

**Compliance Questionnaire and**

**Reliability Standard Audit Worksheet**

**MOD-001-1a — Available Transmission System Capability**

**Registered Entity:**  *(Must be completed by the Compliance Enforcement Authority)*

**NCR Number:**  *(Must be completed by the Compliance Enforcement Authority)*

**Applicable Function(s): TOP, TSP**

**Auditors:**

**Disclaimer**

 NERC developed this Reliability Standard Audit Worksheet (RSAW) language in order to facilitate NERC’s and the Regional Entities’ assessment of a registered entity’s compliance with this Reliability Standard. The NERC RSAW language is written to specific versions of each NERC Reliability Standard. Entities using this RSAW should choose the version of the RSAW applicable to the Reliability Standard being assessed. While the information included in this RSAW provides some of the methodology that NERC has elected to use to assess compliance with the requirements of the Reliability Standard, this document should not be treated as a substitute for the Reliability Standard or viewed as additional Reliability Standard requirements. In all cases, the Regional Entity should rely on the language contained in the Reliability Standard itself, and not on the language contained in this RSAW, to determine compliance with the Reliability Standard. NERC’s Reliability Standards can be found on NERC’s website at <http://www.nerc.com/page.php?cid=2|20>. Additionally, NERC Reliability Standards are updated frequently, and this RSAW may not necessarily be updated with the same frequency. Therefore, it is imperative that entities treat this RSAW as a reference document only, and not as a substitute or replacement for the Reliability Standard. It is the responsibility of the registered entity to verify its compliance with the latest approved version of the Reliability Standards, by the applicable governmental authority, relevant to its registration status.

The NERC RSAW language contained within this document provides a non‑exclusive list, for informational purposes only, of examples of the types of evidence a registered entity may produce or may be asked to produce to demonstrate compliance with the Reliability Standard. A registered entity’s adherence to the examples contained within this RSAW does not necessarily constitute compliance with the applicable Reliability Standard, and NERC and the Regional Entity using this RSAW reserves the right to request additional evidence from the registered entity that is not included in this RSAW. Additionally, this RSAW includes excerpts from FERC Orders and other regulatory references. The FERC Order cites are provided for ease of reference only, and this document does not necessarily include all applicable Order provisions. In the event of a discrepancy between FERC Orders, and the language included in this document, FERC Orders shall prevail.

# Subject Matter Experts

Identify your company’s subject matter expert(s) responsible for this Reliability Standard. Include the person's title, organization, and the requirement(s) for which they are responsible. Include additional sheets if necessary.

**Response: *(Registered Entity Response Required)***

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| **SME Name** | **Title** | **Organization** | **Requirement** |
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# Reliability Standard Language

 **MOD-001-1a — Available Transmission Capability**

**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.

**Applicability:**

 Transmission Service Provider

 Transmission Operator

**NERC BOT Approval Date:**

**FERC Approval Date:**

**Reliability Standard Enforcement Date in the United States:**

**Requirements:**

1. Each Transmission Operator shall select one of the methodologies[[1]](#footnote-1) 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

**Describe, in narrative form, how you meet compliance with this requirement:**

***(Registered Entity Response Required)***

**Question:** Identify the ATC methodology(s) used for calculating ATC or AFC for ATC Paths, per time period identified in R2, for those Facilities within your Transmission operating area.

 ***(Registered Entity Response Required)***

# R1 Supporting Evidence and Documentation

**Response: *(Registered Entity Response Required)***

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***This section must be completed by the Compliance Enforcement Authority.***

**Compliance Assessment Approach Specific to MOD-001-1a R1**

\_\_\_ Verify the TOP selected one of the methodologies listed in R1 calculating ATC or AFC for each ATC Path per time period identified in R2 for those Facilities within its Transmission operating area;

 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.

**Detailed notes:**

1. 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).

**Describe, in narrative form, how you meet compliance with this requirement:**

***(Registered Entity Response Required)***

# R2 Supporting Evidence and Documentation

**Response: *(Registered Entity Response Required)***

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***This section must be completed by the Compliance Enforcement Authority.***

**Compliance Assessment Approach Specific to MOD-001-1a R2**

\_\_\_\_Verify the TSP calculated ATC or AFC values as listed below using the methodology or methodologies selected by its TOP(s):

\_\_\_\_ Hourly values for at least the next 48 hours

\_\_\_\_ Daily values for at least the next 31 calendar days

\_\_\_\_ Monthly values for at least the next 12 months (months 2-13)

**Detailed notes:**

1. 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*]
	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.
	2. A description of the manner in which the Transmission Service Provider will account for counterflows including:
		* 1. How confirmed Transmission reservations, expected Interchange and internal counterflow are addressed in firm and non-firm ATC or AFC calculations.
			2. A rationale for that accounting specified in R3.2.
	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.
	4. The identity of the Transmission Service Providers and Transmission Operators to which it provides data for use in calculating transfer or Flowgate capability.
	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.
	6. A description of how generation and transmission outages are considered in transfer or Flowgate capability calculations, including:
		* 1. The criteria used to determine when an outage that is in effect part of a day impacts a daily calculation.
			2. The criteria used to determine when an outage that is in effect part of a month impacts a monthly calculation.
			3. How outages from other Transmission Service Providers that cannot be mapped to the Transmission model used to calculate transfer or Flowgate capability are addressed.

**Describe, in narrative form, how you meet compliance with this requirement:**

***(Registered Entity Response Required)***

# R3 Supporting Evidence and Documentation

**Response: *(Registered Entity Response Required)***

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***This section must be completed by the Compliance Enforcement Authority.***

**Compliance Assessment Approach Specific to MOD-001-1a R3**

 \_\_\_\_ Verify the TSP prepared and kept current an ATCID that includes, at a minimum, the following information:

 \_\_\_\_Information describing how the selected methodology (or methodologies) has been implemented, in such detail that, given the same information used by the TSP, the results of the ATC or AFC calculations can be validated.

 \_\_\_\_ A description of the manner in which the TSP will account for counterflows including:

\_\_

**\_\_\_\_** How confirmed Transmission reservations, expected Interchange and internal counterflow are addressed in firm and non-firm ATC or AFC calculations.

**\_\_\_\_** A rationale for that accounting specified in R3.2

**\_\_\_\_** The identity of the TOPs and TSPs from which the TSP receives data for use in calculating ATC or AFC.

**\_\_\_\_** The identity of the TSPs and TOPs to which it provides data for use in calculating transfer or Flowgate capability.

**\_\_\_\_** A description of the allocation processes listed below that are applicable to the TSP:

**\_\_\_\_** 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 TSPs to address issues such as forward looking congestion management and seams coordination.

\_\_\_\_ A description of how generation and transmission outages are considered in transfer or Flowgate capability calculations, including:

**\_\_\_\_** The criteria used to determine when an outage that is in effect part of a day impacts a daily calculation.

\_\_\_\_ The criteria used to determine when an outage that is in effect part of a month impacts a monthly calculation.

\_\_\_\_ How outages from other TSPs that cannot be mapped to the Transmission model used to calculate transfer or Flowgate capability are addressed.

**Detailed notes:**

1. The Transmission Service Provider shall notify the following entities before implementing a new or revised ATCID: [*Violation Risk Factor: Lower*] [*Time Horizon: Operations Planning*]
	1. Each Planning Coordinator associated with the Transmission Service Provider’s area.
	2. Each Reliability Coordinator associated with the Transmission Service Provider’s area.
	3. Each Transmission Operator associated with the Transmission Service Provider’s area.
	4. Each Planning Coordinator adjacent to the Transmission Service Provider’s area.
	5. Each Reliability Coordinator adjacent to the Transmission Service Provider’s area.
	6. Each Transmission Service Provider whose area is adjacent to the Transmission Service Provider’s area.

**Describe, in narrative form, how you meet compliance with this requirement:**

***(Registered Entity Response Required)***

# R4 Supporting Evidence and Documentation

**Response: *(Registered Entity Response Required)***

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***This section must be completed by the Compliance Enforcement Authority.***

**Compliance Assessment Approach Specific to MOD-001-1a R4**

 \_\_\_\_ Verify the TSP notified the following entities before implementing a new or revised ATCID:

 \_\_\_\_ Each Planning Coordinator associated with the TSP’s area

 \_\_\_\_ Each RC associated with the TSP’s area

**\_\_\_\_** Each TOP associated with the TSP’s area.

**\_\_\_\_** Each Planning Coordinator adjacent to the TSP’s area.

**\_\_\_\_** Each RC adjacent to the TSP’s area

**\_\_\_\_** Each TSP whose area is adjacent to the TSP’s area.

**Detailed notes:**

1. 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]*

**Describe, in narrative form, how you meet compliance with this requirement:**

***(Registered Entity Response Required)***

# R5 Supporting Evidence and Documentation

**Response: *(Registered Entity Response Required)***

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***This section must be completed by the Compliance Enforcement Authority.***

**Compliance Assessment Approach Specific to MOD-001-1a R5**

 \_\_\_ Verify the TSP made available the current ATCID to all of the entities specified in R4.

**Detailed notes:**

1. 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]*

**Describe, in narrative form, how you meet compliance with this requirement:**

***(Registered Entity Response Required)***

# R6 Supporting Evidence and Documentation

**Response: *(Registered Entity Response Required)***

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***This section must be completed by the Compliance Enforcement Authority.***

**Compliance Assessment Approach Specific to MOD-001-1a R6**

\_\_\_ Verify that when calculating TTC or TFC, the TOP used assumptions no more limiting than those used in the planning of operations for the corresponding time period studied, providing such planning of operations had been performed for that time period.

**Detailed notes:**

1. 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]*

**Describe, in narrative form, how you meet compliance with this requirement:**

***(Registered Entity Response Required)***

# R7 Supporting Evidence and Documentation

**Response: *(Registered Entity Response Required)***

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***This section must be completed by the Compliance Enforcement Authority.***

**Compliance Assessment Approach Specific to MOD-001-1a R7**

\_\_\_ Verify that when calculating ATC or AFC, the TSP used assumptions no more limiting than those used in the planning of operations for the corresponding time period studied, providing such planning of operations had been performed for that time period.

**Detailed notes:**

1. 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]
	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.
	2. Daily values, once per day.
	3. Monthly values, once per week.

**Describe, in narrative form, how you meet compliance with this requirement:**

***(Registered Entity Response Required)***

# R8 Supporting Evidence and Documentation

**Response: *(Registered Entity Response Required)***

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***This section must be completed by the Compliance Enforcement Authority.***

**Compliance Assessment Approach Specific to MOD-001-1a R8**

\_\_\_\_ Verify the TSP that calculates ATC recalculated ATC at a minimum on the following frequency, unless none of the calculated values identified in the ATC equation had changed:

 \_\_\_\_ Hourly values, once per hour,

 \_\_\_\_ Daily values, once per day

 **\_\_\_\_** Monthly values, once per week

**Detailed notes:**

1. 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]*

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.

* + - 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:
		- 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.
	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).
		+ 1. If the Transmission Service Provider uses the data requested in its transfer or Flowgate capability calculations, it shall make the data used available
			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
			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
	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).

**Describe, in narrative form, how you meet compliance with this requirement:**

***(Registered Entity Response Required)***

**Question:** Did you receive a request to provide data from the list in R9 solely for use in the requestor’s ATC or AFC calculations during the audit period? If yes, identify all requesting entities and when you began to make the requested data available to the requestor, subject to the conditions specified in R9.1 and R9.2 during the audit period.

 ***(Registered Entity Response Required)***

# R9 Supporting Evidence and Documentation

**Response: *(Registered Entity Response Required)***

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***This section must be completed by the Compliance Enforcement Authority.***

**Compliance Assessment Approach Specific to MOD-001-1a R9**

\_\_\_\_ Verify the TSP, within thirty calendar days of receiving a request from any TSP, Planning Coordinator, RC, or TOP for data listed in R9 solely for use in the requestor’s ATC or AFC calculations, began to make the requested data available to the requestor, subject to the conditions specified in R9.1 and R9.2:

 \_\_\_\_ 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:

\_\_\_\_ 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 TSP 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 TOP and/or TSP.

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**\_\_\_\_** Facility Ratings

**\_\_\_\_** Any other services that impact Existing Transmission Commitments (ETCs)

**\_\_\_\_** Values of CBM and TRM for all ATC Paths or Flowgates

 \_\_\_\_ Values of TFC and AFC for any Flowgates considered by the TSP receiving the request when selling Transmission service

 \_\_\_\_ Values of TTC and ATC for all ATC Paths for those TSPs receiving the request that do not consider Flowgates when selling Transmission Service

 \_\_\_\_ Source and sink identification and mapping to the model

**\_\_\_\_** The TSP made its own current data available, in the format maintained by the TSP, for up to 13 months into the future (subject to confidentiality and security requirements)

**\_\_\_\_** If the TSP used the data requested in its transfer or Flowgate capability calculations, it made the data used available

**\_\_\_\_** If the TSP did not use the data requested in its transfer or Flowgate capability calculations, but maintained that data, it made that data available

**\_\_\_\_** If the TSP did not use the data requested in its transfer or Flowgate capability calculations, and did not maintain that data, it is not required to make that data available.

**\_\_\_\_** This data was made available by the Transmission *Service* 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).

**Detailed notes:**

# Supplemental Information

**Other ‑** The list of questions above is not all inclusive of evidence required to show compliance with the Reliability Standard. Provide additional information here**, as necessary that** demonstrates compliance with this Reliability Standard.

  **Entity** **Response: *(Registered Entity Response)***

# Compliance Findings Summary (to be filled out by auditor)

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| **Req.** | **NF** | **PV** | **OEA** | **NA** | **Statement** |
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**Excerpts from FERC Orders -- For Reference Purposes Only**

**Updated Through October 5, 2011**

**MOD-001-1a**

**Order 693**

1027. The Commission adopts the NOPR proposal not to approve or remand MOD-001- 0 until the ERO submits additional information. Consistent with Order No. 890, and comments received in response to the NOPR, the Commission directs the ERO to consider modifications of MOD-001-0 through the Reliability Standards development process as discussed below.

1029. We continue to believe that MOD-001-0 should, at a minimum, provide a framework for ATC, TTC and ETC calculations. This framework should consider industry-wide consistency of all ATC components and certain data inputs and exchange, modeling assumptions, calculation frequency, and coordination of data relevant for the calculation of ATC. Consistent with Order No. 890, we do not require a single computational process for calculating ATC for several reasons. First, it is not our intent to require transmission providers to incur the expense of developing and adopting a new one-size-fits-all software package to calculate ATC without proven benefits. More importantly, we find that the potential for discrimination and decline in reliability level does not lie primarily in the choice of an ATC calculation methodology, but rather in the consistent application of its components, and input and exchange data, along with modeling assumptions. Consistent and transparent ATC calculation will provide equivalent results between regions and will therefore prevent transmission service providers from overselling transfer capability that can stress conditions on their own and adjacent systems, and jeopardize reliability. In addition, we are especially concerned with the lack of data exchange between neighboring transmission service providers, which is a prerequisite for accurate calculation of ATC.

1030. The Commission understands that the ERO currently is developing three ATC calculation methodologies (contract or rating path ATC, network ATC, and network AFC).**331** If all of the ATC components, and certain data inputs and assumptions are consistent, the three ATC calculation methodologies will produce predictable and sufficiently accurate, consistent, equivalent and replicable results. It is therefore not necessary to require a single industry-wide ATC calculation methodology.

1031. In addition, consistent with Order No. 890, we note that there is neither a definition of AFC/TFC (Total Flowgate Capability) in the ERO’s glossary nor an existing Reliability Standard that discusses AFC. Consistent with our approach to achieving consistency and transparency, we direct the ERO to develop AFC/TFC definitions and requirements used to identify a particular set of transmission facilities as flowgates. We extend the same requirements for industry-wide consistency of all AFC components and certain data inputs and exchange, modeling assumptions, calculation frequency, and coordination of data relevant for the calculation of AFC as we stated above for ATC. However, we remind transmission providers that our regulations require the posting of ATC values associated with a particular path, not AFC values associated with a flowgate. Accordingly, transmission providers using an AFC methodology must convert flowgate (AFC) values into path (ATC) values for OASIS posting. In order to display consistent posting of ATC and TTC values on OASIS, we direct the ERO to develop a Requirement in the Reliability Standard for conversion of AFC into ATC values for use by transmission providers that currently apply flowgate methodology.

1032. We underscore Order No. 890’s objective of greater consistency in ETC calculations. The Commission directs the ERO to develop a consistent approach for determining the amount of transfer capability a transmission provider may set aside for its native load and other committed uses. We expect that the ERO will address ETC through the MOD-001-0 Reliability Standard rather than through a separate Reliability Standard. By using MOD-001-0, the ETC calculation principles can be adjusted to apply to each of the three ATC methodologies being developed by the ERO. In order to provide specific direction to public utilities and the ERO, we determine that ETC should be defined to include committed uses of the transmission system, including: (1) native load commitments (including network service); (2) grandfathered transmission rights; (3) firm and non-firm point-to-point reservations; (4) rollover rights associated with longterm firm service and (5) other uses identified through the ERO process. ETC should not be used to set aside transfer capability for any type of planning or contingency reserve; these are to be addressed through CBM and TRM.**332** In addition, in the short-term ATC calculation, all reserved but unused transfer capability (non-scheduled) must be released as non-firm ATC.

1034. In summary, we direct the ERO to modify MOD-001-0 to provide a framework for ATC, TTC and ETC calculation that, consistent with the discussion above: (1) requires industry-wide consistency of all ATC components and certain data inputs and exchange, modeling assumptions, calculation frequency, and coordination of data relevant for the calculation of ATC; (2) provides predictable and sufficiently accurate, consistent, equivalent, and replicable ATC calculations regardless of the methodology used by the region; (3) provides the definition of AFC and method for its conversion to ATC; (4) lays out clear instructions on how ETC should be defined and (5) identifies to whom MOD-001-0 Reliability Standards apply, i.e., users, owners and operators of the Bulk-Power System.

1036. The Commission adopts the proposal from the NOPR to direct the ERO to modify Reliability Standard MOD-001-0 to require disclosure of the algorithms and processes used in ATC calculation. In addition, consistent with Order No. 890, the Commission believes that further clarification is necessary regarding the ATC calculation algorithm for firm and non-firm ATC.**333** Currently, the ERO has no specifications for calculating non-firm ATC. We find that the same potential for discrimination exists for non-firm transmission service as for firm service, and greater uniformity in both firm and non-firm ATC calculations will substantially reduce the remaining potential for undue discrimination. Therefore, we direct the ERO to modify Reliability Standard MOD-001- 0 to require disclosure of the algorithms and processes used in ATC calculation, and also to implement the following principles for firm and non-firm ATC calculations: (1) for firm ATC calculations, the transmission provider shall account only for firm commitments and (2) for non-firm ATC calculations, the transmission provider shall account for both firm and non-firm commitments, postbacks of redirected service, unscheduled service and counterflows.

1038. The Commission adopts the NOPR proposal and reiterates the requirement in Order No. 890 that the ERO must revise the MOD Reliability Standards to require the exchange of data and coordination among transmission providers. We direct the ERO to modify MOD-001-0 to ensure that the following data, at a minimum, be exchanged among transmission providers for the purposes of ATC modeling: (1) load levels; (2) transmission planned and contingency outages; (3) generation planned and contingency outages; (4) base generation dispatch; (5) existing transmission reservations, including counterflows; (6) ATC recalculation frequency and times and (7) source/sink modeling identification.**334** The Commission concludes that the exchange of such data is necessary to support the reforms requiring consistency in the determination of ATC adopted in this Final Rule. As explained above, transmission providers are required to coordinate the calculation of TTC/TFC and ATC/AFC with others, and this requires a standard means of exchanging data.

1040. We clarify that we require consistent use of assumptions underlying operational planning for short-term ATC and expansion planning for long-term ATC calculation. We also clarify that there must be a consistent basis for or approach to determining load levels in each of these sets of calculations. For example, one approach may be for transmission providers to calculate load levels using an on- and off-peak model for each month when evaluating yearly service requests and calculating yearly ATC. The same (peak- and off-peak) or alternative approaches may be used for monthly, weekly, daily and hourly ATC calculations. Regardless of the ultimate choice, it is imperative that all transmission providers use the same approach to modeling load levels to eliminate undue discrimination and enable the meaningful exchange of data among transmission providers. Accordingly, we direct the ERO to develop consistent requirements for modeling load levels in MOD-001-0.

1041. With respect to modeling of generation dispatch, we direct the ERO to develop requirements in MOD-001-0 specifying how transmission providers should determine which generators should be modeled in service, including guidance on how independent generation should be considered. Accordingly, we direct the ERO to revise Reliability Standard MOD-001-0 by specifying that base generation dispatch will model: (1) 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 (2) all uncommitted resources that are deliverable within the control area, economically dispatched as necessary to meet balancing requirements.

1042. Regarding transmission reservations modeling, we direct the ERO to develop requirements in Reliability Standard MOD-001-0 that specify: (1) a consistent approach on how to simulate reservations from points of receipt to points of delivery when sources and sinks are unknown and (2) how to model existing reservations.

1043. Consistent with Order No. 890, the Commission directs the ERO to modify Reliability Standard MOD-001-0 to require ATC to be updated by all transmission providers on a consistent time interval and in a manner that closely reflects the actual topology of the system, e.g., generation and transmission outages, load forecasts, interchange schedules, transmission reservations, facility ratings and other necessary data. This process must also consider whether ATC should be calculated more frequently for constrained facilities.

1044. In conclusion, we direct the ERO to modify MOD-001-0 to require that: (1) assumptions used for short-term ATC calculations be consistent with those used for operation planning to the maximum extent practicable; (2) assumptions used for longterm ATC calculations be consistent with those used for system planning to the maximum extent practicable and (3) ATC be updated by all transmission providers on a consistent time interval.

1046. We adopt the NOPR’s proposal that this Reliability Standard should include a requirement that applicable entities make available a comprehensive list of assumptions and contingencies underlying ATC/AFC and TTC/TFC calculations. While we require the submission of contingency files under MOD-010-0, here we only direct the ERO to consider development of a requirement that the transmission service provider declare what type of contingencies it uses for specific calculations of ATC/AFC and TTC/TFC, and release the contingency files upon request if not submitted with the data filed with the ERO in compliance with MOD-010-0.

1047. In order to increase the transparency of ATC calculations, we adopt the NOPR’s proposal and direct the ERO to develop in MOD-001-0 a requirement that each transmission service provider provide on OASIS its OATT Attachment C, in which Order No. 890 requires transmission providers to include a detailed description of the specific mathematical algorithm the transmission provider uses to calculate both firm and nonfarm ATC for various time frames such as: (1) the scheduling horizon (same day and realtime), (2) operating horizon (day ahead and pre-schedule) and (3) planning horizon (beyond the operating horizon). In addition, a transmission provider must include a process flow diagram that describes the various steps that it takes in performing the ATC calculation.

1052. We agree with APPA that this distinction should either be clarified or eliminated through the ongoing Reliability Standards development process, and therefore direct the ERO to modify MOD-001-0 to address TTC under transfer capability-related standards such as the FAC group of Reliability Standards.

1056. The Commission agrees with APPA that the collaborative efforts and knowledge developed over decades of interconnected operation should not be wasted. We do not believe that will happen through the Reliability Standards development process and that all of the applicable entities will have significant roles to play in achieving the goal the Commission has set out in Order No. 890. Therefore, we adopt the proposal in the NOPR and direct the ERO to modify MOD-001-0 to reflect the users, owners and operators to which the Reliability Standard will apply.

1057. Accordingly, the Commission neither accepts nor remands MOD-001-0 until the ERO submits additional information. Although the Commission does not propose any action with regard to MOD-001-0, we address above a number of concerns regarding the Reliability Standard, consistent with those set forth in Order No. 890. We direct the ERO to develop modifications to the Reliability Standard through the Reliability Standards development process that: (1) provide a framework for ATC, TTC and ETC calculation, developing industry-wide consistency of all ATC components; (2) require disclosure of algorithms, for both firm and non-firm ATC and processes used in the ATC calculation; (3) identify a detailed list of information to be exchanged among transmission providers for the purposes of ATC modeling; (4) include a requirement that the assumptions used in ATC and AFC calculations should be consistent with those used for planning the expansion or operation of the Bulk-Power System to the maximum extent practicable; (5) include a requirement that ATC be updated by all transmission providers on a consistent time interval; (6) include a requirement that applicable entities make available assumptions and contingencies underlying ATC and TTC calculations; (7) address only ATC/AFC while TTC/TFC should be addressed under transfer capability standards such as FAC-012-1 and (8) identify the applicable entities in terms of users, owners and operators of the Bulk-Power System.

1064. APPA agrees that MOD-003-0 is a fill-in-the-blank standard. It notes that it is not sufficient in its current form and should not be approved as a mandatory Reliability Standard until the accompanying regional procedures are submitted and approved. In addition, APPA hopes that if NERC develops the MOD-001-0 Reliability Standard properly, it will include a reporting procedure for addressing shortcomings in information for all transmission customers (LSE, generator owner and purchasing-selling entity) in the MOD-001-0 Standard. APPA argues that, as a result, MOD-003-0 may be redundant and should be eliminated.

**Order 729 – Order on ATC**

**(November 24, 2009)**

**MOD-001-1**

147. As noted in several comments, expanding the availability of the implementation documents to entities beyond the registered entities listed in the Reliability Standards may stretch the role of the ERO beyond ensuring reliability of the Bulk-Power System and could be duplicative of the associated NAESB standard requirements. Therefore, upon further consideration, the Commission declines to adopt the NOPR proposal to direct the ERO to modify MOD-001-1 to expand the availability of the implementation documents beyond those entities with a demonstrated reliability need to access such information. Instead, the Commission approves the availability provisions of the Reliability Standards as written. NERC has provided sufficient justification for limiting disclosure of the implementation documents to a discrete set of registered entities that have been identified as having a reliability need for such information.

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. 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.

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. Standards for Business Practices and Communication Protocols for Public Utilities, Order 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.

192…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.

288. The Commission hereby adopts the NOPR proposal and approves NERC’s request to retire MOD-006-0 and MOD-007-0 and to withdraw its request for approval of MOD-001-0, MOD-002-0, MOD-003-0, MOD-004-0, MOD-005-0, MOD-008-0, and MOD-009-0. The Commission also finds that MOD-001-0, MOD-002-0, MOD-003-0, MOD-004-0, MOD-005-0, MOD-008-0, and MOD-009-0 are all superseded by the available transfer capability calculations required by the proposed MOD Reliability Standards in this proceeding are, upon the effectiveness of the proposed MOD Reliability Standards, no longer necessary.

**Order 729-A**

**(May 5, 2010)**

**MOD-001-1**

12. Reliability Standard MOD-001-1 establishes foundational requirements that oblige entities to select a methodology for calculating available transfer or flowgate capability and then make the appropriate calculations. Reliability Standards MOD-004-1 and MOD-008-1 establish the methodologies for calculating capacity benefit margin and transmission reliability margin, respectively. The NERC Glossary of Terms Used in Reliability Standards (NERC Glossary) defines available transfer capability as “Total Transfer Capability less Exiting Transmission Commitments (including retail customer service), less a Capacity Benefit Margin, less a Transmission Reliability Margin, plus Postbacks, plus counterflows.”Thus, both capacity benefit margin and transmission reliability margin are integral components of any available transfer or flowgate calculation.

13…Thus, the Commission clarifies that the calculations of capacity benefit margin and transfer reliability margin, performed under MOD-004-1 and MOD-008-1 respectively, are properly audited under Requirement R3.1 of MOD-001-1.

23. The Commission agrees that it could be difficult in some instances to enforce a requirement that hinges upon such phrases as “material changes” and “whenever practical.” Nevertheless, we believe that such modifications would be useful to ensure timely updates of available transfer or flowgate capability values. If the ERO is unable to modify the requirements of MOD-001-1 and MOD-030-2 to incorporate such language in a manner that sets clear criteria or measures of whether an entity is in compliance with the relevant Reliability Standard or cannot otherwise identify specific changes in system conditions that require an update, the ERO must, at a minimum, include this language in its measures of compliance associated with those Reliability Standards.

**Order on Reliability Standards**

**(July 15, 2010)**

**Commission Determination**

13. Upon further consideration, the Commission has determined that the implementation schedule of the MOD Reliability Standards should be keyed to the date of approval of the Reliability Standards, as originally contemplated in Order No. 729, and not the date of publication of Order No. 729 in the *Federal Register*. Accordingly, the Commission grants rehearing of its determination in Order No. 729-A and directs that the MOD Reliability Standards shall become effective within the United States as of the first day of the first quarter occurring 365 days after their approval by the Commission, i.e., April 1, 2011.

**Order Approving Interpretation (September 16, 2010)**

P 5. In a December 2, 2009 filing, NERC petitioned the Commission to approve interpretations to certain requirements of two MOD Reliability Standards. [Footnote omitted.] NERC states that the New York Independent System Operator (NYISO) requested NERC to interpret these provisions. NERC requests that the interpretations be made effective immediately upon Commission approval. As a preliminary matter, NERC states that the NERC Board of Trustees, contemporaneous with Board approval of the MOD interpretation, also adopted a resolution providing that “requests for a decision on how a reliability standard applies to a registered entity’s particular facts and circumstances should not be addressed through the interpretations process.” [Footnote omitted.] NERC states that NYISO’s request is an example of such a request and NERC does not expect similar fact-specific interpretations in the future.

P 7. In its request for interpretation, NYISO asked NERC to clarify whether the "advisory ATC" used under the NYISO tariff is subject to the ATC calculation and recalculation requirements in MOD-001-1 Requirements R2 and R8. [Footnote omitted.]

P 20. We approve NERC's proposed interpretation of Reliability Standards MOD-001-1 and MOD-029-1, effective on the issuance of this order, as requested by NERC. For the reasons stated below, we find the interpretations submitted by NERC to be just, reasonable, not unduly discriminatory or preferential, and in the public interest. Further, we agree with NERC that, for the future, a request for interpretation that pertains to the particular facts and circumstances of a registered entity should not be addressed through the interpretations process. Additionally, we note that NYISO states that "the NYISO OATT’s definition of 'ATC' . . . does not fully reflect the 'advisory' nature of most NYISO ATC calculation." [Footnote omitted.] To the extent that NYISO's tariff does not reflect its actual mode of operation, we note that NYISO is required to take steps to ensure that its tariff and its actual operations are in harmony. NYISO further states that it is initiating a stakeholder process to update the definition of ATC in its tariff, and we encourage it to do so expeditiously.

P 21. With regard to the interpretation of MOD-001-1 Requirements R2 and R8, NYISO argues, in essence, that in its approved "financial reservation" transmission model, some of the calculation requirements of MOD-001-1 are neither relevant nor necessary for reliability. It claims that, since NYISO uses Advisory ATC, transmission reservations are generally not allowed and, therefore, computing ATC for future time periods is not necessary.

P 22. NERC makes clear in its interpretation that it disagrees…Thus, according to NERC, NYISO must comply with Requirements R2 and R8 to calculate and recalculate ATC, for those paths that fit within the NERC definition of ATC Paths. We agree.

P 23. We recognize that NYISO's internal paths may not meet this definition. In its comments submitted with the first ballot, NYISO stated that "[we] read[] the interpretation as not requiring [us] to calculate ATC with respect to internal interfaces because there are no time periods when [our] customers may not schedule transactions so long as such customers are willing to pay for congestion costs. Ultimately these standards would not be applicable to the NYISO internal interfaces." [Footnote omitted.] A review of the NYISO OATT and Transmission Services Manual confirms that reservations beyond one day in advance are not permitted, except on external interfaces (i.e., with Hydro Quebec). Thus, NYISO appears correct that NYISO’s internal interfaces are not ATC Paths because ATC is not calculated and none of the categories of "Posted Path" in the Commission's regulations apply. [Footnote omitted.]

P 24. However, it appears that NYISO's external interfaces are ATC Paths, because, whether or not ATC is calculated by NYISO, they are "a control area to control area interconnection" within the Posted Path definition. As NYISO has acknowledged, these external interfaces can be pre-scheduled, and NYISO’s transmission reservation procedures differentiate between interfaces and Scheduled Lines. The NYISO Transmission Services Manual (section 7.1.10) allows for pre-scheduling of external transactions up to 18 months in advance.

…

P 26. Moreover, to the extent needed for compliance with MOD-001-1, NYISO should account for the impacts of its internal congestion on its external ATC Paths as accurately as possible. Thus, to the extent that NYISO would have to calculate internal flows in order to fulfill its obligation to calculate external flows, it would be required to do so. The NYISO external ATC calculations should be performed with models that depict system conditions consistent with the expected internal flows for appropriate timeframes. As we stated when approving MOD-001-1 and directing the ERO to develop benchmarking requirements, “dispatch models should reflect technical analysis,. . . . If …a transmission service provider’s calculations consistently under- or overestimate available transfer or flowgate capability, adjacent systems will be unable to effectively model their own transfer or flowgate capabilities, thus resulting in a degradation to the reliable operation of the Bulk-Power System.” [Footnote omitted.]

P 27. Accordingly, for the reasons stated above, we affirm NERC’s interpretation of

Reliability Standard MOD-001-1.

**Revision History**

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| **Version** | **Date** | **Reviewers** | **Revision Description** |
| 1 | July 2010 | RSAW Working Group  | New Document. |
| 1 | September 2010 | NERC Legal & NERC Compliance | Added regulatory language & reviewed for formatting consistency. |
| 1 | December 2010 | QRSAW WG | Revised Findings Table, modified Supporting Evidence tables. |
| 1 | January 2011 | Craig Struck | Reviewed for format consistency and content. |
| 1 | September 2011 | QRSAW WG | Interpretation of R2 and R8 added to Standard |
| 1 | October 2011 | NERC Legal | Updated Excerpts from FERC Orders from August 2010 through and including October 5, 2011. |
|  |  |  |  |

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. [↑](#footnote-ref-1)