Determination of Available Transfer Capability Within The Western Interconnection

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Rocky Mountain Operation and Planning Group
Northwest Regional Transmission Association
Southwest Regional Transmission Association
Western Regional Transmission Association
Western Systems Coordinating Council

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Appendices

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1. Introduction

Members of the Regional Transmission Groups (RTGs) and other entities in the Western Interconnection are obligated to provide information to their members and the public regarding Available Transfer Capability (ATC) for transmission paths, in accordance with National Electric Reliability Council (NERC) and Western Systems Coordinating Council (WSCC) standards, the Regional Transmission Group (RTG) Governing Agreements, the Federal Energy Regulatory Commission (FERC) Order 888 Open Access Tariffs, and FERC Order 889. In addition, NERC and FERC are looking for additional industry development of definitive methods for determining ATC.

Transmission Providers in the Western Interconnection will determine ATC in accordance with the NERC document "Available Transfer Capability Definitions and Determination". This Western Interconnection methodology document provides more detail and specific methodology for ATC determination based on commercial practices in the Western Interconnection. The methodology builds upon the Rated System Path based method that is used for determining Total Transfer Capability (TTC) in the Western Interconnection and is intended to fully comply with all NERC, WSCC, RTG and FERC rules regarding ATC. It provides additional details, principles, and reasonableness tests upon which a broad membership consensus has been reached. The Rated System Path Methodology is described in Appendix B of the NERC Report, "Available Transfer Capability Definitions and Determinations."

The Parties to this document acknowledge that given industry restructuring the California Independent System Operator (CaISO) and other future RTOs may have different operational protocols for calculating transmission availability. The CaISO is a non-profit public benefit corporation organized under the laws of the State of California. The CaISO is responsible for the reliable operation of a grid comprising the transmission systems of Pacific Gas & Electric Company, Southern California Edison Company and San Diego Gas & Electric Company. The CaISO, pursuant to its approved Tariff by the FERC, provides open and non-discriminatory transmission access to the market participants in its Day Ahead, Hour Ahead and Real Time Markets. Under that Tariff, CaISO follows different criteria for TTC, TRM and CBM allocations.

2. Methodology and Implementation

This document describes the Western Interconnection's regional practice and methodology for the determination of ATC. It is intended to be the Western Interconnection's standard reference document for the determination of ATC. This methodology is intended to be consistent with the requirements of NERC ATC standards. The use of ATC will be governed by the Transmission Providers' tariffs developed consistent with FERC published decisions, policies and regulations. Disputes between participants will be addressed through the process provided in the tariff or through other applicable dispute resolution processes (i.e., RTG, WSCC, other).

Each Transmission Provider's ATC methodology document shall be reviewed periodically by WSCC to ensure the procedures and practices described in their documents are consistent with the Western Interconnection ATC document and NERC standards as relates to reliability of the interconnected system. This periodic review shall not include the assessment of the Transmission

Provider's implementation of its transmission services tariff but shall verify reliability standards are observed while providing transmission services.

3. Applicability

This document and the methodology herein, apply to all members of the Parties in accordance with their governing authorities. Individual Transmission Provider variances from this methodology will be requested by the Transmission Provider and approved by the appropriate organization (FERC, Regional Transmission Association, or WSCC).

4. Scope

This document governs only the methodology for determination of ATC and required frequency for updating ATC. The obligation of participants to post ATC on an OASIS should be in accordance with FERC Orders 888 and 889 or their successor documents.

5. Purpose

The purpose of this document is to ensure consistent implementation within the Western Interconnection of the definition and determination of ATC. For the Members of these organizations, it is intended to supplement the WRTA Governing Agreement, NRTA Governing Agreement and SWRTA Bylaws (collectively, "RTG Governing Agreements"), which broadly define ATC and outline a method for requesting transmission service.

This document builds upon and supplements the rules, definitions, principles and processes delineated in the following:

- NERC Report on Available Transfer Capability Definitions and Determination (June 1996).
- NERC Report on Transmission Transfer Capability (May 1995)
- NERC Transfer Capability Margins Standard (proposed, add issue date when finalized)
- WSCC Procedures for Regional Planning Project Review and Rating Transmission Facilities (original dated March 1995)
- FERC Order 888 or successor documents (Open Access Tariffs) (original dated April 1996)
- FERC Order 889 or successor documents (Open Access Same-Time Information Systems) (original dated April 1996)
- Western Regional Transmission Association Governing Agreement (January 1995)
- Northwest Regional Transmission Association Governing Agreement (February 1995)
- Southwest Regional Transmission Association Bylaws (June 1995)
- Joint Transmission Access Principles (CCPG) (December 1991)

Summaries of any information contained in any of the documents listed above are not intended to imply any deviation from the contents of those documents.

6. Determination of ATC

The process for determining ATC for each Transmission Provider in a path should be reasonable, auditable and supportable. It consists of three steps: (1) the determination of path Total Transfer Capability (TTC), (2) the allocation of TTC among Transmission Providers, and (3) the determination of each Transmission Provider's Committed Uses. A Transmission Provider's ATC is then determined by subtracting Committed Uses from allocated TTC.

ATC = TTC (allocated) - Committed Uses

Using NERC ATC terminology,

Committed Uses = TRM + Existing Transmission Commitments (including CBM)

where TRM = Transmission Reliability Margin
CBM = Capacity Benefit Margin

For information on the determination of ATC and the related operating and planning relationships, refer to the NERC document, "Available Transfer Capability - Definitions and Determination" specifically the Sections entitled Determination of Available Transfer Capability, page 15, Commercial Components of Available Transfer Capability, pages 15 to 18, and Non-Recallable (Firm) and Recallable (Non-firm) Relationships and Priorities, pages 18 to 21.

ATC shall be calculated with the following frequencies:

- Hourly ATC for the next 168 hours: Once per day
- Daily ATC for the next 30 days: Once per week
- Monthly ATC for months 2 through 13: Once per month

Transmission Providers should use the best assumptions available for all TTC and ATC calculations. Calculations for hourly ATC within the current week should take into account the load variations during the day, any partial day outages, and best estimates of probable unscheduled flow and location of operating reserves. Daily calculations will use only peak loading for the day, and have to take into acount all partial day outages. Monthly calculations will use broader based assumptions such as monthly peak, accounting for all major outages during the month, and less specific estimates of unscheduled flow and location of operating reserves.

Generally in the Western Interconnection, netting of reservations and schedules cannot be used to increase firm ATC. There is one exception to this general rule which can be implemented on a case-by-case basis when the Transmission Provider, at its sole discretion, determines that they can do so without degrading system reliability. This exception can be invoked if there is firm load on one side of the path in question and the generation resources scheduled to serve it are on the other side of the path. Firm ATC across the path in the direction from the load to the generator can be increased by the scheduled amount from the generator to the load minus an adjustment for operating reserves and back up resources. This adjustment is determined by the location of the operating reserves and back up resources that would be deployed if the original resources serving the load were lost. Each application of this exception must be carefully analyzed based upon the specific circumstances before firm netting is employed. See Appendix I for an illustration and more details.

Parties seeking ATC on constrained paths should contact the Transmission Provider who will then work with generators on the Transmission Provider's system to assess its ability to make ATC available through redispatch and the costs associated with the redispatch, consistent with the Transmission Provider's tariff. If the constraint is related to a nomogram limitation, parties may utilize applicable nomogram market mechanism procedures.

6.1 Determination of Total Transfer Capability (TTC)

TTC represents the reliability limit of a transmission path at any specified point in time. It is a variable quantity, dependent upon operating conditions in the near term and forecasted conditions in the long term. TTC shall be calculated consistent with the requirements of FERC Orders 888 and 889 and as needed to represent system conditions, but no less frequently than seasonally. TTC cannot exceed the path rating. Within the Western Interconnection, a wide area approach is used to determine TTC on a path basis using the Rated System Path method discussed in WSCC's "Procedures for Regional Planning Project Review and Rating Transmission Facilities" and NERC's "Report on Available Transfer Capability Definitions and Determination". The determination of TTC is required to conform with WSCC's "Procedures for Regional Planning Project Review and Rating Transmission Facilities" and WSCC's "Minimum Operating Reliability Criteria". Specific system operating conditions (system topology, load/generation patterns, simultaneous path loadings, and facility outages) may require that TTC or TRM be adjusted to maintain system reliability.

TTC may sometimes be better defined by a nomogram, a set of nomograms, or a series of equations than by a single number, particularly when determining TTC values for two or more parallel or interacting paths. Where the simultaneous transfer capabilities of paths are limited by the interactions between paths, the Transmission Provider should make this known on the OASIS. This may be done by posting non-simultaneous TTC and subtracting TRM, where TRM includes the difference between non-simultaneous and simultaneous limits. As an alternative to computing TRM, the Transmission Provider may post non-simultaneous TTC and describe on the OASIS the nomogram and associated curtailment conditions. In either case, Firm ATC should be based on the best estimate of the simultaneous capability of the path during the period posted.

The total net schedules on a Path are not to exceed the Path TTC.

6.2 Allocation of TTC

When multiple ownership of transmission rights exists on a path or parallel/interacting paths, it is necessary to reach agreement on the allocation of those transmission rights in order to determine and report ATC.[1] A single TTC number, appropriate for the actual or projected condition of the transmission system, will be agreed upon for the path and this TTC will then be allocated between the Transmission Providers, to yield each Transmission Provider's share of the path's TTC for the ATC posting period.

If the Transmission Providers can't come to an agreement amongst themselves, the WSCC and the RTGs in the Western Interconnection provide several dispute resolution forums through which path rating and allocation issues may be addressed.

[1] The allocation rules may address allocations for both normal conditions and system outage conditions.

6.3 Determination of Committed Uses

This section describes the principles, practices and methodology for the determination of Committed Uses[2] in terms of the NERC components of TRM, Existing Transmission Commitments and CBM.

6.3.1 Principles for Determination of Committed Uses

This document adopts an approach for addressing the determination of Committed Uses.

The key to the successful implementation of this approach is development of specific principles, guidelines and reasonableness tests that will be used by Transmission Providers in making their assumptions and determinations of Committed Uses and will provide guidance for dispute resolution proceedings.

Transmission Providers will be expected to:

- Use reasonable, "good-faith" assumptions, consistent with general principles outlined in this document

- Make those assumptions and the underlying justifications for those assumptions available, in accordance with NERC and WSCC standards, the RTA Governing Agreements, FERC Order 888 and FERC Order 889 or their successor documents.

- Justify such assumptions and results, if called upon to do so, in applicable dispute resolution forums, (i.e. FERC 888 tariff process and RTG, WSCC or other dispute resolution processes).

- Adopt assumptions which are consistent with documented and consistently applied reliability requirements, including WSCC Minimum Operating Reliability Criteria, WSCC Power Supply Design Criteria, WSCC Reliability Criteria for System Planning, and the transmission provider's documented and consistently applied internal reliability criteria.

- Apply all assumptions comparably, non-discriminatorily and reasonably. A Transmission Provider's assumptions and methodologies, taken as a whole, must be consistently applied in the treatment of all Transmission Customers in a comparable and non-discriminatory manner.

[2] Committed Uses, as described in the RTA Bylaws, are composed of (1) native load uses, (2) prudent reserves, (3) existing commitments for purchase/exchange/deliveries/sales, (4) existing commitments for transmission service and (5) other pending potential uses of transfer capability.

- Use assumptions and methodologies that facilitates market participation, provided that the outcome meets transmission system reliability requirements and does not impose uncompensated transmission services costs on the Transmission Provider.

- A Transmission Provider's assumptions and methodologies for determining ATC must be consistent with the assumptions used by the Transmission Provider in other aspects of its business (for example, system planning).

6.3.2 Determination of Transmission Reliability Margin (TRM)

TRM is the amount of transmission transfer capability necessary to provide a reasonable level of assurance that the interconnected transmission network will be secure under a broad range of uncertainties in system conditions. TRM accounts for the inherent uncertainty in system conditions and system modeling, and the need for operating flexibility to ensure reliable system operation as system conditions change.

The benefits of TRM extend over a large area and possibly over multiple providers. TRM results from uncertainties that cannot reasonably be mitigated unilaterally by a single provider. In accordance with the terms and conditions of the Transmission Provider's tariff, TRM may be sold on a non-firm basis providing that reliability of the system is not jeopardized. TRM should not be sold as firm.

Each Transmission Provider should make its TRM values and calculation methodology publicly available. The TRM requirement should be reviewed and appropriate updates made by the TPs at a minimum prior to each Operating Season.

In the Western Interconnection methodology, firm ATC reductions associated with TRM may include the following components. TRM may be set to zero.

- Transmission necessary for the activation of operating reserves

- unplanned transmission outages (for paths in which contingencies have not already been considered in establishing the path rating)

- simultaneous limitations associated with operation under a nomogram

- loading variations due to balancing of generation and load

- uncertainty in load distribution and/or load forecast [3]

- allowances for unscheduled flow

[3] Transmission Provider's allowances for load forecasts uncertainty may be part of TRM provided that: (1) the allowance is available as non-firm service on a comparable and non-discriminatory basis, (2) the allowance reduces the exposure to curtailments to all Transmission Customers with firm reservations on a prorata basis for unanticipated load, and (3) the allowance does not duplicate consideration of uncertainty within the load forecast itself.

Transmission capacity required to implement operating reserve sharing agreements for the period immediately following a contingency and before the market can respond (currently up to 59 minutes following the contingency) are included in TRM.

If the limitation on the use of TRM to 59 minutes would force a Transmission Provider to set aside unnecessary CBM on the same path as the TRM, that Transmission Provider may utilize the TRM beyond the 59 minutes. This would allow the Transmission Provider to maximize the ATC by not needlessly setting aside twice the amount of transmission (TRM and CBM) than is necessary for reliability.

TRM does not include allowances for planned outages and other known transmission conditions which should be included in the calculation of TTC. The Transmission Provider has the option of including the above described components of TRM in either the determination of TRM or TTC, but not in both.

Allowances for transmission contingencies should not be included in TRM for paths which have had an Accepted Rating established, since contingencies are already included in the determination of the Accepted Rating. A Transmission Customer with firm reservations which desires to reduce its risk of pro-rata curtailment must explicitly request a reservation of additional rights. Such rights cannot be reserved under the auspices of CBM or TRM. Where such reserved rights are not scheduled for use, the Transmission Provider is required to make such rights available to other transmission service requesters in accordance with FERC Order 888 rules or their successors.

Regarding nomogram operation, the purpose for applying TRM on paths which are governed by nomograms is to account for the uncertainty in capacity availability created by the existence of the nomogram. This is used to establish the amount of firm ATC the Transmission Provider can offer. The size of this TRM adjustment will vary based on specific circumstances. The Transmission Provider should consider such issues as the frequency which specific nomogram thresholds (such as loading levels on interacting paths, generation levels, ambient temperatures, etc.) are reached and the duration that those conditions exist when determining the TRM adjustment. In cases where an allocation of firm rights has been established between two paths related by a nomogram, the TRM reflects the difference between this firm allocation and the path's TTC. TRM set aside specifically for this nomogram adjustment should be offered as non-firm ATC.

Allowance for generation and load balancing and for uncertainty in load distribution and/or load forecast, should be determined through the use of power flow studies and/or historical operating experience. TRM should not include margin already afforded by the WSCC Reliability Criteria or otherwise accounted for in the determination of TTC.

Unscheduled flow may be handled in either of two ways, either of which is acceptable, provided that the methodology is applied consistently and non-discriminatorily:

- The path can be reserved up to its TTC, without factoring in any estimates of unscheduled flows. In such a case, when unscheduled flows materialize, accommodations and curtailments will be made consistent with the WSCC Unscheduled Flow Mitigation Plan.

- The path operator, using reasonable, auditable, supportable projections, may subtract sufficient transfer capability from TTC, as a component of TRM, to

reduce the need to make curtailments associated with projected unscheduled flows.[4] This should be made available as Non-firm transfer capability in case unscheduled flow is less than anticipated.

One method of presenting TRM is to calculate it as a percentage of TTC. Uncertainties accounted for in TRM become more defined in the operating horizon as compared to the planning horizon. This is reflected in smaller TRM values in the operating time frame.

6.3.3 Determination of "Existing Transmission Commitments"

This section identifies those items to be included in the determination of "Existing Transmission Commitments".

- Reservations for Native Load Growth: Transmission Providers may reserve existing transfer capability needed for reasonably forecasted Native Load growth[5]. Transfer Capability reserved for Native Load growth must be made available for use by others until the time that it is actually needed by the Native Load.

- Where transmission service is reserved for a Network Resource which is a purchase by the Transmission Provider to serve Native Load customers, the reservation should reflect the terms of the purchase (if 50 MW may be scheduled in any hour, then 50 MW of transmission must be reserved for every hour). Where the reservation is made based on the Native Load reliability need, the Transmission Provider must determine the applicable hours of such reliability need based on its load and resource circumstances.

- Native Load Forecasts: ATC determination does not presume the existence of sanctioned forecasts by regulatory agencies, although a Transmission Provider may use such a sanction in arguing the reasonableness of its determination of Committed Uses. In making reservations for Native Load, adjustments may be made for near-term uncertainties (e.g. weather). Long-term forecasts may use both generic and contractually committed resources to meet native load requirements. Transmission Providers must use reasonable assumptions in determining Native Load requirements and make available those assumptions and the resulting conclusions, and be able to justify the reasonableness of those assumptions and the resulting conclusions, as well as their consistency with then-current FERC policies, in applicable dispute resolution proceedings.

- Approved Load Forecast: A publicly-approved load forecast or resource plan is one which has been approved, or reviewed and accepted, by a regulatory agency

[4] Note: the SWRTA Bylaws specifically permit the exclusion of transmission capacity needed to accommodate unscheduled flows, at levels consistent with the WSCC Unscheduled Flow Mitigation Plan. Making allowances for projected unscheduled flows based on assumptions that are appropriate for the time horizon of the ATC estimate would be consistent with making the best technical estimate of ATC, and would therefore be consistent with the NERC ATC report.

[5] See footnote 2.

that is independent of the Transmission Provider. If there is no regulatory-approved forecast/plan, the Transmission Provider may publish its own good-faith forecast/plan (for example, an official Loads & Resources plan). The Transmission Provider must also provide the assumptions, and the underlying justifications for those assumptions, used to develop the forecast/plan, in sufficient detail to permit interested parties to examine and challenge the reasonableness of the forecast/plan in an applicable dispute resolution forum.

Evidence supporting the contention that such a forecast/plan has been made in good faith includes a showing that the forecast/plan produced for the purposes of determining Committed Uses and ATC is consistent with the forecast/plan the Transmission Provider uses in its internal planning of other facilities or for processes distinct from those related to determination of Committed Uses. Where there are differences in the ATC methodology from the internal planning assumptions and criteria they must be explained and be subject to a finding of reasonableness in an applicable dispute resolution forum.

Long-term forecasts generally state a net out-of-area resource requirement, but may not break this requirement down by interconnection path/interface or by time-of-use period. The Transmission Provider may use his discretion to make this breakdown, provided the Transmission Provider uses good faith and provides the underlying justifications. Use of a Transmission Provider's own data, assumptions and contracts for service is probably the most reasonable solution that can be attained unless there is an RTG-approved or WSCC-approved area-wide resource database used by all parties posting ATC. The forecast should distinguish between committed and planned resource purchases.

- Ancillary Services (required as a part of Native Load service): Transfer capability should be reserved under Native Load for those ancillary services required to serve Native Load. These include transfer capability required to supply load regulation and frequency response services. Ancillary services for Operating Reserves are covered under Section 6.3.4.

- Reservations Beyond Reliability-Based Needs: A Transmission Provider may reserve ATC for the import of power which is beyond the amount reserved for reliability needs of their Native Load customers, only to the extent permitted under the FERC's Order 888, or the Transmission Provider's own Open Access Transmission Tariff (OATT) and is otherwise consistent with the Federal Power Act and the FERC's applicable standards and policies then in effect.

  A Transmission Provider's merchant function may reserve transfer capability to serve the non-reliability needs of its customers; however, it is necessary to reserve such capacity pursuant to applicable Network and Point-to-Point OATT similar to any other transmission customer. The Transmission Provider may reserve ATC for the import of power which is beyond the amount reserved for the reliability needs of it's Native Load customers, only to the extent permitted under FERC's Order 888, or the Transmission Provider's

own OATT, consistent with the Federal Power Act and the FERC's applicable standards and policies then in effect.[6]

Consistent with Order 888, or the Transmission Provider's own OATT, a Transmission Provider may reserve either Network or Point-to-Point transmission service for its own resources and power purchases designated to serve Network Load. A Transmission Provider may also use the point-to-point tariff to reserve Firm transmission service where it has not made a purchase commitment. It must take such Firm point-to-point transmission service for its uncommitted purchases under the same terms and conditions of the tariff as it offers to others.

- Existing Commitments: Committed Uses associated with existing commitments at the time of the ATC determination are permissible. Determinations for these types of Committed Uses must be made available and are subject to evaluation upon request and in applicable dispute resolution forums.

- Firm Transmission Reservations for Energy Transactions: Transfer capability for energy transactions that can reasonably be expected to be consummated, such as expected hydro conditions, can be a Committed Use for the Transmission Provider (including an affiliated merchant business) to the extent consistent with the reservation provisions of the approved tariff by purchasing firm point-to-point transmission service from available transfer capability. Such transfer capability can be reserved for expected energy transactions, but must be released for Non-firm uses on a scheduling basis if unused or as otherwise required in accordance with the reservation priorities provided in the Transmission Provider's tariff.

  Economy energy purchases (Non-firm purchases) by the Transmission Provider's merchant function can get service under secondary service for non-network resources on an as available basis at no additional "bookkeeping" charge (Section 28.4 of the FERC Open Access Transmission Tariff). If the Transmission Provider is using this service it should decrement Non-firm ATC for the purchase, but not Firm ATC. Firm point-to-point Transmission Service (PPTS) has reservation and curtailment priority over Secondary Service. Secondary Service has reservation and curtailment priority over Non-firm PPTS. Where the purchases are Firm and meet the requirements of a Network Resource, they qualify for a Firm transmission reservation and would be a decrement from the Firm ATC posting. To reserve Firm ATC for a Non-firm purchase or for where the Transmission Provider's merchant has not secured the purchase commitment or the purchase cannot otherwise qualify as a

[6] Order 888 provides: at page 172 when discussing Reservation of Transmission Capacity, "We conclude that public utilities may reserve existing transmission capacity needed for native load growth and network transmission customer load growth reasonably forecasted within the utilities current planning horizon:" at page 191 when discussing Use of the Tariffs by the Rights Holder, "In the case of a public utility buying or selling at wholesale, the public utility must take service under the same tariff under which other wholesale sellers and buyers take service;" at page 323 when discussing Reservation Priority for Existing Firm Service Customers, "The transmission provider may reserve in its calculation of ATC transmission capacity necessary to accommodate native load growth reasonably forecasted in its planning horizon;" and at page 342 when discussing Network and Point-to-Point Customers' Uses of the System, "However we do not require any utility to take service to integrate resources and loads. If any transmission user (including the public utility) prefers to take flexible point-to-point service, they are free to do so."

Network Resource, the Transmission Provider's merchant must make a reservation of Firm PPTS just like it was any other Transmission Customer.

- Reserving transfer capability over multiple paths to secure capacity for a future undefined resource or purchase: Transmission Providers that have uncommitted purchases or resources as part of their resource plan to serve native load can reserve transfer capability on multiple paths until the uncommitted purchase or resource is defined. In such a case, the Transmission Provider should note on the OASIS that multiple paths are being reserved. If a request for transmission service is received for which there is inadequate ATC as a result of a multiple path reservation, the Transmission Provider should have the first right of refusal for use of the path. If the Transmission Provider exercises this right on a particular path, it should release its reservation on the other (multiple) paths.

- Good Faith Requests: Capacity may be reserved as "existing transmission commitments" for "good faith requests" for transmission service received by a Transmission Provider in accordance with applicable FERC or RTG request for service policy. ATC is decremented as specified by applicable FERC or regional policy.

- Information to be Provided: The following lists the types of assumptions and data that could be used in support of the determination of Committed Uses. Transmission Providers should make available the information used in their calculation of ATC values.

  Far-Term Environment (>1 year)

  - Load forecast
  - Load forecast error (range)
  - Standard for serving load
  - Breakdown of use by path
  - Breakdown of use by Time of Use period
  - Hydro and temperature forecasts
  - DSM, interruptible load assumptions
  - Redundancy of reserved paths
  - Resource outage standards (G-1? G-2?)
  - Resource assumptions (high/low hydro...)
  - Forecasted outages
  - Unit deratings
  - Resource dispatch assumptions
  - Purchases or sales to external parties
  - Wheeling contracts, including listings of Points of Receipt, Points of Delivery, and associated transmission demands at each point.

  Near-Term Environment (<1 month)

  - Standard for probability of serving load
  - Load forecasts (range of temperatures, hydro forecast, etc.)

- Resource outage standards (G-1? G-2?)
- Forecasts of generation
- Short-term wheeling arrangements, including listings of Points of Receipt, Points of Delivery, and associated transmission demands at each point.
- Purchases and sales with external parties.

6.3.4 Determination of Capacity Benefit Margin (CBM)

CBM is the amount of firm transmission transfer capability reserved by Load Serving Entities (LSEs) on the host transmission system where their load and generation resources are located, to enable access to generation from interconnected systems to meet generation reliability requirements. CBM is a uni-directional quantity with identifiable beneficiaries, and its use is intended only for the time of emergency generation deficiencies. CBM reservations may be sold on a non-firm basis.

Reservations should be made according to the applicable Transmission Provider's tariff. The determination of CBM reservations according to this Section 6.3.4 is only for purposes of determining required transmission capacity for generation reliability and is not intended to address any payment obligations associated with such reservations.

Each Transmission Provider should make its CBM values and calculation methodology publicly available, including a description of the procedure for the use of CBM in an energy emergency. Actual usage of CBM should be posted by the Transmission Provider.

The following components and considerations should be included in the determination of CBM. CBM may be set to zero.

- Replacement Reserves :

  Transmission for restoring operating reserves following a generator contingency, generally confined to the time period extending beyond the current scheduling hour that are required above the operating reserve level and are needed to accommodate generation reserves consistent with generation reliability criteria are included in CBM. CBM is only an import quantity and is reserved to meet the Transmission Customer's own potential resource contingencies.

- Reservations of Transmission for Purposes Other than Energy Delivery:

  In certain cases, a Transmission Provider with statutory obligation to serve native load may desire to reserve transmission for purposes other than energy delivery - for example, to provide a path for the import of ancillary services (such as spinning reserves) from another control area; or to allow imports on a different path (in a case where a control area requires a certain amount of unscheduled transfer capability for stability reasons). Similar to reserve sharing arrangements, such reservations are legitimate Committed Uses by a transmission Transmission

Provider to the extent that they are associated with meeting native load reliability requirements (rather than being economics-driven).

- Reservations of additional transfer capability for resource contingencies must be based upon reasonable, publicly available assumptions subject to evaluation in applicable dispute resolution proceedings. The methodology for determining the amount of reserves must be consistent with prudent utility practice, must be clearly documented and consistently followed, must be applied in a non-discriminatory manner, and must be auditable.

- Generation Patterns and Generation Outages:

  Many generation patterns and forced generation outages occur in the power system. These, including the number of generator contingencies, may be considered when determining Committed Uses, to the extent that deductions from ATC associated with these uncertainties use assumptions that are consistent with the planning and service reliability criteria which the Transmission Provider (with native load requirements) uses in serving its customers.[7]

Allowance for CBM generation reliability requirements should be determined in one of two ways, namely (1) using a Loss of Load Expectation (LOLE) probability calculation, or (2) deterministic based upon the largest single contingency. An LOLE of 1 day in 10 years is recommended. This calculation is made using commonly accepted probabilistic generation reliability techniques. The calculation is performed on a monthly basis. The generation requirement is then converted to a CBM requirement for each interconnection based upon historical purchases at peak times, typical load flow patterns and an assessment of adjacent and beyond control area reserves. The generation reliability requirement is updated at least annually.

The CBM requirement should be reviewed and appropriate updates made by the TPs at a minimum prior to each Operating Season.

Individual Transmission Provider CBM Methodologies shall consider in the CBM requirement only generation directly connected to the TP's system being used to serve load directly connected to that system. Generation directly connected to the TP's system which is committed to serve load on another system or which is not committed to serve load on any system shall not be included.

Interruptible load shall be included in the determination of CBM requirements.

[7] As uncertainty in forecasts diminishes, a Transmission Provider must release transmission capacity in a manner that is consistent with prudent utility practice, clearly documented, and consistently followed, applied in a non-discriminatory manner, and auditable.

GLOSSARY

Accepted Rating: a path rating obtained through the WSCC three-phase rating process that is the recognized and protected maximum capability of the path.

Available Transfer Capability (ATC): a measure of the transfer capability remaining in the physical transmission network for further commercial activity, over and above already-committed uses.

CCPG: Colorado Coordinated Planning Group under the umbrella of the Rocky Mountain Operation and Planning Group (RMOPG).

Capacity Benefit Margin (CBM): that amount of transmission transfer capability reserved by Load-Serving Entities with generation on the system up to the purchased/owned amount of transmission, to ensure access to generation from interconnected systems to meet generation reliability requirements.

Committed Uses: Five committed uses described in the RTG Governing Agreements as described in this document.

Curtailability: the right of a Transmission Provider to interrupt all or part of a transmission service due to constraints that reduce the capability of the transmission network to provide the transmission service. Transmission service can be curtailed as per the Transmission Providers OAT or contracts.

Firm Transmission Service: transmission service which cannot be interrupted by the Transmission Provider for economic reasons, but that can be curtailed for reliability reasons. This service is known as Non-Recallable transmission service in the NERC ATC documents.

Load Serving Entity: an entity located within a Transmission Provider's system whose primary function is to provide energy to end use customers. Also known as Energy Service Providers.

Native Load: existing and reasonably-forecasted customer load for which the Transmission Provider - by statute, franchise, contract or regulatory policy - has the obligation to plan, construct or operate its system to provide reliable service. For Transmission Providers not operating in a Retail Access environment, Native Load refers to the load within a Transmission Provider's service territory, to which it is also obligated to provide energy. For Transmission Providers operating in a Retail Access environment, Native Load refers to the load within the Transmission Provider's service territory, independent of the Energy Service Provider(s) serving energy to the load.

Network Resources: Designated resources used by a Transmission Customer to provide electric service to its Native Load consistent with reliability criteria generally accepted in the region.

Non-firm Transmission Service: transmission service which a Transmission Provider has the right to interrupt in whole or in part, for any reason, including economic, that is consistent with FERC policy and the provisions of the Transmission Provider's transmission service tariffs or contract provisions. This service is known as Recallable transmission service in the NERC ATC documents, or service offered on an as-available basis where a higher priority service requester

may displace a lower priority service requester under the terms and conditions of the pro-forma tariff.

NRTA: Northwest Regional Transmission Association.

Operating Season: Those seasons that WSCC requires Operating Transfer Capability Studies to be performed (winter, spring and summer).

Parties: Colorado Coordinated Planning Group, Northwest Regional Transmission Association, Southwest Regional Transmission Association; Western Regional Transmission Association, and Western Systems Coordinating Council.

Recallability: the right of a Transmission Provider to interrupt all or part of a transmission service for any reason, including economic, that is consistent with FERC policy and the provisions of the Transmission Provider's transmission service tariff or contract provisions.

RTG Governing Agreements: Northwest Regional Transmission Association Governing Agreement, Southwest Regional Transmission Association Bylaws, and the Western Regional Transmission Association Governing Agreement.

SWRTA: Southwest Regional Transmission Association.

Total Transfer Capability (TTC): the amount of electric power that can be transferred over the interconnected transmission network in a reliable manner while meeting all of a specific set of defined pre- and post- contingency system conditions.

Transmission Customer: Any eligible customer (or its designated agent) that can or does execute a transmission service agreement or can or does receive transmission service. (FERC Definition – 18 CFR 37.3).

Transmission Provider: Any party that owns, controls, or operates facilities used for the transmission of electric energy in commerce.

Transmission Reliability Margin (TRM): that amount of transmission transfer capability necessary to ensure that the interconnected transmission network is secure under a reasonable range of uncertainties in system conditions.

WRTA: Western Regional Transmission Association.

WSCC: Western Systems Coordinating Council

APPENDIX I

Standard for the Use of Netting for Firm ATC Calculations

In general, netting cannot be used to increase firm ATC. There is one exception to this general rule which can be done on a case-by-case basis at the Transmission Provider's discretion, provided that the criteria discussed below are adequately addressed.

If there is firm load on one side of the path in question and the generation resources scheduled to serve it are on the other side of the path, then firm ATC (and associated schedules) in the direction from the load to the generator can be increased by the scheduled amount from the generator to the load minus an adjustment for operating reserves and backup resources. This adjustment is determined by the location of the operating reserves and back up resources that would be deployed if the original resources serving the load were lost.

Any operating reserves or back up resources located on the same side of the path as the original resources maintain the firm counter-schedule, so the ATC in the direction from the load to the generator does not have to be decremented. If the operating reserves or back up resources come from the same side of the path as the load, then the counter-schedule would be lost. The ATC must then be decremented by the amount of these operating reserves and back up resources.

Each application of this exception must be analyzed carefully based upon the specific circumstances before firm netting is employed. A number of factors must be taken into consideration to determine how much of this firm netting can be reasonably allowed over any given transmission path. The factors that must be taken into account when determining the amount of load to net against include:

1. The size of the load. For firm netting, a forecast minimum load level that is reasonable for the time period under consideration should be used. The Transmission Provider must base the firm ATC calculations in these circumstances on a load level that can be expected to be present for the duration of any transactions that are netted against it.

2. Diversity of the load. Is the load a single large load that could be subject to interruption or is the load a diverse load area that has minimal risk of being completely blacked out?

3. Internal generation. Does the load area contain embedded generation resources?

4. Location of operating reserves and back-up resources. If the resources that are serving the load are lost, where will the operating reserves and back-up resources used to replace that generation come from? If they come from the same side of the path as load, then the counter-schedule is lost and there is the possibility that the path could be over-scheduled. Also, the reserves must be able to be deployed fast enough so that WSCC reliability standards for getting actual flows back within transfer limits are met.

Other factors may also need to be taken into account depending on the specific circumstances.

Example of Firm Netting Application:

Assume a path has a transfer capability of 1000MW in the east to west direction.
Assume that there is an actual load of 150MW on the east side of the path and 150MW of generation on the west side of the path that is used to serve it.
Firm east to west transactions of up to 1150MW can be accommodated across the path in the east to west direction since the load "nets out" 150MW due to the firm counter-schedule of the resource used to serve it in the west to east direction.

Approved at the October 25-26 WMIC meeting by WMIC.

Approved at the December 6, 2001 BOT meeting.