Standard Development Roadmap

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

Development Steps Completed:

1. SAC authorized posting TTC/ATC/AFC SAR development June 20, 2005.

2. SAC authorized the SAR to be development as a standard on February 14, 2006.

3. SC appointed a Standard Drafting Team on March 17, 2006.

4. SDT posted first draft for comment from May 25–June 25, 2007

5. SDT posted second draft for comment from October 31–December 14, 2007.

Description of Current Draft:

This is the third and final draft of the proposed standard posted for stakeholder comments. This draft includes ~~the modifications identified in the SAR with~~ consideration of stakeholder comments and applicable FERC directives from FERC Order 693, Oder 890, and Order 890-A.

Future Development Plan:

Anticipated Actions	Anticipated Date
1. First ballot of standard.	March 7, 2008
2. Respond to comments.	April 22, 2008
3. Recirculation ballot.	April 22, 2008
4. 30-day posting before board adoption.	March 7, 2008
5. Board adoption.	May 5, 2008

Definitions of Terms Used in Standard

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

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

A. Introduction

1. **Title: Area Interchange Methodology**

2. **Number:** MOD-028-1

3. **Purpose:** To increase consistency and ~~transparency~~ reliability in the development and documentation of ~~T~~transfer ~~C~~capability calculations for short-term ~~Transmission services~~ use performed by entities using the Area Interchange Methodology to support ~~reliable~~ analysis and system operations.

4. **Applicability:**

   4.1. Each Transmission Operator that uses the Area Interchange Methodology to calculate Total Transfer Capabilities (TTCs) for ~~Posted~~ ATC Paths.

   4.2. Each Transmission Service Provider that uses the Area Interchange Methodology to calculate Available Transfer Capabilities (ATCs) for ~~Posted~~ ATC Paths.

5. **Proposed Effective Date:** First day of the first calendar quarter that is twelve months beyond the date that ~~all six (~~MOD-001-1, ~~MOD-004-1, MOD-008-1,~~ MOD-028-1, MOD-029-1, and MOD-030-1~~) ATC-related standards~~ are approved by applicable regulatory authorities, or in those jurisdictions where regulatory approval is not required, the standard becomes effective on the first day of the first calendar quarter that is twelve months beyond the date the set of standards is approved by the NERC Board of Trustees.

B. Requirements

R1. Each Transmission Service Provider shall include in its Available Transfer Capability Implementation Document (ATCID), at a minimum, the following information relative to its methodology for determining TTC: *[Violation Risk Factor: Lower] [Time Horizon: Operations Planning]*

   R1.1. Information describing how the selected methodology has been implemented, in such detail that, given the same information used by the Transmission Operator, the results of the TTC calculations ~~may~~ 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 ATC calculations is obtained from the source field or the 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 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 ~~Posted~~ ATC Paths, the Transmission Operator shall use a Transmission model that contains all of the following: *[Violation Risk Factor: Medium] [Time Horizon: Operations Planning]*

R2.1. Modeling data and topology of its Reliability Coordinator's area of responsibility. Equivalent representation of radial lines and facilities161kV 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 intra-day and next-day~~-~~) for ~~Posted~~ ATC Paths, the Transmission Operator shall include the following data for the Transmission Service Provider's ~~Area~~area~~.,~~ The Transmission Operator shall also include~~all~~ the following data associated with Facilities that are explicitly represented in the Transmission model, as provided by adjacent Transmission Service Providers~~,~~ and ~~any of the following data provided by~~ any other Transmission Service Providers with which coordination agreements have been executed:~~.,~~ ~~provided that data can be associated with Facilities that are explicitly represented in the Transmission model:~~ [*Violation Risk Factor: Medium*] [*Time Horizon: Operations Planning*]

R3.1. For on-peak intra-day TTCs, and on-peak next-day ~~intra-peak~~ TTCs, use the following (a~~t a minimum~~s 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. ~~Peak~~Load forecast for the on-peak period being calculated.

R3.1.3. Unit commitment and dispatch order, to include all designated network resources and other resources that are committed or have the legal obligation to run, (within or out of economic dispatch) as they are expected to run.

R3.2. For off-peak intra-day and off-peak next-day TTCs, use the following (as well as any other values and internal parameters as specified in the ATCID~~at a minimum~~):

R3.2.1. Expected generation and Transmission outages, additions, and Retirements, included as specified in the ATCID.

R3.2.2. ~~Peak~~Load forecast for the off-peak period being calculated.

R3.2.3. Unit commitment and dispatch order, to include all designated network resources and other resources that are committed or have the legal obligation to run, (within or out of economic dispatch) as they are expected to run.

R4. When calculating TTCs (for time periods beyond next day) for ~~Posted~~ ATC Paths, the Transmission Operator shall include the following data for the Transmission Service Provider's ~~a~~Area. The Transmission Operator shall also include~~, all~~ the following data associated with Facilities that are explicitly represented in the Transmission model as provided by adjacent Transmission Service Providers~~,~~ and any ~~of the following data provided by any~~ other Transmission Service Providers with which coordination agreements have been executed~~, provided that data can be associated with Facilities that are explicitly represented in the Transmission model~~: *[Violation Risk Factor: Lower] [Time Horizon: Operations Planning]*

R4.1. For days two through 31 TTCs, use the following (a~~t a minimum~~s well as any other values and additional parameters as specified in the ATCID):

R4.1.1. Expected generation and Transmission outages, additions, and retirements, included as specified in the ATCID.

R4.1.2. ~~Peak~~ Load forecast for the day being calculated.

R4.1.3. Unit commitment and dispatch order, to include all designated network resources and other resources that are committed or have the legal obligation to run, (within or out of economic dispatch) as they are expected to run.

R4.2. For months two through 13 TTCs, use the following (a~~t a minimum~~s well as any other values and additional parameters as specified in the ATCID):

R4.2.1. Expected generation and Transmission outages, additions, and retirements, included as specified in the ATCID.

R4.2.2. ~~Peak~~ Load forecast for the month calculated.

R4.2.3. Unit commitment and dispatch order, to include all designated network resources and other resources that are committed or have the legal obligation to run, (within or out of economic dispatch) as they are expected to run.

R5. When calculating TTCs for ~~Posted~~ ATC Paths, the Transmission Operator shall meet all of the following conditions: *[Violation Risk Factor: Lower] [Time Horizon: Operations Planning]*

R5.1. Use all Contingencies meeting the criteria described in its ATCID.

R5.2. Respect any contractual allocations of TTC.

R5.3. Include, for each time period, the ~~expected schedules using monthly or longer F~~firm Transmission ~~s~~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~~'s Area~~, all adjacent Transmission

Service Providers, and any Transmission Service Providers with which coordination agreements have been executed modeling the source and sink as follows:

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

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

– If the sink, as specified in the ATCID, ~~has~~ has not been ~~specified~~ identified in the reservation, use the immediately adjacent Balancing Authority associated with the ~~interface point with the adjacent downstream~~ Transmission Service Provider to which the power is being delivered as the sink.

R6. Each Transmission Operator shall calculate TTC for each ~~Posted~~ ATC Path as defined below, unless otherwise requested by the Transmission Service Provider: *[Violation Risk Factor: Lower] [Time Horizon: Operations Planning]*

R6.1. At least once ~~per~~in the calendar week prior to the specified period for TTCs used in hourly~~,~~ and daily ATC calculations.

R6.2. At least once per calendar month for TTCs used in monthly ATC calculations.

R6.3. 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 in duration.

R7. Each Transmission Operator shall calculate TTC for each ~~Posted~~ ATC Path using the following process: *[Violation Risk Factor: Medium] [Time Horizon: Operations Planning]*

R7.1. Determine the incremental Transfer Capability for each ~~Posted~~ 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 ~~greater than~~ 5% or greater[1].
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R7.2. If the limit in step R7.1 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.

R7.3. ~~Sum the incremental Transfer Capability and all impacts of Firm Transmission Service that were included in the study model~~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 ~~Posted~~ ATC Path.

R7.4. For ~~Posted~~ ATC Paths whose capacity uses jointly-owned or allocated Facilities, limit TTC for each Transmission Operator so the TTC does not exceed that Transmission Operator's contractual rights.

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

R8. The Transmission Operator shall provide the Transmission Service Provider of that Posted ATC Path with the most current value for TTC for that Posted ATC Path no more than: *[Violation Risk Factor: Medium] [Time Horizon: Operations Planning]*

R8.1. One calendar day after its determination for TTCs used in hourly and daily ATC calculations.

R8.2. Seven calendar days after its determination for TTCs used in monthly ATC calculations.

R7.1. within seven calendar days of its determination.

R9. When calculating Existing Transmission Commitments (ETCs) for firm commitments (ETC_F) for all time periods for an Posted ATC Path the Transmission Service Provider shall use the following algorithm: *[Violation Risk Factor: Medium] [Time Horizon: Operations Planning]*

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

Where:

$NITS_F$ is the firm capacity reserved set aside for Network Integration Transmission Service reserved (including the capacity used to serve bundled load within the Transmission Service Provider's area with external sources) on Posted ATC Paths that serve as interfaces with other Transmission Service ProvidersBalancing Authorities.

GF_F is the firm capacity reserved set aside for Grandfathered Firm Transmission Service and bundled 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" accepted by FERC 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 on from other Posted ATC Paths of the Transmission Service Provider as described specified in the ATCID.

R10. When calculating ETC for non-firm commitments (ETC_{NF}) for all time periods for an Posted 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 ~~reserved~~ 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 ~~Posted~~ ATC Paths that serve as interfaces with other ~~Transmission Service Providers~~Balancing Authorities.

GF_{NF} is the non-firm capacity reserved for Grandfathered Non-Firm Transmission Service and ~~bundled~~ 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" accepted by FERC 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 ~~on~~ other ATC~~Posted~~ Paths of the Transmission Service Provider as ~~described~~ specified in the ATCID.

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

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

Where:

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

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

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

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

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

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

$Counterflows_F$ are adjustments to firm ATC as determined by the Transmission Service Provider and ~~described~~ specified in the~~ir~~ ATCID.

R12. When calculating ~~N~~non-~~f~~Firm ATC for a ~~Posted~~ 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 ~~Posted~~ ATC Path for that period~~,~~.

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

ETC$_F$ is the sum of existing firm Transmission commitments for the ~~Posted~~ ATC Path during that period~~,~~.

ETC$_{NF}$ is the sum of existing non-firm Transmission commitments for the ~~Posted~~ ATC Path during that period~~,~~.

CBM$_S$ is the Capacity Benefit Margin for the ~~Posted~~ ATC Path that has been scheduled without a separate reservation ~~on~~ during that period~~,~~.

TRM$_U$ is the Transmission Reliability Margin for the ~~Posted~~ 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 ~~adjustments~~ changes to non-firm ATC due to a change in the use of Non-Firm Transmission Service~~postbacks~~ for that period, as defined in Business Practices~~, and~~.

Counterflows$_{NF}$ are adjustments to non-firm ATC as determined by the Transmission Service Provider and ~~described~~ specified in the~~ir~~ 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~~The~~ Transmission Operator shall provide evidence including the model used to calculate TTC as well as other evidence (such as Facility Ratings provided by facility owners, written documentation, logs, and data) to show that the modeling requirements in R2 were met. (R2)

M3. Each~~The~~ Transmission Operator shall provide evidence, including scheduled outages, facility additions and retirements, (such as written documentation, logs, and data) that the data described in R3 and R4 were included in the determination of TTC as specified in the ATCID. (R3) (R4)

M4. Each~~The~~ Transmission Operator shall provide the contingencies used in determining TTC and its ATCID as evidence to show that the contingencies described in the ATCID were included in the determination of TTC. (R5)

M5. Each~~The~~ 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 R5.2. (R5)

M6. Each~~The~~ Transmission Operator shall provide evidence (such as copies of coordination agreements, reservations, interchange transactions, or other documentation) to show that ~~monthly or longer~~firm reservations were used to estimate scheduled interchange, the modeling of scheduled interchange was based on the rules described in R5.3, and that estimated scheduled interchange was included in the determination of TTC. (R5)

M7. EachThe Transmission Operator shall provide evidence (such as logs and data and dated copies of requests from the Transmission Service Provider to calculate TTCs at specific intervals) that TTCs have been calculated at least once per in the calendar week prior to the specified period for TTCs used in hourly, and daily ATC calculations, and 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 R6.(R6)

M8. EachThe Transmission Operator shall provide evidence (such as written documentation) that TTCs have been calculated using the process described in R7. (R7)

M9. Each The Transmission Operator shall have evidence including a copy of the latest calculated TTC values along with a dated copy of email notices or other equivalent evidence to show that its provided its Transmission Service Provider with the most current values for TTC in accordance with R8. (R8)

M10. EachThe Transmission Service Provider shall provide evidence (such as documentation and data) that the determination of fFirm ETC used the algorithm and elements described in R9 and did not include any additional elements. Note that variables may legitimately be zero if the value is not applicable or calculated to be zero. (R9)

M11. EachThe Transmission Service Provider shall provide evidence (such as documentation and data) that the determination of nNon-fFirm ETC used the algorithm and the elements described in R10 and did not include any additional elements. Note that variables may legitimately be zero if the value is not applicable or calculated to be zero. (R10)

M12. EachThe Transmission Service Provider shall provide evidence (such as documentation and data) that the determination of Ffirm ATC used the algorithm and the elements described in R11 and does not include any additional elements. Note that variables may legitimately be zero if the value is not applicable or calculated to be zero. (R11)

M13. EachThe Transmission Service Provider shall provide evidence (such as documentation and data) that the determination of nNon-fFirm ATC used the algorithm and the elements described in R12 and does not include any additional elements. Note that variables may legitimately be zero if the value is not applicable or calculated to be zero. (R12)

D. Compliance

1.   Compliance Monitoring Process

1.1. Compliance Enforcement Authority

Regional Entity.

1.2. Compliance Monitoring Period and Reset

Not applicable.

1.3. Data Retention

–   The Transmission Service Provider shall retain its current, in force ATCID and any prior versions of the ATCID that were in force since the last compliance audit to show compliance with R1.

–   The Transmission Operator shall have its latest model used to calculate TTC and evidence of the previous version to show compliance with R2.

–   The Transmission Operator shall retain evidence to show compliance with R3 and R4 for the most recent 12 months or until the model used to calculate TTC is updated, whichever is longer.

–   The Transmission Operator shall retain evidence to show compliance with R5, R6, R7 and R8 for the most recent12 months.

–   The Transmission Service Provider shall retain evidence to show compliance with R9, R10, R11 and R12 for the most recent12 months.

–   If a Transmission Service Provider or Transmission Operator is found non-compliant, it shall keep information related to the non-compliance until found compliant.

–   The Compliance Enforcement Authority shall keep the last audit records and all requested and submitted subsequent audit records.

1.4. Compliance Monitoring and Enforcement Processes:

The following processes may be used:

–   Compliance Audits

–   Self-Certifications

–   Spot Checking

–   Compliance Violation Investigations

–   Self-Reporting

–   Complaints

1.5. Additional Compliance Information

None.

2.   Violation Severity Levels

R #	Lower VSL	Moderate	High VSL	Severe VSL
R1.	The Transmission Service Provider has an ATCID that meets the intent of Requirement 1 but the ATCID is missing some minor information.	The Transmission Service Provider has an ATCID but it is missing one of the four required elements in R1.	The Transmission Service Provider has an ATCID but it is missing two of the four required elements in R1.	The Transmission Service Provider has an ATCID but it is missing three or more of the four required elements in R1.
R2.	The Transmission Operator utilized one to ten Facility Ratings that were different from those specified by a Transmission or Generationor Owner in their Transmission model and one of those Facility Ratings was used (or should have been used) to establish TTC for one or more Posted ATC Paths. An inaccurate Facility Rating is a single violation, regardless how many times that Facility Rating has been utilized.

A modeling error (a violation of the criteria in R2) is a single violation, regardless how many times that error has been modeled. | The Transmission Operator utilized eleven to twenty Facility Ratings that were different from those specified by a Transmission or Generationor Owner in their Transmission model and two to five of those Facility Ratings were used (or should have been used) to establish a TTC for one or more Posted ATC Paths. An inaccurate Facility Rating is a single violation, regardless how many times that Facility Rating has been utilized.

A modeling error (a violation of the criteria in R2) is a single violation, regardless how many times that error has been modeled. | The Transmission Operator utilized twenty-one to thirty Facility Ratings that were different from those specified by a Transmission or Generationor Owner in their Transmission model and six to ten of those Facility Ratings were used (or should have been used) to establish a TTC for one or more Posted ATC Paths. An inaccurate Facility Rating is a single violation, regardless how many times that Facility Rating has been utilized.

OR

The Transmission Operator did not include in the Transmission model modeling data and topology (or equivalent representation) for one adjacent Reliability Coordinator area.

A modeling error (a violation of the criteria in R2) is a single violation, regardless how many times that error has been | The Transmission Operator utilized more than thirty Facility Ratings that were different from those specified by a Transmission or Generationor Owner in their Transmission model and eleven or more of those Facility Ratings were used (or should have been used) to establish a TTC for one or more Posted ATC Paths. An inaccurate Facility Rating is a single violation, regardless how many times that Facility Rating has been utilized.

OR

The Transmission Operator's model did not include in the Transmission model includes equivalent representation of non-radial facilities greater than 161 kV detailed modeling data and topology for its own Reliability Coordinator area.

OR

The Transmission Operator did |

R #	Lower VSL	Moderate	High VSL	Severe VSL
			modeled.	not include in the Transmission model detailed modeling data and topology (or equivalent representation) for two or more adjacent Reliability Coordinator areas. A modeling error (a violation of the criteria in R2) is a single violation, regardless how many times that error has been modeled.
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.in the TTC process.	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.in the TTC process.	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.in the TTC process.	In calculating TTCs for intra-day and next-day, 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. in the TTC process. **OR** In calculating TTCs for intra-day and next-day, the Transmission Operator did not include the peak Load forecast or unit commitment in its TTC calculation as described in R3.1.
R4.	N/A	N/A	N/A	In calculating TTCs for time periods beyond next day, the Transmission Operator did not include more than fifty expected generation and Transmission outages, additions or retirements in the TTC process.

R #	Lower VSL	Moderate	High VSL	Severe VSL
				OR In calculating TTCs for time periods beyond next-day, the Transmission Operator did not include the ~~peak~~ Load forecast or unit commitment in its TTC calculation as described in R4.1.
R5.	N/A	N/A	N/A	The Transmission Operator did not include in the TTC calculation the contingencies that met the criteria described in the ATCID. **OR** The Transmission Operator did not respect contractual allocations of TTC. **OR** The Transmission Operator did not model reservations' sources or sinks as described in R5.3 **OR** The Transmission Operator did not use ~~monthly or longer~~ firm reservations to estimate interchange or did not utilize that estimate in the TTC calculation as described in R5.3.
R6.	N/A	N/A	N/A	The Transmission Operator did ~~not~~ calculate~~d~~ TTCs ~~per the~~in excess of the minimum time frames specified in R6.

R #	Lower VSL	Moderate	High VSL	Severe VSL
R7.	N/A	N/A	N/A	The Transmission Operator did not calculate TTCs per the ~~minimum time frames~~process specified in R7.
R8.	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. **OR** The Transmission Operator ~~has not~~t provided its Transmission Service Provider with its ~~Posted~~ ATC Path TTCs used in monthly ATC calculations ~~within~~ more than seven calendar days ~~of~~ after their determination, but ~~is has~~ not ~~been~~ more than 14 calendar days since their determination.	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. **OR** The Transmission Operator has not provided its Transmission Service Provider with its ~~Posted~~ ATC Path TTCs used in monthly ATC calculations ~~within~~more than 14 calendar days ~~after~~of their determination, but ~~is has~~ not been more than 21 calendar days ~~since~~ after their determination.	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. **OR** The Transmission Operator has not provided its Transmission Service Provider with its ~~Posted~~ ATC Path TTCs used in monthly ATC calculations ~~within~~more than 21 calendar days ~~after~~of their determination, but ~~is has~~ not been more than 28 calendar days ~~since~~ after their determination.	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 **OR** The Transmission Operator did not provide its Transmission Service Provider with its ATC Path TTCs used in hourly or daily ATC calculations. **OR** The Transmission Operator ~~has not~~ provided its Transmission Service Provider with its ~~Posted~~ ATC Path TTCs used in monthly ATC calculations ~~within~~ more than 28 ~~or more~~ calendar days ~~of~~ after their determination **OR** The Transmission Operator did not provide its Transmission Service Provider with its ATC Path TTCs used in monthly ATC calculations.

R #	Lower VSL	Moderate	High VSL	Severe VSL
R9.	N/A	N/A	N/A	The Transmission Service Provider did not use all the elements defined in R9 when determining firm ETC, or used additional elements.
R10.	N/A	N/A	N/A	The Transmission Service Provider did not use all the elements defined in R10 when determining non-firm ETC, or used additional elements.
R11.	N/A	N/A	N/A	The Transmission Service Provider did not use all the elements defined in R11 when determining firm ATC, or used additional elements.
R12.	N/A	N/A	N/A	The Transmission Service Provider did not use all the elements defined in R12 when determining non-firm ATC, or used additional elements.