

**Standard Development Roadmap**

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

**Development Steps Completed:**

1. SAC Authorized posting TTC/ATC/AFC SAR Development June 20, 2005.
2. SAC Authorized the SAR to be developed as a standard on February 14, 2006.
3. SC appointed a Standard Drafting Team on March 17, 2006.
4. SDT posted first draft for comment from February 15–March 16, 2007.
5. SDT posted second draft for comment from May 25–June 25, 2007.
6. SDT posted third draft for comment from October 31–December 15, 2007.
7. SC Conducted an Initial Ballot of the standard from March 3–12, 2008.

**Description of Current Draft:**

This is the fifth draft of the proposed standard posted for stakeholder comments. This draft includes consideration of stakeholder comments and applicable FERC directives from FERC Order 693, Order 890, and Order 890-A.

**Future Development Plan:**

<b>Anticipated Actions</b>	<b>Anticipated Date</b>
1. Posting for 30-day industry comment.	April 16, 2008
2. Respond to Comments.	June 20, 2008
3. Posting for 30-day Pre-Ballot Review.	June 21, 2008
4. Initial Ballot.	July 21, 2008
5. Respond to comments.	August 20, 2008
6. Recirculation ballot.	August 21, 2008
7. 30-day posting before board adoption.	June 21, 2008
8. Board adoption.	September 1, 2008

**Definitions of Terms Used in Standard**

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

**ATC Path:** Any Posted Path<sup>1</sup> or any other combination of Point of Receipt and Point of Delivery for which Available Transfer Capability is calculated.

**Available Transfer Capability (ATC):** A measure of the transfer capability remaining in the physical transmission network for further commercial activity over and above already committed uses. It is defined as Total Transfer Capability less existing transmission commitments (including retail customer service), less a Capacity Benefit Margin, less a Transmission Reliability Margin, plus Postbacks, plus counterflows.

**Available Transfer Capability Implementation Document (ATCID):** A document that describes the implementation of a methodology for calculating Available Transfer Capability (ATC) or Available Flowgate Capability (AFC), and provides information related to a Transmission Service Provider's calculation of ATC or AFC.

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

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

**Planning Coordinator:** See Planning Authority.

**Postback:** Positive adjustments to Available Transfer Capability or Available Flowgate Capability as defined in Business Practices. Such Business Practices may include processing of redirects and unscheduled service.

**Business Practices:** Those business rules contained in the Transmission Service Provider's applicable tariff, rules, or procedures; associated Regional Reliability Organization or regional entity business practices; or NAESB Business Practices.

**Block Dispatch:** A set of dispatch rules such that given a specific amount of load to serve, an approximate generation dispatch can be determined. To accomplish this, the capacity of a given generator is segmented into loadable "blocks," each of which is grouped and ordered relative to other blocks (based on characteristics including, but not limited to, efficiency, run of river or fuel supply considerations, and/or "must-run" status).

**Dispatch Order:** A set of dispatch rules such that given a specific amount of load to serve, an approximate generation dispatch can be determined. To accomplish this, each generator is ranked by priority.

**Participation Factors:** A set of dispatch rules such that given a specific amount of load to serve, an approximate generation dispatch can be determined. To accomplish this, generators are assigned a percentage that they will contribute to serve load.

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<sup>1</sup> See 18 CFR 37.6(b)(1)

**A. Introduction**

- 1. Title:** Available Transmission System Capability
- 2. Number:** MOD-001-1
- 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:** First day of the first calendar quarter that is twelve months beyond the date that all four standards (MOD-001-1, MOD-028-1, MOD-029-1, and MOD-030-1) are approved by all applicable regulatory authorities.

**B. Requirements**

- R1.** Each Transmission Operator shall select one ATC methodology<sup>2</sup> for calculating ATC (Area Interchange methodology, Rated System Path methodology) or AFC (Flowgate methodology) for each ATC Path per time period identified in R2 for those Facilities within its Transmission Operator Area. [*Violation Risk Factor: Lower*] [*Time Horizon: Operations Planning*]
- 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:
    - 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 the defined accounting.

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<sup>2</sup> 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.

- R3.3.** The identity of the Transmission Operators and Transmission Service Providers from which the Transmission Service Provider receives data for use in calculating transfer of Flowgate capability.
- 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 outages are considered in ATC calculations, including:
  - R3.6.1.** The criteria used to determine when an outage impacts a daily ATC or AFC calculation.
  - R3.6.2.** The criteria used to determine when an outage impacts a monthly ATC or AFC calculation.
  - R3.6.3.** How outages (including those outages from other Transmission Service Providers that are unrecognized) are processed.
- R4.** The Transmission Service Provider shall notify the following entities (via electronic mail) before implementing a new or revised ATCID: *[Violation Risk Factor: Lower] [Time Horizon: Operations Planning]*
  - 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 TTC or TFC the Transmission Operator shall use assumptions no more limiting than those used in planning of operations for the corresponding time period studied. *[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 planning of operations for the corresponding time period studied. *[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 80 hours per calendar year during which calculations are not required to be performed.
- 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 for use in 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:
    - 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), and TTC 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).
- R9.2.** This data shall be 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 requestor 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 its Transmission Operator 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) 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 loop flow, generation re-dispatch, switching operating guides, load shedding 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

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 loop flow, generation re-dispatch, switching operating guides, load shedding 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 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	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 Operator Area.
R2.	<p>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.</p> <p><b>OR</b></p> <p>Has calculated daily ATC or AFC values for more than the next 21 calendar days but less than the next 31 calendar days.</p> <p><b>OR</b></p> <p>Has calculated monthly ATC or AFC values for more than the next 9 months but less than the next 12 months.</p>	<p>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.</p> <p><b>OR</b></p> <p>Has calculated daily ATC or AFC values for more than the next 14 calendar days but less than the next 22 calendar days.</p> <p><b>OR</b></p> <p>Has calculated monthly ATC or AFC values for more than the next 6 months but less than the next 10 months.</p>	<p>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.</p> <p><b>OR</b></p> <p>Has calculated daily ATC or AFC values for more than the next 7 calendar days but less than the next 15 calendar days.</p> <p><b>OR</b></p> <p>Has calculated monthly ATC or AFC values for more than the next 3 months but less than the next 7 months.</p>	<p>The Transmission Service Provider calculated less than 11 hourly ATC or AFC values.</p> <p><b>OR</b></p> <p>Calculated less than 8 daily ATC or AFC values.</p> <p><b>OR</b></p> <p>Calculated less than 4 monthly ATC or AFC values.</p> <p><b>OR</b></p> <p>Did not use the selected methodology(ies) to calculate ATC.</p>

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R #	Lower VSL	Moderate	High VSL	Severe VSL
R3.	The Transmission Service Provider has an ATCID that does not incorporate changes made up to three months ago.	The Transmission Service Provider has an ATCID that does not incorporate changes made more than three months but not more than six months ago.	The Transmission Service Provider has an ATCID that does not incorporate changes made more than six months but not more than one year ago.  <b>OR</b> The Transmission Service Provider has an ATCID, but it does not include two or more of the information items described in R3.	The Transmission Service Provider has an ATCID that does not incorporate changes made a year or more ago.  <b>OR</b> The Transmission Service Provider does not have an ATCID, or its ATCID does not include any of the information described in R3.
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 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	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	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	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).

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R #	Lower VSL	Moderate	High VSL	Severe VSL
	greater).	Paths or Flowgates or 2 ATC Paths or Flowgates (whichever is greater).	Paths or Flowgates or 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 than 5% of all ATC Paths or Flowgates or 1 ATC Path or Flowgate (whichever is greater).	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 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 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 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 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 than 3 ATC Paths or Flowgates (whichever is greater).
R8.	<p>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 80-hour per year requirement.</p> <p><b>OR</b></p> <p>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.</p> <p><b>OR</b></p>	<p>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 80-hour per year requirement.</p> <p><b>OR</b></p> <p>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.</p> <p><b>OR</b></p>	<p>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 80-hour per year requirement.</p> <p><b>OR</b></p> <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> <p><b>OR</b></p>	<p>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 80-hour per year requirement.</p> <p><b>OR</b></p> <p>For Daily, the values described in the ATC equation changed and the Transmission Service provider did not calculate for more than 5 calendar days.</p> <p><b>OR</b></p> <p>For Monthly, the values described in the ATC equation</p>

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R #	Lower VSL	Moderate	High VSL	Severe VSL
	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.	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.	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.	changed and the Transmission Service provider did not calculate for 28 or more calendar days.
R9	N/A	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.	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.	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.

**E. Regional Variances**

None.

**Version History**

Version	Date	Action	Change Tracking
0	April 1, 2005	Effective Date	New
0	January 13, 2006	Fixed numbering from R.5.1.1, R5.1.2., and R5.1.3 to R1.5.1., R1.5.2., and R1.5.3. Changed “website” and “web site” to “Web site.”	Errata
1			Revision