measure or 25MW, whichever is greater, but not more than 35% of the value calculated in the measure or 35MW, whichever is greater.	For a specified period, the Transmission Service Provider calculated a non-firm ETC with an absolute value different than that calculated in M14 for the same period, and the absolute value difference was more than 35% of the value calculated in the measure or 35MW, whichever is greater, but not more than 45% of the value calculated in the measure or 45MW, whichever is greater.	For a specified period, the Transmission Service Provider calculated a non-firm ETC with an absolute value different than that calculated in M14 for the same period, and the absolute value difference was more than 45% of the value calculated in the measure or 45MW, whichever is greater.
R8.	The Transmission Service Provider did not use all the elements defined in R8 when determining firm AFC, or used additional elements, for more than zero Flowgates, but not more than 5% of all Flowgates or 1 Flowgate (whichever is greater).	The Transmission Service Provider did not use all the elements defined in R8 when determining firm AFC, or used additional elements, for more than 5% of all Flowgates or 1 Flowgates (whichever is greater), but not more than 10% of all Flowgates or 2 Flowgates (whichever is greater).	The Transmission Service Provider did not use all the elements defined in R8 when determining firm AFC, or used additional elements, for more than 10% of all Flowgates or 2 Flowgates (whichever is greater), but not more than 15% of all Flowgates or 3 Flowgates (whichever is greater).	The Transmission Service Provider did not use all the elements defined in R8 when determining firm AFC, or used additional elements, for more than 15% of all Flowgates or more than 3 Flowgates (whichever is greater).
R9.	The Transmission Service Provider did not use all the elements defined in R8 when determining non-firm AFC, or used additional elements, for more than zero Flowgates, but	The Transmission Service Provider did not use all the elements defined in R9 when determining non-firm AFC, or used additional elements, for more than 5% of all Flowgates	The Transmission Service Provider did not use all the elements defined in R9 when determining non-firm AFC, or used additional elements, for more than 10% of all	The Transmission Service Provider did not use all the elements defined in R9 when determining non-firm AFC, or used additional elements, for more than 15% of all

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R #	Lower VSL	Moderate VSL	High VSL	Severe VSL
	not more than 5% of all Flowgates or 1 Flowgate (whichever is greater).	or 1 Flowgate (whichever is greater), but not more than 10% of all Flowgates or 2 Flowgates (whichever is greater).	Flowgates or 2 Flowgates (whichever is greater), but not more than 15% of all Flowgates or 3 Flowgates (whichever is greater).	Flowgates or more than 3 Flowgates (whichever is greater).
R10	<p>One or more of the following:</p> <ul style="list-style-type: none"> ▪ For Hourly, the values described in the AFC equation changed and the Transmission Service provider did not calculate for one or more hours but not more than 15 hours, and was in excess of the 175-hour per year requirement. ▪ For Daily, the values described in the AFC equation changed and the Transmission Service provider did not calculate for one or more calendar days but not more than 3 calendar days. ▪ For Monthly, the values described in the AFC equation changed and the Transmission Service provider did not calculate for seven or more calendar days, but less than 14 calendar days. 	<p>One or more of the following:</p> <ul style="list-style-type: none"> ▪ For Hourly, the values described in the AFC equation changed and the Transmission Service provider did not calculate for more than 15 hours but not more than 20 hours, and was in excess of the 175-hour per year requirement. ▪ For Daily, the values described in the AFC equation changed and the Transmission Service provider did not calculate for more than 3 calendar days but not more than 4 calendar days. ▪ For Monthly, the values described in the AFC equation changed and the Transmission Service provider did not calculate for 14 or more calendar days, but less than 21 calendar days. 	<p>One or more of the following:</p> <ul style="list-style-type: none"> ▪ For Hourly, the values described in the AFC equation changed and the Transmission Service provider did not calculate for more than 20 hours but not more than 25 hours, and was in excess of the 175-hour per year requirement. ▪ For Daily, the values described in the AFC equation changed and the Transmission Service provider did not calculate for more than 4 calendar days but not more than 5 calendar days. ▪ For Monthly, the values described in the AFC equation changed and the Transmission Service provider did not calculate for 21 or more calendar days, but less than 28 calendar days. 	<p>One or more of the following:</p> <ul style="list-style-type: none"> ▪ For Hourly, the values described in the AFC equation changed and the Transmission Service provider did not calculate for more than 25 hours, and was in excess of the 175-hour per year requirement. ▪ For Daily, the values described in the AFC equation changed and the Transmission Service provider did not calculate for more than 5 calendar days. ▪ For Monthly, the values described in the AFC equation changed and the Transmission Service provider did not calculate for 28 or more calendar days.

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R #	Lower VSL	Moderate VSL	High VSL	Severe VSL
R11.	N/A	N/A	N/A	The Transmission Service Provider did not follow the procedure for converting Flowgate AFCs to ATCs described in R11.

A. Regional Differences

None identified.

B. Associated Documents

Version History

Version	Date	Action	Change Tracking
2		Modified R2.1.1.3, R2.1.2.3, R2.1.3, R2.2, R2.3 and R11 Made conforming changes to M18 and VSLs for R2 and R11	Revised

*** FOR INFORMATIONAL PURPOSES ONLY ***

Enforcement Dates: Standard MOD-030-2 — Flowgate Methodology

United States

Standard	Requirement	Enforcement Date	Inactive Date
MOD-030-2	All	04/01/2011	