ATTACHMENT C

Methodology To Assess Available Transfer Capability

Documents referenced within this attachment are available on the Transmission Provider's website at www.bpa.gov. The Transmission Provider defines Total Transfer Capability (TTC), Existing Transmission Commitments (ETC), Capacity Benefit Margin (CBM) and Transmission Reliability Margin (TRM) in accordance with the North American Electric Reliability Corporation (NERC) Glossary of Terms. The Transmission Provider defines ATC path as any constraint for which the Transmission Provider calculates ATC.

Scheduling, Operating, and Planning Time Horizon (0-13 months) ATC:

This section of the Transmission Provider's Attachment C documents the Transmission Provider's methodology to calculate ATC across its ATC paths for the scheduling, operating, and planning time horizon (0-13 months). The Transmission Provider's methodology for evaluating new Transmission Service Requests for this time horizon is found in the Transmission Service Requests Evaluation Business Practice, or its successor.

The Transmission Provider calculates ATC, TTC, ETC and TRM consistent with applicable Commission standards, North American Electric Reliability Corporation (NERC) standards, and the Reliability Coordinator's (RC) System Operating Limits Methodology for the Operations Horizon. The Transmission Provider's methodologies for TTC, ATC, ETC and TRM are fully described in the Transmission Provider's ATC Implementation Document (ATCID) and Transmission Reliability Margin Implementation Document (TRMID).

The Transmission Provider follows NERC MOD-029-2a and NERC MOD-008-1, or their successors, for its ATC and TRM calculations for 0 to 13 months.

The Transmission Provider uses the following mathematical algorithms within MOD-029-2a, or its successor, to calculate firm and non-firm ATC for the scheduling horizon (same day and real-time), operating horizon (day ahead and pre-schedule) and planning horizon (beyond the operating horizon through month 13):

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

Where:

ATC_F is the firm Available Transfer Capability for the ATC path during that period.

TTC is the Total Transfer Capability of the ATC path during that period.

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

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

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

$Postbacks_F$ are changes to firm Available Transfer Capability due to a change in the use of transmission service during that period, as defined in the Transmission Provider's ATCID.

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

$ATC_{NF} = TTC – ETC_F – ETC_{NF} – CBM_S – TRM_U + Postbacks_{NF} + Counterflows_{NF}$

Where:

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

TTC is the Total Transfer Capability of the ATC path during that period.

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

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

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

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

$Postbacks_{NF}$ are changes to non-firm Available Transfer Capability due to a change in the use of transmission service for that period, as defined in the Transmission Provider's ATCID.

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

The Transmission Provider uses the following mathematical algorithms within MOD-029-2a, or its successor, to calculate firm and non-firm ETC for the scheduling horizon (same

day and real-time), operating horizon (day ahead and pre-schedule) and planning horizon (beyond the operating horizon through month 13):

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

Where:

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

$NITS_F$ is the firm capacity reserved for Network Integration Transmission Service serving Network Load, to include losses, and Network Load growth, not otherwise included in Transmission Reliability Margin or Capacity Benefit Margin.

GF_F is the firm capacity set aside for grandfathered transmission service and contracts for energy and/or transmission service initially executed prior to the Commission's issuance of Order No. 888.

PTP_F is the firm capacity reserved for confirmed Point-to-Point transmission service.

ROR_F is the firm capacity reserved for roll-over rights for contracts granting Transmission Customers the right of first refusal to take or continue to take transmission service when the Transmission Customer's transmission service contract expires or is eligible for renewal.

OS_F is the firm capacity reserved for any other service(s), contract(s), or agreement(s) not specified above using firm transmission service as specified in the ATCID.

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

Where:

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

GF_{NF} is the non-firm capacity set aside for grandfathered transmission service and contracts for energy and/or transmission service initially executed prior to the Commission's issuance of Order No. 888.

PTP_{NF} is non-firm capacity reserved for confirmed Point-to-Point transmission service.

OS_{NF} is the non-firm capacity reserved for any other service(s), contract(s), or agreement(s) not specified above using non-firm transmission service as specified in the ATCID.

The Transmission Provider uses NERC MOD-029-2a and the RC's System Operating Limits Methodology for the Operations Horizon to calculate TTCs for the Transmission Provider's ATC paths. Additional information on the Transmission Provider's TTC calculation methodology, databases used in TTC assessments, and assumptions used in TTC assessments regarding loads level, generation dispatch and modeling of planned and contingency outages is found in the ATCID.

The Transmission Provider's ATCID also contains further details on the Transmission Provider's ETC calculation methodology, information on how new Point-to-Point requests are incorporated into ETC, and processes for releasing non-firm capacity. The Transmission Provider assumes a Transmission Customer with a transmission service contract containing the right of first refusal will continue to take transmission service when that contract expires or is eligible for renewal, unless otherwise notified by the Transmission Customer.

The Transmission Provider calculates TRM in accordance with NERC MOD-008-01, or its successor. The TRM calculation methodology for the paths where the Transmission Provider has implemented TRM is found in the TRMID.

The Transmission Provider does not set aside transfer capability for CBM.

Long-Term Planning Time Horizon (beyond 13 months) ATC:

For the long-term planning horizon (beyond 13 months to 10 years), the Transmission Provider has 1:1 ATC paths and flow-based paths, which are identified in the Map of Long-Term BPA Constraints, or its successor, provided on the Transmission Provider's external website.

1. For 1:1 ATC paths, the Transmission Provider uses the following mathematical algorithms to calculate firm ATC and firm ETC for the long-term planning time horizon (beyond 13 months and extending out to 10 years):

$ATC_F = TTC – ETC_F – TRM$

Where:

ATC_F is the firm Available Transfer Capability for the ATC path during that period.

TTC is the Total Transfer Capability of the ATC path during that period.

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

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

$ETC_F = NITS_F + GF_F + PTP_F + ROR_F$

Where:

$NITS_F$ is the firm capacity reserved for Network Integration Transmission Service serving Network Load, to include losses, and Network Load growth.

GF_F is the firm capacity set aside for grandfathered Transmission Service and contracts for energy and/or Transmission Service initially executed prior to the Commission's issuance of Order No. 888.

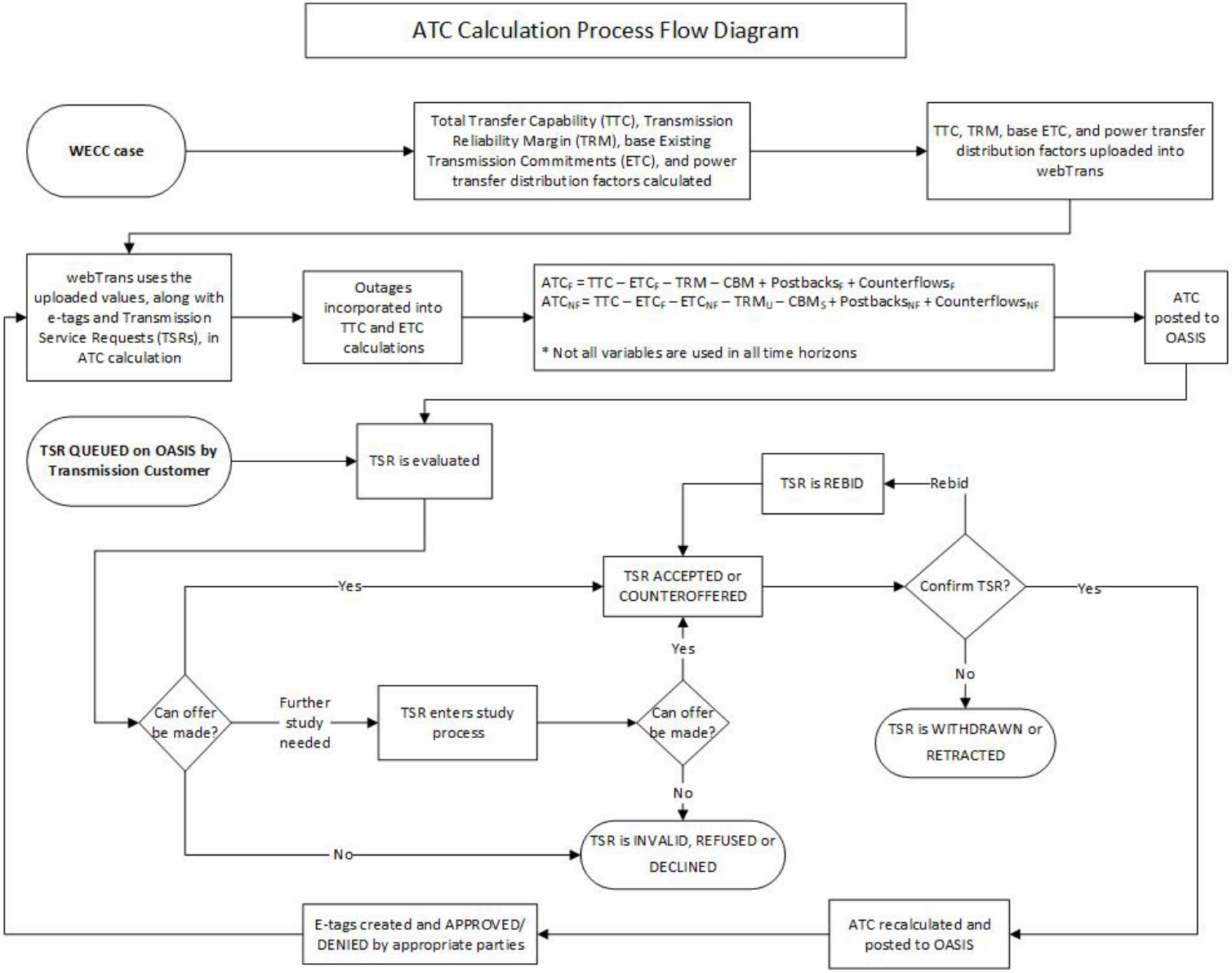
PTP_F is the firm capacity reserved for confirmed firm Point-to-Point Transmission Service.

ROR_F is the firm capacity reserved for roll-over rights for contracts granting Transmission Customers the right of first refusal to take or continue to take transmission service when the Transmission Customer's transmission service contract expires or is eligible for renewal.

To calculate TTC, Transmission Provider performs reliability studies to satisfy NERC standard TPL-001-4, or its successor, and to identify a range of System Operating Limits for each ATC path. TTC values for the long-term planning time horizon are determined consistent with the System Operating Limits.

The Transmission Provider's ETC_F and TRM methodologies are captured in the Transmission Provider's Available Transfer Capability (ATC) Methodologies for the Planning Time Period document, or its successor.

2. For the flow-based paths, the Transmission Provider does not calculate ATC for the long-term planning time horizon (beyond 13 months and extending out to 10 years). Commercial powerflow studies are performed to evaluate whether transmission service requests and/or Network Load and resource forecasts, impacting flow-based constraints during this time period, can be granted or require additional study to identify transmission system upgrades necessary to reliably offer transmission service.


ATC Calculation Process Flow Diagram
WECC case
Total Transfer Capability (TTC), Transmission Reliability Margin (TRM), base Existing Transmission Commitments (ETC), and power transfer distribution factors calculated
TTC, TRM, base ETC, and power transfer distribution factors uploaded into webTrans
webTrans uses the uploaded values, along with e-tags and Transmission Service Requests (TSRs), in ATC calculation
Outages incorporated into TTC and ETC calculations
$ATC_F = TTC - ETC_F - TRM - CBM + Postbacks_F + Counterflows_F$
$ATC_{NF} = TTC - ETC_F - ETC_{NF} - TRM_U - CBM_S + Postbacks_{NF} + Counterflows_{NF}$
* Not all variables are used in all time horizons
ATC posted to OASIS
TSR QUEUED on OASIS by Transmission Customer
TSR is evaluated
TSR is REBID
Rebid
TSR ACCEPTED or COUNTEROFFERED
Confirm TSR?
Yes
Yes
Can offer be made?
Further study needed
TSR enters study process
Can offer be made?
Yes
No
TSR is WITHDRAWN or RETRACTED
No
TSR is INVALID, REFUSED or DECLINED
E-tags created and APPROVED/ DENIED by appropriate parties
ATC recalculated and posted to OASIS