Available Transfer Capability

Implementation Document

Transmission Agency of Northern California

California-Oregon Transmission Project

In Support of the NERC Reliability Standards Requirements in

MOD-001-1a, MOD-004-1, MOD-029-1a

EFFECTIVE MARCH 1, 2018

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INTRODUCTION

The Transmission Agency of Northern California (TANC) is included on the North American Electric Reliability Corporation (NERC) Compliance Registry as a Transmission Owner, Transmission Planner, and Transmission Service Provider (TSP). This document was created to satisfy the TSP applicable requirements of the following NERC reliability standards:

- MOD-001-1a – Available Transmission System Capability
- MOD-004-1 – Capacity Benefit Margin
- MOD-029-1a – Rated System Path Methodology

Purpose and Scope

This Available Transfer Capability Implementation Document (ATCID) describes TANC's implementation of the NERC standard requirements for determining Available Transfer Capability (ATC) on the California-Oregon Transmission Project (COTP) ATC Path. TANC is the majority owner and Project Manager of the COTP. This 500-kV transmission line is part of the 4,800 MW California-Oregon Intertie (COI) and connects with the Balancing Authorities of the Bonneville Power Administration (BPA) Balancing Authority and the California Independent System Operator (CAISO).

This ATCID addresses TANC's posting of ATC as a Participant in the COTP at the Captain Jack Substation near the California-Oregon Border. For the purposes of this document, scheduling of energy on an import basis is determined as a North to South use of the COTP, while scheduling of energy on an export basis is a South to North use of the COTP.

CBM and TRM Determination

TANC does not maintain Capacity Benefit Margin (CBM) or Transmission Reliability Margin (TRM) on the COTP ATC Path, and will therefore use zero for such amounts as reflected in the algorithms described in MOD-029-1a. Due to the fact that TANC is a TSP that does not maintain CBM, TANC is not obligated to comply with the requirements of NERC standard MOD-004-1 – Capacity Benefit Margin that apply to a TSP that maintains CBM.

Audience

- Marketers and Transmission Service Providers
- Third Parties interested in use of the TANC COTP
- Sacramento Municipal Utility District (SMUD)
- Western Area Power Administration – Sierra Nevada Region (Western)
- California Independent System Operator (CAISO)
- Bonneville Power Administration (BPA)

Reference Documents

Documents included by reference to show compliance with the requirements associated with this document are as follows:

- NERC Reliability Standard MOD-001-1a – Available Transmission System Capability
- NERC Reliability Standard MOD-004-1 – Capacity Benefit Margin
- NERC Reliability Standard MOD-029-1a – Rated System Path Methodology
- SMUD and TANC COTP Operations Agreement
- Owners Coordinated Operations Agreement
- NERC Glossary of Terms Used in Reliability Standards dated April 20, 2010
- BPA ATCID as posted at http://www.oatioasis.com/bpat/index.html
- CAISO ATCID as posted at www.oasis.caiso.com/mrtu-oasis/
- SMUD ATCID as posted at www.oatioasis.com/smd1/index.html
- Western ATCID as posted at www.oatioasis.com/wasn/index.html
- Western Electricity Coordinating Council (WECC) Path Rating Catalog as posted at www.wecc.biz/library/Pages/Path%20Rating%20Catalog.aspx

Definitions

"TANC" means the joint powers agency that is the majority owner and Project Manager of the 500-kV COTP. Its Members include the following:

- City of Alameda
- City of Biggs
- City of Healdsburg
- City of Lodi
- City of Lompoc
- City of Palo Alto
- City of Redding
- City of Roseville
- City of Santa Clara
- City of Ukiah
- Modesto Irrigation District
- Plumas-Sierra Rural Electric Cooperative
- Sacramento Municipal Utility District
- Turlock Irrigation District

TANC Project Agreement No. 5 (P.A. 5) is an arrangement between the City of Alameda, City of Healdsburg, City of Lodi, City of Lompoc, City of Palo Alto, City of Redding, City of Roseville, City of Santa Clara, City of Ukiah, Modesto Irrigation District, Plumas-Sierra Rural Electric Cooperative, and Turlock Irrigation District in which an Open Access Same-Time Information System (OASIS) was developed. The TANC OASIS is the platform on which ATC is provided

through contract with Open Access Technology International (OATI). SMUD serves as TANC's OASIS Administrator, but is not a party to P.A. 5, and does not post its COTP transmission through the TANC OASIS or use the TANC ATCID.

"Balancing Authority (BA)" means the Balancing Authority Area. The COTP is located and operated within the Balancing Authority Area of BANC.

"Balancing Authority of Northern California (BANC)" refers to the joint powers authority which has taken the duties of BA over from SMUD.

"California-Oregon Transmission Project (COTP)" means the 340 mile 500-kV transmission circuit, and associated supporting facilities, that spans between the Tracy Substation, near Tracy, California, to the Captain Jack Substation, near Malin, Oregon.

COTP Background

The COTP is a 500-kV high voltage transmission line that is approximately 340 miles long, and was placed in service in March 1993. The Project added a third 500-kV circuit to the existing two-line Pacific AC Intertie (PACI) which went in service in the mid to late 1960s. Under contracts between the owners of these two projects, the rated system capability is 4,800 MW and the actual operating capability is split two-thirds to the PACI (3,200 MW) and one-third to the COTP (1,600 MW). The COTP was built in order to obtain increased access to power supplies in the Pacific Northwest. TANC Members import power and rely on their COTP rights throughout the year, but especially to assist in meeting peak loads in the summer season. Several TANC Members directly connect to the COTP and have transmission arrangements with Western for purchasing or selling power with others using their COTP rights. TANC is registered with NERC as a Transmission Service Provider and posts ATC for its P.A. 5 Members on the TANC OASIS.

As described above, the rating of the COTP results from an allocation of the rated capability of the three-500-kV line coordinated system. This system is commonly known as the California-Oregon Intertie (COI), also known as Path 66 in the WECC Path Rating Catalog. For purposes of WECC's new facility planning process, the COI was developed prior to WECC's 1994 adoption of its Path Rating procedure, and its Path Rating was established, known and in use prior to January 1, 1994 and TANC has taken no action to have the path rated using a different methodology. Accordingly, the Path Rating is entitled to the protections and procedures applicable to a facility with an Existing Rating and therefore meets R2.7 in MOD-029-1a. See the WECC Path Rating Catalog for the COI, Path 66.

MOD-001-1A REQUIREMENTS

R1. System Path Methodology

Western is the contracted Transmission Operator (TOP) for the COTP and has selected the Rated System Path Methodology as described in MOD-029-1a. TANC therefore calculates ATC values using the Rated System Path Methodology.

R2. Calculation Periods

TANC is the Transmission Service Provider (TSP) for its share of scheduling rights on the COTP and posts available transfer capability (ATC) on its OASIS at www.oatioasis.com/tanc/index.html. TANC determines the ATC amounts so that each of the required values for the relevant time periods (hourly values for at least the next 48 hours, daily values for at least the next 31 calendar days, monthly values for at least the next 12 months - months 2-13) will be calculated and submitted to the hosting software that publishes it to TANC's OASIS website.

R3. ATCID Information

TANC, as a Transmission Service Provider, has prepared and will keep current this Available Transfer Capability Implementation Document (ATCID) that includes, at a minimum, the following information:

R3.1

This COTP ATC Path ATCID addresses how TANC will determine Available Transfer Capability for TANC's COTP rights. It has been created to satisfy all of the MOD ATC reliability standards and contains the description of the applicable methodology.

R3.2

TANC's firm and non-firm ATC calculations for COTP imports and exports do not include any adjustment for counterflows associated with confirmed Transmission reservations including expected interchange and internal counterflow. The Amended COTP Operations Agreement between SMUD and TANC requires that schedules be limited to no more than Available System Capability. The Amended Owners Coordinated Operations Agreement, § 11.1.2.1, provides that unscheduled flow may be deducted from the transfer limit only in real-time. Taken together, these provisions preclude making adjustment to scheduling capability in order to increase capability in one direction in reliance on flows or schedules in the other direction.

R3.3

On behalf of TANC, BANC receives information for COI Total Transfer Capability (TTC) values from the CAISO, which is the COI Path Operator for the southern side of the COI BA to BA interface, and from BPA, which is the COI Path Operator for the northern side of the COI BA to BA interface. There is no other TOP or TSP entity that provides data to TANC that is used in the COTP Path ATC determination.

R3.4

TANC provides no information to any Transmission Operator and Transmission Service Provider for use in calculating their ATC values.

R3.5

TANC does not allocate the ATC associated with its COTP scheduling rights to any other party nor does it provide forward looking congestion information thus it has no associated process to do so (i.e., there are no multiple lines or sub-paths within a larger ATC Path, nor any multiple owners or users of TANC's COTP ATC Path, nor any other Transmission Service Providers to address forward looking congestion management and seams coordination).

R3.6

As stated in R3.3, TANC's COTP TTC values (its COI scheduling rights) are an allocation of the COI TTC determinations made by the CAISO. TANC understands that BPA and the CAISO adjust the COI TTC based on generation and transmission outages that are coordinated and confirmed by the appropriate Transmission or Generator owner or operators within their Balancing Authority Area footprint. To the extent and according to their respective processes, BPA and the CAISO incorporate their adjustments for planned outages in their COI System Operating Limit (SOL) value determinations. Any planned outage that is reflected in the hourly (or other scheduling time period if shorter) TTC limit that reduces the COI TTC determined by the CAISO or by BPA will be reflected in TANC's allocation of hourly or daily COTP TTC amount accordingly. Outages from other Transmission Service Providers on neighboring transmission systems that BPA or the CAISO determine impact the COI TTC based on their power system studies will be reflected in their COI TTC determinations. TANC will reflect all of the above referenced impacts on COI TTC in TANC's determination of ATC by appropriately setting ATC to reflect the adjusted COTP values.

See the BPA and CAISO ATCID for their COI TTC determinations and processes for incorporating outage and outage coordination information.

R4. ATCID Revision Notices

Transmission Agency of Northern California
Coordinators WITHIN & ADJACENT to the TANC Transmission Service Provider
Table R4

#	Legal Name	Acronym	Within the TSP Area — Planning Coordinator	Within the TSP Area — Transmission Operator	Within the TSP Area — Reliability Coordinator	Adjacent to the TSP Area — Planning Coordinator	Adjacent to the TSP Area — Transmission Operator	Adjacent to the TSP Area — Reliability Coordinator	Adjacent to the TSP Area — Transmission Service Provider
1	Bonneville Power Administration	BPA				X	X		X
2	California Independent System Operator	CAISO				X	X		X
3	Modesto Irrigation District	MID	X	X					
4	Pacific Gas and Electric Company	PG&E				X	X		
5	Sacramento Municipal Utility District	SMUD				X	X		X
6	Turlock Irrigation District	TID				X	X		X
7	Western Area Power Administration - Sierra Nevada Region	WASN	X	X					X
8	WECC Loveland Reliability Coordinator	LRCC						X	X
9	WECC Vancouver Reliability Coordinator	VRCC			X				

R4.1

TANC shall notify each Planning Coordinator associated within its TSP service area as listed in table R4 above of any new or revised ATCID.

R4.2

TANC shall notify each Reliability Coordinator listed within its TSP service area as reflected in Table R4 of any new or revised ATCID.

R4.3

TANC shall notify each Transmission Operator listed within its TSP service area as reflected in Table R4 of any new or revised ATCID.

R4.4

TANC shall notify each Planning Coordinator listed in Table R4 that is adjacent to its TSP service area of any new or revised ATCID.

R4.5
TANC shall notify each Reliability Coordinator listed in Table R4 that is adjacent to its TSP service area of any new or revised ATCID.

R4.6
TANC shall notify each Transmission Service Provider listed in Table R4 that is adjacent to its TSP service area of any new or revised ATCID.

Other parties that will be notified by TANC regarding this ATCID include the City of Redding, City of Roseville, City of Shasta Lake, City of Santa Clara, and the United States Bureau of Reclamation.

R5. ATCID Availability
TANC will provide its ATCID to entities within or adjacent to the TSP area that plan, operate, and provide service on their electric transmission systems respectively as listed in Table R4. The TANC ATCID will be posted on its OASIS site at www.oatioasis.com/tanc/index.html.

R6. TTC Calculation Assumptions and Consistency
The values and assumptions used in calculating COI TTC are determined by the Path Operators of COI – the Bonneville Power Administration for import to and export from the Northwest power system at COI, and the California Independent System Operator Corporation for imports into and exports from the California power system at COI, and not by TANC. Please refer to their ATCID for description of how their studies meet this standard.

R7. ATC Calculation Assumptions and Consistency
TANC's calculation of COTP ATC shall use assumptions no more limiting than those used in the planning of operations for the corresponding or most relevant time period studied, providing such planning of operations has been performed for that time period and base cases have already been developed accordingly.

R8. ATC Recalculation Frequency
TANC will provide hourly, daily, weekly, and monthly data that follows firm and non-firm algorithms as identified in MOD-029-1a and in accordance with reporting procedures recommended by TANC's OASIS Administrator. To the extent these values change, the frequency of reporting will be provided hourly for hourly values (allowing for up to 175 hours per calendar year during which calculations may not be performed), daily for daily values, and weekly for monthly values. To the extent there are no variations in ATC equation values no further reporting will be required.

R9. Response to ATC Data Request

Within 30 calendar days of a request by any Transmission Service Provider, Planning Coordinator, Reliability Coordinator, or Transmission Operator for data as outlined in MOD-001-1a R9, solely for use in the requestor's ATC or AFC calculations. TANC will respond to the request. To the extent data may be subject to confidentiality and security requirements, modifications to data may be made. Otherwise, TANC will distribute data in the form currently used by its Members in reporting to TANC's OASIS Administrator.

MOD-029-1A REQUIREMENTS

R1. Modeling Requirements for TTC Calculations

All values used in TTC determinations of the COTP are determined by the Path Operators of COI – BPA for import to and export from the Northwest power system at COI, and the CAISO for imports into and exports from the California power system at COI. TANC expects these parties will use a transmission system model that incorporates the data requirements set forth in MOD-029-1a R1.

R2. Process to Determine TTC

The values for TTC on the COI are determined by the Transmission Operators of COI facilities – BPA for import to and export from the Northwest power system at COI, and the CAISO for imports into and exports from the California power system at COI. TANC understands that these parties will determine TTC/TRM values for ATC posting periods using a transmission system analysis process that incorporates the data and process requirements set forth in MOD-029-1a R2. The owners of the COI facilities located in California have established their relationship with the CAISO in the COI Path Operating Agreement. The TTC of COI was established at 4,800 MW North to South and 3,675 MW South to North based on studies coordinated within the WECC planning process in the 1990's as the COTP was in the planning and development process. The COTP went in service on March 24, 1993 with a temporary operation limit at 4,000 MW pending the completion of facilities in the Pacific Northwest. Once those additions became operational, the COI TTC of 4,800 MW North to South and 3,675 MW South to North were implemented and have remained at those levels.

The COI ATC Path is not limited by contract as envisioned in MOD-029-1a R2.3, and the COI rated capacity does not vary as a result of interaction with other parties. TTC values do vary from time-to-time as a result of operating conditions during the course of the year. BANC allocates TTC among COTP participants, including TANC, after receiving initial allocation from the CAISO as the COI Path Operator.

R3. Establishment of the TTC

The TTC value and SOL for COI are determined by the Transmission Operators of the COI facilities – BPA for the TTC/SOL/TRM values for import to and export from the Northwest power system at COI, and the CAISO for imports into and exports from the California power system. These parties will be posting TTC/SOL amounts for their shares of COI rights.

R4. Report on TTC Studies

TANC will have access to TTC studies with the COI Transmission Operator reports on a timely basis.

R5. Firm ETC Algorithm

In calculating ETC for firm Existing Transmission Commitments (ETC_F) for a specified period for an ATC Path, TANC will use the algorithm below:

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

Where:

NL_F is the firm capacity set aside to serve peak Native Load forecast commitments for the time period being calculated, to include losses, and Native Load growth, not otherwise included in Transmission Reliability Margin or Capacity Benefit Margin. TANC has fully allocated its Native Load service obligation to its Participating Member, therefore, this value will be zero.

$NITS_F$ is the firm capacity reserved for Network Integration Transmission Service serving Load, to include losses, and Load growth, not otherwise included in Transmission Reliability Margin or Capacity Benefit Margin. Until such time as TANC offers service through a NITS tariff, this value will be zero.

GF_F is the firm capacity set aside for grandfathered Transmission Service and contracts for energy and/or Transmission Service, where executed, prior to the effective date of TANC's Open Access Transmission Tariff. Values for grandfathered capacity will be provided by TANC P.A. 5 Members and aggregated by TANC's OASIS Administrator for capacity set-aside in calculating ATC.

PTP_F is the firm capacity reserved for confirmed Point-to-Point Transmission Service. This value will be determined by TANC's host software program after aggregation of monthly schedules that TANC P.A. 5 Members submit to TANC's OASIS Administrator.

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. This value will be zero until such time that TANC has transmission service customers and agreements eligible for Roll-Over rights.

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.

R6. Non-Firm ETC Algorithm

In calculating ETC for non-firm Existing Transmission Commitments (ETC_{NF}) for all time horizons for an ATC Path, TANC will use the following algorithm:

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

Where:

$NITS_{NF}$ is the non-firm capacity set aside for Network Integration Transmission Service serving Load (i.e., secondary service), to include losses, and load growth not otherwise included in Transmission Reliability Margin or Capacity Benefit Margin. Until such time as TANC offers service through a NITS tariff, this value will be zero.

GF_{NF} is the non-firm capacity set aside for grandfathered Transmission Service and contracts for energy and/or Transmission Service, where executed, prior to the effective date of a TANC's Open Access Transmission Tariff. No customers have non-firm grandfathered transmission rights using the COTP Path, so this value will be zero.

PTP_{NF} is non-firm capacity reserved for confirmed Point-to-Point Transmission Service. This value will be determined by TANC's host software program after aggregation of monthly schedules that TANC P.A. 5 Members submit to TANC's OASIS Administrator.

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.

R7. Firm ATC Algorithm

In calculating firm ATC for an ATC Path for a specified period, TANC will use the following algorithm:

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

Where:

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

TTC is the Total Transfer Capability of the ATC Path for that period. TTC will be as specified in this document.

ETC_F is the sum of existing firm commitments for the ATC Path during that period. ETC_F will be determined as specified in this document.

CBM is the Capacity Benefit Margin for the ATC Path during that period. Since TANC has determined not to establish CBM values, this value will be zero.

TRM is the Transmission Reliability Margin for the ATC Path during that period. The COTP TOP, and not TANC, determines TRM. Since the COTP TOP has not established TRM values this value will be zero.

Postbacks$_F$ are changes to firm Available Transfer Capability due to a change in the use of Transmission Service for that period, as defined in TANC's Standard Business Practices.

Counterflows$_F$ are adjustments to firm Available Transfer Capability as determined by TANC and specified in its ATCID (see immediately below).

Accounting for Counterflows

TANC's firm and non-firm ATC calculations for COTP imports and exports do not include any adjustment for counterflows associated with confirmed transmission reservations, expected interchange and internal counterflow. The Amended COTP Operations Agreement between SMUD and TANC requires that schedules be no more than Available System Capability. The Owners Coordinated Operations Agreement in § 11.1.2.1 provides that unscheduled flow may be deducted from the transfer limit only in real-time. Taken together, TANC understands these provisions to preclude making adjustment to scheduling capability in order to increase capability in one direction in reliance on flows or schedules in the other direction.

R8. Non-Firm ATC Algorithm

In calculating non-firm ATC for an ATC Path for a specified period, TANC will use the following algorithm:

$$ATC_{NF} = TTC - ETC_F - ETC_{NF} - CBM_S - TRM_U + Postbacks_{NF} + counterflows_{NF}$$

Where:

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

TTC is the Total Transfer Capability of the ATC Path for that period. TTC will be as specified in this document.

ETC_F is the sum of existing firm commitments for the ATC Path during that period. ETC_F will be determined as specified in this document.

ETC_{NF} is the sum of existing non-firm commitments for the ATC Path during that period. ETC_{NF} will be determined as specified in this document.

CBM_S is the Capacity Benefit Margin for the ATC Path during that period. Since TANC has determined not to establish CBM values, this value will be zero.

TRM_U is the Transmission Reliability Margin for the ATC Path during that period. The COTP TOP, and not TANC, determines TRM_U. Since the COTP TOP has not established TRM_U non-firm values this value will be zero.

$Postbacks_{NF}$ are changes to non-firm Available Transfer Capability due to a change in the use of Transmission Service for that period, as defined in TANC's Standard Business Practices.

$Counterflows_{NF}$ are adjustments to non-firm Available Transfer Capability as determined by TANC and specified herein.

Accounting for Counterflows
The statement made in paragraph R7 regarding counterflows similarly applies here in R8.

VERSION HISTORY

Version	Date	Action
1	3/25/11	New Document
2	9/18/11	Updated Document
3	3/1/18	Updated Document