

**Compliance**

**Reliability Standard Audit Worksheet**

**MOD-030-3 — Flowgate Methodology**

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

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

**Applicable Function(s):**

Each **TOP** that uses the Flowgate Methodology to support the calculation of

Available Flowgate Capabilities (AFCs) on Flowgates.

Each **TSP** that uses the Flowgate Methodology to calculate AFCs Flowgate.

**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)***

|  |  |  |  |
| --- | --- | --- | --- |
| **SME Name** | **Title** | **Organization** | **Requirement** |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

# Reliability Standard Language

**MOD-030-3 — Flowgate Methodology**

**Purpose:**

To increase consistency and reliability in the development and documentation of transfer capability calculations for short-term use performed by entities using the Flowgate Methodology to support analysis and system operations.

**Applicability:**

Each **TOP** that uses the Flowgate Methodology to support the calculation of Available Flowgate

Capabilities (AFCs) on Flowgates.

Each **TSP** that uses the Flowgate Methodology to calculate AFCs Flowgates.

**NERC BOT Approval Date: 2/10/2009**

**FERC Approval Date: 11/24/2009**

**Reliability Standard Enforcement Date in the United States: 4/01/2011**

**Questions:** As a TOP, do you use the Flowgate Methodology to support the calculation of AFCs on Flowgates? As a TSP, do you use the Flowgate Methodology to calculate AFCs Flowgates?

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

**Requirements:**

1. The Transmission Service Provider shall include in its “Available Transfer Capability Implementation Document” (ATCID): [*Violation Risk Factor: To Be Determined*] [*Time Horizon: Operations Planning*]
   1. The criteria used by the Transmission Operator to identify sets of Transmission Facilities as Flowgates that are to be considered in Available Flowgate Capability (AFC) calculations.
   2. The following information on how source and sink for transmission service is accounted for in AFC calculations including:
      1. Define if the source used for AFC calculations is obtained from the source field or the Point of Receipt (POR) field of the transmission reservation.
      2. Define if the sink used for AFC calculations is obtained from the sink field or the Point of Delivery (POD) field of the transmission reservation.
      3. The source/sink or POR/POD identification and mapping to the model.
      4. If the Transmission Service Provider’s AFC calculation process involves a grouping of generators, the ATCID must identify how these generators participate in the group.

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

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

# R1 Supporting Evidence and Documentation

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

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Provide the following:**  **Document Title and/or File Name, Page & Section, Date & Version** | | |
| **Title** | | **Date** | **Version** | |
|  | |  |  | |
|  | |  |  | |
|  | |  |  | |
| *Audit Team: Additional Evidence Reviewed:* | |  |  | |
|  | |  |  | |
|  | |  |  | |
|  | |  |  | |

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

**Compliance Assessment Approach Specific to MOD-030-3 R1**

\_\_\_ Verify the TSP included the following in its ATCID:

\_\_\_ The criteria used by the TOP to identify sets of Transmission Facilities as Flowgates that

are to be considered in AFC calculations.

\_\_\_ Information identifying how source and sink for transmission service is accounted for in

AFC calculations including:

\_\_\_ If the source used for AFC calculation is obtained from the:

\_\_\_ Source field of the transmission reservation

Or

\_\_\_ POR field of the transmission reservation

\_\_\_ If the sink used for AFC calculation is obtained from the:

\_\_\_ Sink field of the transmission reservation

Or

\_\_\_ POD field of the transmission reservation

\_\_\_ The source/sink or POR/POD identification and mapping to the model

\_\_\_ Does the TSP’s AFC calculation process involve a grouping of generation?

If yes

\_\_\_ Verify the ATCID identifies how the generators participate in the group.

**Detailed notes:**

1. The Transmission Operator shall perform the following: [*Violation Risk Factor: To Be Determined*] [*Time Horizon: Operations Planning*]
   1. Include Flowgates used in the AFC process based, at a minimum, on the following criteria:
      1. Results of a first Contingency transfer analysis for ATC Paths internal to a Transmission Operator’s system up to the path capability such that at a minimum the first three limiting Elements and their worst associated Contingency combinations with an OTDF of at least 5% and within the Transmission Operator’s system are included as Flowgates.
         1. Use first Contingency criteria consistent with those first Contingency criteria used in planning of operations for the applicable time periods, including use of Remedial Action Schemes.
         2. Only the most limiting element in a series configuration needs to be included as a Flowgate.
         3. If any limiting element is kept within its limit for its associated worst Contingency by operating within the limits of another Flowgate, then no new Flowgate needs to be established for such limiting elements or Contingencies.
      2. Results of a first Contingency transfer analysis from all adjacent Balancing Authority source and sink (as defined in the ATCID) combinations up to the path capability such that at a minimum the first three limiting Elements and their worst associated Contingency combinations with an Outage Transfer Distribution Factor (OTDF) of at least 5% and within the Transmission Operator’s system are included as Flowgates unless the interface between such adjacent Balancing Authorities is accounted for using another ATC methodology.
         1. Use first Contingency criteria consistent with those first Contingency criteria used in planning of operations for the applicable time periods, including use of Remedial Action Schemes.
         2. Only the most limiting element in a series configuration needs to be included as a Flowgate.
         3. If any limiting element is kept within its limit for its associated worst Contingency by operating within the limits of another Flowgate, then no new Flowgate needs to be established for such limiting elements or Contingencies.
      3. Any limiting Element/Contingency combination at least within its Reliability Coordinator’s Area that has been subjected to an Interconnection-wide congestion management procedure within the last 12 months, unless the limiting Element/Contingency combination is accounted for using another ATC methodology or was created to address temporary operating conditions.
      4. Any limiting Element/Contingency combination within the Transmission model that has been requested to be included by any other Transmission Service Provider using the Flowgate Methodology or Area Interchange Methodology, where:
         1. The coordination of the limiting Element/Contingency combination is not already addressed through a different methodology, and

* Any generator within the Transmission Service Provider’s area has at least a 5% Power Transfer Distribution Factor (PTDF) or Outage Transfer Distribution Factor (OTDF) impact on the Flowgate when delivered to the aggregate load of its own area, or
* A transfer from any Balancing Area within the Transmission Service Provider’s area to a Balancing Area adjacent has at least a 5% PTDF or OTDF impact on the Flowgate.
* The Transmission Operator may utilize distribution factors less than 5% if desired.
  + - 1. The limiting Element/Contingency combination is included in the requesting Transmission Service Provider’s methodology.
  1. At a minimum, establish a list of Flowgates by creating, modifying, or deleting Flowgate definitions at least once per calendar year.
  2. At a minimum, establish a list of Flowgates by creating, modifying, or deleting Flowgates that have been requested as part of R2.1.4 within thirty calendar days from the request.
  3. Establish the TFC of each of the defined Flowgates as equal to:
* For thermal limits, the System Operating Limit (SOL) of the Flowgate.
* For voltage or stability limits, the flow that will respect the SOL of the Flowgate.
  1. At a minimum, establish the TFC once per calendar year.
     1. If notified of a change in the Rating by the Transmission Owner that would affect the TFC of a flowgate used in the AFC process, the TFC should be updated within seven calendar days of the notification.
  2. Provide the Transmission Service Provider with the TFCs within seven calendar days of their establishment.

**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)***

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Provide the following:**  **Document Title and/or File Name, Page & Section, Date & Version** | | |
| **Title** | | **Date** | **Version** | |
|  | |  |  | |
|  | |  |  | |
|  | |  |  | |
| *Audit Team: Additional Evidence Reviewed:* | |  |  | |
|  | |  |  | |
|  | |  |  | |
|  | |  |  | |

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

**Compliance Assessment Approach Specific to MOD-030-3 R2**

\_\_\_ Verify the TOP performed the following:

\_\_\_ Inclusion of Flowgates used in the AFC process based, at a minimum, on the following

criteria:

\_\_\_ Flowgates are included as results of first Contingency transfer analysis for ATC Paths

internal to a TOP’s system up to the path capability includes at a minimum:

\_\_\_ The first three limiting Elements

\_\_\_ Their worst associated Contingency combinations with an OTDF of at least 5%

\_\_\_ The TOP used first Contingency criteria consistent with those first Contingency

criteria used in planning of operations

\_\_\_ Including RAS

\_\_\_ The TOP used only the most limiting elements in a series configuration

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

\_\_\_ Flowgates are included as results of first Contingency transfer analysis from all

adjacent BA source and sink combinations up to the path capability includes at a

minimum:

\_\_\_ The first three limiting Elements

\_\_\_ Their worst associated Contingency combinations with an OTDF of at least 5%

\_\_\_ The TOP used first Contingency criteria consistent with those first Contingency

criteria used in planning of operations

\_\_\_ Including RAS

\_\_\_ The TOP used only the most limiting elements in a series configuration

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

\_\_\_ Any limiting Element/Contingency combination at least within its RC’s Area that has been

subjected to an Interconnection-wide congestion management procedure within the last 12 months,

unless:

\_\_\_ The limiting Element/Contingency combination is accounted for using another ATC

methodology

(or)

\_\_\_ Was created to address temporary operating conditions.

\_\_\_ Any limiting Element/Contingency combination within the Transmission model that has been

requested to be included by any other Transmission Service Provider using the Flowgate

Methodology or Area Interchange Methodology, where:

\_\_\_ The coordination of the limiting Element/Contingency combination is not already

addressed through a different methodology, and:

\_\_\_ Any generator within the TSP’s area has at least a 5% PTDF or OTDF impact on the

Flowgate when delivered to the aggregate load of its own area,

or

\_\_\_ A transfer from any BA within the TSP’s area to a BA adjacent has at least a 5%

PTDF or OTDF impact on the Flowgate.

\_\_\_ The TOP may utilize distribution factors less than 5% if desired.

\_\_\_ The limiting Element/Contingency combination is included in the requesting TSP’s

methodology.

\_\_\_ Established a list of Flowgates by creating, modifying or deleting Flowgate definitions at least

once per calendar year at a minimum.

\_\_\_ Established a list of Flowgates by creating, modifying, or deleting Flowgates that have been

requested as a part of R2.1.4 within thirty calendar days from the request at a minimum.

\_\_\_ Established the TFC of each of the defined Flowgates as equal to:

\_\_\_ The SOL for thermal limits of the Flowgate

\_\_\_ The flow that will respect the SOLs for voltage or stability limits of the Flowgate

\_\_\_ Established the TFC at a minimum once per calendar year unless:

\_\_\_ The TFC was updated within seven calendar days of the notification of a change in the

Rating by the TO that would affect the TFC of a Flowgate

\_\_\_ The TSP was provided with TFCs within seven calendar days of their establishment.

**Detailed notes:**

1. The Transmission Operator shall make available to the Transmission Service Provider a Transmission model to determine Available Flowgate Capability (AFC) that meets the following criteria: [*Violation Risk Factor: To Be Determined*] [*Time Horizon: Operations Planning*]
   1. Contains generation Facility Ratings, such as generation maximum and minimum output levels, specified by the Generator Owners of the Facilities within the model.
   2. Updated at least once per day for AFC calculations for intra-day, next day, and days two through 30.
   3. Updated at least once per month for AFC calculations for months two through 13.
   4. Contains modeling data and system topology for the Facilities within its Reliability Coordinator’s Area. Equivalent representation of radial lines and Facilities161kV or below is allowed.
   5. Contains modeling data and system topology (or equivalent representation) for immediately adjacent and beyond Reliability Coordination Areas.

**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)***

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Provide the following:**  **Document Title and/or File Name, Page & Section, Date & Version** | | |
| **Title** | | **Date** | **Version** | |
|  | |  |  | |
|  | |  |  | |
|  | |  |  | |
| *Audit Team: Additional Evidence Reviewed:* | |  |  | |
|  | |  |  | |
|  | |  |  | |
|  | |  |  | |

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

**Compliance Assessment Approach Specific to MOD-030-3 R3**

\_\_\_ Verify the TOP made available to the TSP a Transmission model to determine AFC that meets

the following criteria:

\_\_\_ Generation Facility Ratings

\_\_\_ Updated once per day for AFC calculations for intra-day, next day and days two through

30

\_\_\_ Updated at least once per month for AFC calculations for months two through 13

\_\_\_ Contains modeling data and system topology for the Facilities within its RC area.

\_\_\_ Contains modeling data and system topology for immediately adjacent and beyond RC

areas.

**Detailed notes:**

1. When calculating AFCs, the Transmission Service Provider shall represent the impact of Transmission Service as follows: [*Violation Risk Factor: To Be Determined*] [*Time Horizon: Operations Planning*]

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

**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)***

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Provide the following:**  **Document Title and/or File Name, Page & Section, Date & Version** | | |
| **Title** | | **Date** | **Version** | |
|  | |  |  | |
|  | |  |  | |
|  | |  |  | |
| *Audit Team: Additional Evidence Reviewed:* | |  |  | |
|  | |  |  | |
|  | |  |  | |
|  | |  |  | |

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

**Compliance Assessment Approach Specific to MOD-030-3 R4**

\_\_\_ The TSP represented the impact of Transmission Service when calculating AFCs as follows:

\_\_\_ Used the discretely modeled point as the source if identified in the reservation and is

discreetly modeled in the TSPs Transmission model

\_\_\_ Used the “equivalence” or “aggregate” representation modeled point as the source, if

identified in the reservation and the point can be mapped in the TSPs Transmission model

\_\_\_ Used the immediately adjacent BA associated to the TSP from which the power is to be

received as the source if the source has been identified in the reservation and cannot be mapped

to a discretely modeled point or an “equivalence” representation in the TSPs Transmission

model.

\_\_\_ Used the immediately adjacent BA associated to the TSP from which the power is to be

received as the source, if the source has not been identified in the reservation

\_\_\_ Used the discretely modeled point as the sink if identified in the reservation and is

discreetly modeled in the TSPs Transmission model

\_\_\_ Used the “equivalence” or “aggregate” representation modeled point as the sink if identified

in the reservation and the point can be mapped in the TSPs Transmission model

\_\_\_ Used the immediately adjacent BA associated to the TSP from which the power is to be

received as the sink, if the sink has been identified in the reservation and cannot be mapped

to a discretely modeled point or an “equivalence” representation in the TSPs Transmission

model.

\_\_\_ Used the immediately adjacent BA associated to the TSP from which the power is to be

received as the sink, if the sink has not been identified in the reservation

**Detailed notes:**

1. When calculating AFCs, the Transmission Service Provider shall: [*Violation Risk Factor: To Be Determined*] [*Time Horizon: Operations Planning*]
   1. Use the models provided by the Transmission Operator.
   2. Include in the transmission model expected generation and Transmission outages, additions, and retirements within the scope of the model as specified in the ATCID and in effect during the applicable period of the AFC calculation for the Transmission Service Provider’s area, all adjacent Transmission Service Providers, and any Transmission Service Providers with which coordination agreements have been executed.
   3. For external Flowgates, identified in R2.1.4, use the AFC provided by the Transmission Service Provider that calculates AFC for that Flowgate.

**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)***

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Provide the following:**  **Document Title and/or File Name, Page & Section, Date & Version** | | |
| **Title** | | **Date** | **Version** | |
|  | |  |  | |
|  | |  |  | |
|  | |  |  | |
| *Audit Team: Additional Evidence Reviewed:* | |  |  | |
|  | |  |  | |
|  | |  |  | |
|  | |  |  | |

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

**Compliance Assessment Approach Specific to MOD-030-3 R5**

\_\_\_ Verify when the TSP calculated AFCs:

\_\_\_ The TSP utilized the models provided by the TOP

\_\_\_ The TSP included within the scope of the model as specified in the ATCID and in effect

during the applicable period for the AFC calculation for the TSPs area, all adjacent

Transmission Service Providers, and any Transmission Service Providers with which

coordination agreements have been executed the following :

\_\_\_ Expected Generation

\_\_\_ Transmission outages

\_\_\_ Additions

\_\_\_ Retirements

\_\_\_ Used the AFC provided by the TSP that calculates AFC for that Flowgate for external

Flowgates, identified in R2.1.4

**Detailed notes:**

1. When calculating the impact of ETC for firm commitments (ETCFi) for all time periods for a Flowgate, the Transmission Service Provider shall sum the following: [*Violation Risk Factor: To Be Determined*] [*Time Horizon: Operations Planning*]
   1. The impact of firm Network Integration Transmission Service, including the impacts of generation to load, in the model referenced in R5.2 for the Transmission Service Provider’s area, based on:
      1. Load forecast for the time period being calculated, including Native Load and Network Service load
      2. Unit commitment and Dispatch Order, to include all designated network resources and other resources that are committed or have the legal obligation to run as specified in the Transmission Service Provider's ATCID.
   2. The impact of any firm Network Integration Transmission Service,including the impacts of generation to load in the model referenced in R5.2 and has a distribution factor equal to or greater than the percentage[[1]](#footnote-1) used to curtail in the Interconnection-wide congestion management procedure used by the Transmission Service Provider, for all adjacent Transmission Service Providers and any other Transmission Service Providers with which coordination agreements have been executed based on:
      1. Load forecast for the time period being calculated, including Native Load and Network Service load
      2. Unit commitment and Dispatch Order, to include all designated network resources and other resources that are committed or have the legal obligation to run as specified in the Transmission Service Provider's ATCID.
   3. The impact of all confirmed firm Point-to-Point Transmission Service expected to be scheduled, including roll-over rights for Firm Transmission Service contracts, for the Transmission Service Provider’s area.
   4. The impact of any confirmed firm Point-to-Point Transmission Service expected to be scheduled, filtered to reduce or eliminate duplicate impacts from transactions using Transmission service from multiple Transmission Service Providers, including roll-over rights for Firm Transmission Service contracts having a distribution factor equal to or greater than the percentage[[2]](#footnote-2) used to curtail in the Interconnection-wide congestion management procedure used by the Transmission Service Provider, for all adjacent Transmission Service Providers and any other Transmission Service Providers with which coordination agreements have been executed.
   5. The impact of any Grandfathered firm obligations expected to be scheduled or expected to flow for the Transmission Service Provider’s area.
   6. The impact of any Grandfathered firm obligations expected to be scheduled or expected to flow that have a distribution factor equal to or greater than the percentage[[3]](#footnote-3) used to curtail in the Interconnection-wide congestion management procedure used by the Transmission Service Provider, for all adjacent Transmission Service Providers and any other Transmission Service Providers with which coordination agreements have been executed.
   7. The impact of other firm services determined by the Transmission Service Provider.

**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)***

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Provide the following:**  **Document Title and/or File Name, Page & Section, Date & Version** | | |
| **Title** | | **Date** | **Version** | |
|  | |  |  | |
|  | |  |  | |
|  | |  |  | |
| *Audit Team: Additional Evidence Reviewed:* | |  |  | |
|  | |  |  | |
|  | |  |  | |
|  | |  |  | |

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

**Compliance Assessment Approach Specific to MOD-030-3 R6**

\_\_\_ Verify when calculating the impact of ETC for firm commitments for all time periods for a Flowgate, the TSP summed the following:

\_\_\_ The impact of Firm Network Integration Transmission Service, including:

\_\_\_ Impact of generation to load based on:

\_\_\_ Load Forecast for the time period being calculated, including Native Load and

Network Service load.

\_\_\_ Unit commitment and dispatch order, includes all designated network resources

and other resources that are committed or have legal obligations to run as specified in

the TSP’s ATCID

\_\_\_ The impact of firm Network Integration Transmission Service, including:

\_\_\_ Impact of generation to load and has a distribution factor equal to or greater than the

percentage used to curtail in the Interconnection wide congestion management procedure

used by the TSP for all adjacent TSPs and any other TSPs which coordination agreements

have been executed based on:

\_\_\_ Load forecast for the time period being calculated, including Native Load and

Network Service load.

\_\_\_ Unit commitment and Dispatch Order, includes all designated network resources

and other resources that are committed or have legal obligations to run as specified in

the TSP’s ATCID

\_\_\_ The impact of all confirmed firm Point-to-Point Transmission Service expected to be

scheduled, including roll-over rights for Firm Transmission Service contracts, for the TSP’s area

\_\_\_ The impact of any confirmed Point-to-Point Transmission Service expected to be scheduled:

\_\_\_ Filtered to reduce or eliminate duplicate impacts from transactions using Transmission

service from multiple TSPs

\_\_\_ Including roll-over rights for Firm Transmission Service contracts having a distribution

factor equal to or greater than the percentage[[4]](#footnote-4) used to curtail in the Interconnection-wide

congestion management procedure used by the TSP

\_\_\_ For all adjacent TSPs and any other TSPs with which coordination agreements have been

executed

\_\_\_ The impact of any Grandfathered firm obligations expected to be scheduled or expected to flow

for the TSP’s area

\_\_\_ The impact of any Grandfathered firm obligations expected to be scheduled or expected to flow

that have a distribution factor equal to or greater than the percentage used to curtail in the

Interconnection-wide congestion management procedure used by the TSP for all adjacent TSPs and

any other TSPs with which coordination agreements have been executed

\_\_\_ The impact of other firm services determined by the TSP.

**Detailed notes:**

1. When calculating the impact of ETC for non-firm commitments (ETCNFi) for all time periods for a Flowgate the Transmission Service Provider shall sum: [*Violation Risk Factor: To Be Determined*] [*Time Horizon: Operations Planning*]
   1. The impact of all confirmed non-firm Point-to-Point Transmission Service expected to be scheduled for the Transmission Service Provider’s area.
   2. The impact of any confirmed non-firm Point-to-Point Transmission Service expected to be scheduled, filtered to reduce or eliminate duplicate impacts from transactions using Transmission service from multiple Transmission Service Providers, that have a distribution factor equal to or greater than the percentage[[5]](#footnote-5) used to curtail in the Interconnection-wide congestion management procedure used by the Transmission Service Provider, for all adjacent Transmission Service Providers and any other Transmission Service Providers with which coordination agreements have been executed.
   3. The impact of any Grandfathered non-firm obligations expected to be scheduled or expected to flow for the Transmission Service Provider’s area.
   4. The impact of any Grandfathered non-firm obligations expected to be scheduled or expected to flow that have a distribution factor equal to or greater than the percentage[[6]](#footnote-6) used to curtail in the Interconnection-wide congestion management procedure used by the Transmission Service Provider, for all adjacent Transmission Service Providers and any other Transmission Service Providers with which coordination agreements have been executed.
   5. The impact of non-firm Network Integration Transmission Service serving Load within the Transmission Service Provider’s area (i.e., secondary service), to include load growth, and losses not otherwise included in Transmission Reliability Margin or Capacity Benefit Margin.
   6. The impact of any non-firm Network Integration Transmission Service (secondary service) with a distribution factor equal to or greater than the percentage[[7]](#footnote-7) used to curtail in the Interconnection-wide congestion management procedure used by the Transmission Service Provider, filtered to reduce or eliminate duplicate impacts from transactions using Transmission service from multiple Transmission Service Providers, for all adjacent Transmission Service Providers and any other Transmission Service Providers with which coordination agreements have been executed.
   7. The impact of other non-firm services determined by the Transmission Service Provider.

**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)***

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Provide the following:**  **Document Title and/or File Name, Page & Section, Date & Version** | | |
| **Title** | | **Date** | **Version** | |
|  | |  |  | |
|  | |  |  | |
|  | |  |  | |
| *Audit Team: Additional Evidence Reviewed:* | |  |  | |
|  | |  |  | |
|  | |  |  | |
|  | |  |  | |

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

**Compliance Assessment Approach Specific to MOD-030-3 R7**

\_\_\_ Verify when calculating the impact of ETC for non-firm commitments for a Flowgate the TSP summed:

\_\_\_ The impact of all confirmed non-firm Point-to-Point Transmission Service expected to be

scheduled for the TSP’s area.

\_\_\_ The impact of any confirmed non-firm Point-to-Point Transmission Service expected to be

scheduled , filtered to reduce or eliminate duplicate impacts from transactions using

Transmission service from multiple TSPs, that have a distribution factor equal to or greater than

the percentage used to curtail in the Interconnection-wide congestion management procedure

used by the TSP, for all adjacent TSPs and any other TSPs with which coordination

agreements have been executed.

\_\_\_ The impact of any Grandfathered non-firm obligations expected to be scheduled or

expected to flow for the TSP’s provider’s area

\_\_\_ The impact of any Grandfathered non-firm obligations expected to be scheduled or

expected to Flow that have a distribution factor equal to or greater than the percentage used to curtail in the Interconnection-wide congestion management procedure used by the TSP, for all adjacent TSPs and any other TSPs with which coordination agreements have been executed

\_\_\_ The impact of non-firm Network Integration Transmission Service serving Load within the

TSP’s area (i.e., secondary service), to include load growth, and losses not otherwise included

in TRM or CBM

\_\_\_ The impact of non-firm Network Integration Transmission Service serving (secondary service) with a distribution factor equal to or greater than the percentage used to curtail in the Interconnection-wide congestion management procedure used by the TSP, filtered to reduce or eliminate duplicate impacts from transactions using Transmission service from multiple TSPs, for all adjacent TSPs and any other TSPs with which coordination agreements have been executed

\_\_\_ The impact of other non-firm services determined by the TSP

**Detailed notes:**

1. When calculating firm AFC for a Flowgate for a specified period, the Transmission Service Provider shall use the following algorithm (subject to allocation processes described in the ATCID): [*Violation Risk Factor: To Be Determined*] [*Time Horizon: Operations Planning*]

AFCF = TFC – ETCFi – CBMi – TRMi + PostbacksFi + counterflowsFi

**Where:**

**AFCF** is the firm Available Flowgate Capability for the Flowgate for that period.

**TFC** is the Total Flowgate Capability of the Flowgate.

**ETCFi** is the sum of the impacts of existing firm Transmission commitments for the Flowgate during that period.

**CBMi** is the impact of the Capacity Benefit Margin on the Flowgate during that period.

**TRM­i** is the impact of the Transmission Reliability Margin on the Flowgate during that period.

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

**counterflowsFi** are adjustments to firm AFC as determined by the Transmission Service Provider and specified in their ATCID.

**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)***

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Provide the following:**  **Document Title and/or File Name, Page & Section, Date & Version** | | |
| **Title** | | **Date** | **Version** | |
|  | |  |  | |
|  | |  |  | |
|  | |  |  | |
| *Audit Team: Additional Evidence Reviewed:* | |  |  | |
|  | |  |  | |
|  | |  |  | |
|  | |  |  | |

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

**Compliance Assessment Approach Specific to MOD-030-3 R8**

\_\_\_ Verify the TSP used the following algorithm when calculating firm AFC for a Flowgate for a specified period:

AFCF = TFC – ETCFi – CBMi– TRMi + PostbacksFi + counterflowsFi

**Detailed notes:**

1. When calculating non-firm AFC for a Flowgate for a specified period, the Transmission Service Provider shall use the following algorithm (subject to allocation processes described in the ATCID): [*Violation Risk Factor: To Be Determined*] [*Time Horizon: Operations Planning*]

AFCNF = TFC – ETCFi – ETCNFi – CBMSi – TRMUi + PostbacksNFi + counterflows

**Where:**

**AFCNF** is the non-firm Available Flowgate Capability for the Flowgate for that period.

**TFC** is the Total Flowgate Capability of the Flowgate.

**ETCFi** is the sum of the impacts of existing firm Transmission commitments for the Flowgate during that period.

**ETCNFi** is the sum of the impacts of existing non-firm Transmission commitments for the Flowgate during that period.

**CBMSi** is the impact of any schedules during that period using Capacity Benefit Margin.

**TRMUi** is the impact on the Flowgate of the Transmission Reliability Margin that has not been released (unreleased) for sale as non-firm capacity by the Transmission Service Provider during that period.

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

**counterflowsNF**are adjustments to non-firm AFC as determined by the Transmission Service Provider and specified in their ATCID.

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

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

# R9 Supporting Evidence and Documentation

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

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Provide the following:**  **Document Title and/or File Name, Page & Section, Date & Version** | | |
| **Title** | | **Date** | **Version** | |
|  | |  |  | |
|  | |  |  | |
|  | |  |  | |
| *Audit Team: Additional Evidence Reviewed:* | |  |  | |
|  | |  |  | |
|  | |  |  | |
|  | |  |  | |

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

**Compliance Assessment Approach Specific to MOD-030-3 R9**

\_\_\_ Verify the TSP used the following algorithm when calculating non-firm AFC for a Flowgate for a specified period:

AFCNF = TFC – ETCFi – ETCNFi – CBMSi – TRMUi + PostbacksNFi + counterflows

**Detailed notes:**

1. Each Transmission Service Provider shall recalculate AFC, utilizing the updated models described in R3.2, R3.3, and R5, at a minimum on the following frequency, unless none of the calculated values identified in the AFC equation have changed: [*Violation Risk Factor: To Be Determined*] [*Time Horizon: Operations Planning*]
   1. For hourly AFC, once per hour. Transmission Service Providers are allowed up to 175 hours per calendar year during which calculations are not required to be performed, despite a change in a calculated value identified in the AFC equation.
   2. For daily AFC, once per day.
   3. For monthly AFC, once per week.

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

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

# R10 Supporting Evidence and Documentation

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

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Provide the following:**  **Document Title and/or File Name, Page & Section, Date & Version** | | |
| **Title** | | **Date** | **Version** | |
|  | |  |  | |
|  | |  |  | |
|  | |  |  | |
| *Audit Team: Additional Evidence Reviewed:* | |  |  | |
|  | |  |  | |
|  | |  |  | |
|  | |  |  | |

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

**Compliance Assessment Approach Specific to MOD-030-3 R10**

\_\_\_ Unless none of the calculated values identified in the AFC have changed, verify the TSP recalculated the AFC utilizing the updated models described in R3.2, R3.3 and R5 at a minimum:

\_\_\_Hourly, once per hour

\_\_\_Daily, once per day

\_\_\_Monthly, once per week

**Detailed notes:**

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

ATC = min(P)

P ={PATC1, PATC2,…PATCn}

PATCn = 

**Where:**

**ATC** is the Available Transfer Capability.

**P** is the set of partial Available Transfer Capabilities for all “impacted” Flowgates honored by the Transmission Service Provider; a Flowgate is considered “impacted” by a path if the Distribution Factor for that path is greater than the percentage[[8]](#footnote-8) used to curtail in the Interconnection-wide congestion management procedure used by the Transmission Service Provider on an OTDF Flowgate or PTDF Flowgate.

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

**AFCn**  is the Available Flowgate Capability of a Flowgate *n*.

**DFnp** is the distribution factor for Flowgate *n* relative to path *p*.

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

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

# R11 Supporting Evidence and Documentation

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

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Provide the following:**  **Document Title and/or File Name, Page & Section, Date & Version** | | |
| **Title** | | **Date** | **Version** | |
|  | |  |  | |
|  | |  |  | |
|  | |  |  | |
| *Audit Team: Additional Evidence Reviewed:* | |  |  | |
|  | |  |  | |
|  | |  |  | |
|  | |  |  | |

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

**Compliance Assessment Approach Specific to MOD-030-3 R11**

\_\_\_ Verify the TSP converted the Flowgate AFCs to ATC for ATC paths based upon the following algorithm:

ATC = min(P)

P ={PATC1, PATC2,…PATCn}

PATCn = 

**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)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Req.** | **NF** | **PV** | **OEA** | **NA** | **Statement** |
| **1** |  |  |  |  |  |
| **2** |  |  |  |  |  |
| **3** |  |  |  |  |  |
| **4** |  |  |  |  |  |
| **5** |  |  |  |  |  |
| **6** |  |  |  |  |  |
| **7** |  |  |  |  |  |
| **8** |  |  |  |  |  |
| **9** |  |  |  |  |  |
| **10** |  |  |  |  |  |
| **11** |  |  |  |  |  |

**Excerpts from FERC Orders -- For Reference Purposes Only**

**Updated Through August 2010**

**MOD-030-3**

[***Revisions to Emergency Operations Reliability Standards; Revisions to Undervoltage Load Shedding Reliability Standards; Revisions to the Definition of “Remedial Action Scheme” and Related Reliability Standards*, Order No. 818, 153 FERC ¶ 61,228 (2015).**](http://www.nerc.com/FilingsOrders/us/FERCOrdersRules/Order%20No.%20818%20approving%20revised%20reliability%20standards.pdf)

P 1. “Pursuant to section 215 of the Federal Power Act (FPA), the Commission approves Reliability Standards and definitions of terms submitted in three related petitions by the North American Electric Reliability Corporation (NERC), the Commission-approved Electric Reliability Organization (ERO).”

23. “On February 3, 2015, NERC filed a petition seeking approval of a revised definition of Remedial Action Scheme in the NERC Glossary, as well as modified Reliability Standards that incorporate the new Remedial Action Scheme definition and eliminate use of the term Special Protection System, and the associated implementation plan.31”

**“31** NERC RAS Petition at 1-2. NERC requested approval of the following Reliability Standards to incorporate the proposed definition of Remedial Action Scheme and eliminate use of the term Special Protection System: EOP-004-3, PRC-005-3(ii), PRC-023-4, FAC-010-3, TPL-001-0.1(i), FAC-011-3, TPL-002-0(i)b, MOD-030-3, TPL-003-0(i)b, MOD-029-2a, PRC-015-1, TPL-004-0(i)a, PRC-004-WECC-2, PRC-016-1, PRC-001-1.1(i), PRC-005-2(ii), PRC-017-1. NERC did not propose any changes to the Violation Risk Factors or Violation Severity Levels for the modified standards.”

[**Order 729-A, 131 FERC ¶ 61,109 (2010)**](http://www.nerc.com/FilingsOrders/us/FERCOrdersRules/Order729A.pdf)

P 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.”

[***Mandatory Reliability Standards for the Calculation of Available Transfer Capability, Capacity Benefit Margins, Transmission Reliability Margins, Total Transfer Capability, and Existing Transmission Commitments and Mandatory Reliability Standards for the Bulk-Power System*, Order No. 729, 129 FERC ¶ 61,155 (2009), *order on reh’g*, Order No. 729-A, 131 FERC ¶ 61,109 (2010)**, ***order on reh’g and reconsideration*, Order No. 729-B, 132 FERC ¶ 61,027 (2010).**](https://www.ferc.gov/whats-new/comm-meet/2009/111909/E-6.pdf)

P 179. “We agree that, in order to be useful, hourly, daily and monthly available transfer capability and available flowgate capability values must be calculated and posted in advance of the relevant time period. Requirement R8 of MOD-001-1 and Requirement R10 of MOD-030-2 require that such posting will occur far enough in advance to meet this need. With respect to Entegra’s request regarding more frequent updates for constrained facilities, we direct the ERO to consider this suggestion through its Reliability Standards development process. Further, we agree with Cottonwood regarding unscheduled or unanticipated events. Therefore, pursuant to section 215(d)(5) of the FPA and section 39.5(f) of our regulations, we direct the ERO to develop modifications to MOD-001-1 and MOD-030-2 to clarify that material changes in system conditions will trigger an update whenever practical. Finally, we clarify that these Reliability Standards shall not be used as a “safe harbor” to avoid other, more stringent reporting or update requirements.”

P 250. “The Commission finds that, under sub-requirements R2.4 and R2.5, transmission operators are not required to update system operating limits of each flowgate when establishing the annual total flowgate capability. However, as per sub-requirement R2.5.1, the transmission operator should update the total flowgate capability within seven calendars days of the notification if it is notified of a change in the rating by the transmission owner that would affect the total flowgate capability of a flowgate used in the available flowgate capability process.”

P 253. “The Commission finds that sub-requirements R3.2 and R3.3 set the frequency by which the transmission model used in the available flowgate capability calculations needs to be updated. Transmission operators are not required to update the transmission model more frequently than prescribed in these sub-requirements. Under requirement R10, transmission service providers must use the transmission models provided by transmission operators to recalculate available flowgate capability on a more frequent basis, i.e., hourly, once per hour; daily, once per day; and, monthly, once per week. A transmission service provider’s obligations under Requirement R10 should not require transmission operators to update transmission models any more frequently than required in sub-requirements R3.2 and R3.3.”

P 259. “Under Requirements R6 and R7 of MOD-030-2, a transmission provider must sum the impact of certain defined transmission commitments as well as other firm and nonfarm services determined by the TSP. Relevant impact is undefined as are “other” firm and non-firm services. Thus, there is potential for a transmission service provider to overstate or understate existing transmission commitments. However, this concern is mitigated by fact that, under MOD-001-1 Requirement R2, transmission service providers must recalculate available transfer capability or available flowgate capability (which include existing transmission commitments) for specific time periods. Entities are also required to make their assumptions available. In addition, in measures M13 and M14 of MOD-030-2, NERC states that a recalculated existing transmission commitment value that is within 15 percent or 15 MW, whichever is greater, of the originally calculated values, is evidence that the transmission service provider used the requirements defined in R6 and R7. We therefore decline to direct the modifications proposed.”

P 269. “As noted above, the Commission approves the proposal to make these Reliability Standards effective on the first day of the first calendar quarter that is twelve months beyond the date that the Reliability Standards are approved by all applicable regulatory authorities. Although MOD-030-2 defines its effective date with reference to the effective date of MOD-030-1, the Commission finds that this direction is sufficiently clear in the context of the current proceeding. To the extent necessary, we clarify MOD-030-2 shall become effective on the first day of the first calendar quarter that is twelve months beyond the date that the Reliability Standards are approved by all applicable regulatory authorities. The Commission also directs the ERO to make explicit such detail in any future version of this or any other Reliability Standard.”

**Revision History**

|  |  |  |  |
| --- | --- | --- | --- |
| **Version** | **Date** | **Reviewers** | **Revision Description** |
| 1 | 11/3/2016 | NERC Compliance Assurance, RSAW Task Force | New Document. Incorporates revised Definition of “Remedial Action Scheme”. |
|  |  |  |  |

1. A percentage less than that used in the Interconnection-wide congestion management procedure may be utilized. [↑](#footnote-ref-1)
2. A percentage less than that used in the Interconnection-wide congestion management procedure may be utilized. [↑](#footnote-ref-2)
3. A percentage less than that used in the Interconnection-wide congestion management procedure may be utilized. [↑](#footnote-ref-3)
4. A percentage less than that used in the Interconnection-wide congestion management procedure may be utilized. [↑](#footnote-ref-4)
5. A percentage less than that used in the Interconnection-wide congestion management procedure may be utilized. [↑](#footnote-ref-5)
6. A percentage less than that used in the Interconnection-wide congestion management procedure may be utilized. [↑](#footnote-ref-6)
7. A percentage less than that used in the Interconnection-wide congestion management procedure may be utilized. [↑](#footnote-ref-7)
8. A percentage less than that used in the Interconnection-wide congestion management procedure may be utilized. [↑](#footnote-ref-8)