

Responses to Questions from SAR Comment Form

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Summary of Comments on 2nd Posting of Determine Facility Ratings System Operating Limits and Transfer Capability SAR

1. Should this standard require that the methodology used to determine facility ratings be documented?

Summary: Yes – 46, No – 5, Unclear – 1 (AEP)

Considerations: The majority of comments received clearly support the inclusion of a requirement that ratings methodologies be documented. A documented ratings methodology will lead to correct facility ratings. The SAR has been revised to include this requirement. The SAR **will not** require that a single NERC-wide methodology be developed for the rating of facilities, as this is the responsibility of the facility owners.

AEP	While it may be prudent for the facility owner to document the rating methodology employed, NERC should refrain from developing standards that do not add to the reliability of the interconnected system and merely increase filing burdens. Regardless of the existence of rating methodology documentation, this proposed standard must require that the equipment owner establish a rating for each equipment apparatus and apply that rating in a consistent and non-discriminatory manner.
Allegheny Energy Supply	Yes - Arbitrary application of facility ratings could be used to restrict the markets. Requiring the methodology to be documented would help to insure the ratings are applied on a consistent basis.
Ameren	Yes – Rating methodology should be documented.
ATC	Yes
BPA	Yes
CA-ISO	Yes
City Utilities of Springfield, Missouri	Yes
Corps of Engineers	Yes
CWLP	Yes – see comments on question 2
CWLP - 2	Yes
Dominion VA Pwr	Yes
Duke Energy	Yes - Due to the fact that facility ratings are being viewed as a core reliability requirement documentation of the methodology used to determine facility ratings should be documented and evaluated by an independent entity that can analyze the data. At a minimum documentation ensures that the data is reviewable for compliance purposes.
Duke Power	Yes
Entergy	No
Exelon	No
FirstEnergy Solutions	Yes - Although the determination of equipment ratings, as a risk-based assessment, must be left to the equipment owners, the owners' rating methods need to be documented to ensure that transmission owners do not arbitrarily establish ratings to unfairly advantage unregulated market participants.
FirstEnergy Corp	Yes - There needs to be some measure that a methodology exists and is being consistently applied. This methodology should be consistently determined and

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	<p>applied by the transmission owner. This methodology should also document risk assessment in determining these ratings that are within a transmission owners guidelines.</p>
Great River Energy	<p>Yes – Having documentation available insures that the methodology is engineering based.</p>
Hydro-Québec TransÉnergie	<p>Yes – Methodology used to determine transfer capability must also be documented.</p>
Illinois Power Company	<p>Yes – Within the context of this Standard, a Transmission Owner should be required to document their ratings methodology for audit purposes.</p>
Los Angeles Dept of Water and Power	<p>No - ANSI and IEEE Standards determine equipment ratings which are used to determine facility ratings. It would be a better use of the limited NERC resource not to re-invent the wheels but to focus on system issues and not on how a piece of equipment is to be rated.</p> <p>The second part of this SAR is to determine the Transfer Capability. The existing NERC Planning Standards have established criteria and measures on how to determine operating limits and transfer capabilities.</p>
MAIN	<p>Yes - The current revision of this SAR appears to contain an inconsistency that is shrouded in semantics that allows a requirement to exist in one category but is specifically removed from another interrelated category. In addition, although the SAR should be targeting new standards and not reusing current templates, it is important that the experience gained from current implementation that started in 1999 is not disregarded, as appears to be the case.</p> <p>As to the experience: A Planning Measurement requiring a documented ratings methodology (specific methods are left to the owners) was field-tested in 1999. It went through multiple subsequent public postings and revisions. This work was culminated in NERC Board formal approval 6/12/2001. This Measurement has been self-certified and on-site audited across North America. NERC compliance activities in this area have caused companies to change transmission ratings to effect consistent and documented ratings. The documented methodologies have provided a basis for checking reasonableness of the ratings and consistency.</p> <p>As to the inconsistency: Not only are operating limits based on stability and/or voltage considerations, but many are based on and equal to the facility ratings. The SAR states that the "standard will address documentation of the determination of transfer capability values..." which "must respect system operating limits" which "must address all applicable ... facility ratings". Experience has shown that determination documentation of ratings has resulted in corrections to ratings. For consistency, if the SAR suggests transfer values determination documentation, following the relationships stated above, the requirement for rating methodology determination should be the same.</p>
Manitoba Hydro	<p>Yes - A requirement in this standard for owner documentation of facility rating methodology should be directed to only address issues related to impacts on reliability or public safety. There should be some “good utility practice” guidelines to limit the risk an owner may elect to take, or some onus on the owner to provide equipment failure mitigation in a reasonable time, as it relates to reliability impacts.</p>

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MAPP	Yes - Methodology documentation facilitates the use of consistent facility loading limits by planning and operating functions. A facility methodology document provides for better coordination between owners on joint owned facilities. A deliberate methodology is more likely to encourage a careful review and capture the limiting equipment.
MECS	Yes - Not documenting the methodology would seem to be poor business practice. A transmission owner should want to document the methodology to ensure all employees are following the same criteria and process for determining ratings.
MidAmerican Energy Company	Yes - Methodology documentation facilitates the use of consistent facility loading limits by planning and operating functions. A facility methodology document provides for better coordination between owners on jointly-owned facilities. A methodology document will encourage a careful review and result in more accurate rating of facilities for the benefit of system reliability.
Mirant	Yes
NB Power	Yes
Nebraska Public Power District	Yes - This is an existing NERC Planning Standard requirement and this process facilitates the inter-regional coordination of facility ratings.
New York State Department of Public Service	Yes - - Documentation will be needed by regulatory entities to ensure that reratings do not materially impact the reliability of service to customers. One example regulators would be looking for is if a rerating were performed to avoid maintain ace or upgrade costs that in turn result in lower levels of reliability to customers.
Nova Scotia Power	Yes
NPCC	Yes
NY ISO	Yes – The method used to arrive at a facility or component rating must be documented, and must include the assumptions incorporated (e.g., ambients, wind speed, etc.) in the determination.
NY Power Auth	Yes - Documentation of methodology used to determine facility ratings should be required in order to assess that Industry best practices are used, as well as to assure that cost cutting initiatives do not water down reliability.
Ohio PUC	Yes – In the future, system operation and planning will be with the independent system operator, the methodology needs to be documented to ensure proper application.
Oncor	No - While there are benefits to documentation of the methodology, it should not be required, since the facility owner should be solely and exclusively responsible for assigning ratings to a facility, and making documentation a requirement would imply that challenges or forced changes to the methodology used are possible.
OUC	Yes
Pepco	No - While it may be commercially and legally prudent for a facility owner to have documented procedures, the standard should not require this documentation.
Pepco (2)	No
PG&E	Yes
PJM	Yes
PSE&G	Yes – Should be available to justify validity of results, and should include a change

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	reporting protocol
Reliant Resources	Yes
SDGE	Yes. If it is not documented, how did a rating get established?
Southern Company Services SOCO	No - The methodologies for determining equipment and facility ratings are imbedded in and spread over many documents (drawings, specifications, calculations, standards, etc.). This documentation is sufficient for determining how the facility ratings were determined without creating additional documentation. Furthermore, we see no need for a NERC standard to require something that is already being done utilizing existing industry standards and guides.
The IMO	Yes (The concern is with the accuracy of the ratings, whether transmission or generator. We need to know that the facility in question can deliver at its rated capability when required by the system, for the required time; or that an element will respond according to it's stated characteristic. Having an element unexpectedly fall short of its rated capacity could adversely affect system reliability and security. The publication and use of accepted methodologies provides assurance that the stated values are credible. In lieu of this, some other acceptable (whatever that might be) assurance is required. It would not be unreasonable to require that the ratings and methodology be auditable by parties that are impacted by the results.)
TVA	Yes
TVA - Transmission	Yes – the term ‘methodology’ should be explained to exclude business practices.
U.S. Bureau of Reclamation	Yes
US Army Corps of Engineers	There should be adequate information provided so that a third party is able to come up with similar facility ratings. This would prevent the manipulation of facility ratings for economic purposes.
WECC	Yes
WECC Technical Studies Subcommittee	Yes
Westar Energy	Yes - It is necessary that a Reliability Authority clearly define the considerations to be used by equipment owners in rating facilities. It allows potential constructors of new facilities to know how such new facilities will have capacity accredited to them. Uniformity in setting ratings ensures that the full capability of the interconnected system is utilized for both reliability and commercial purposes.
Wisconsin Electric	Yes - Ratings without supporting documentation could create a perception that the facility owner has no accountability. Most facility owners will already have a documentation process in place, since it is good engineering and business practice.

2.

Summary of Comments on 2nd Posting of Determine Facility Ratings System Operating Limits and Transfer Capability SAR

3. Should this standard require that the methodology used to determine facility ratings be made public?

Summary: Yes – 22, No – 29, Unclear – 1 (US Army)

Considerations: Based upon the comments received, there is consensus that the ratings methodology must be available to those who have a reliability reason to examine it. For example, the rating methodology should be available to NERC for compliance assessment purposes. The ratings methodology will not be available to the “public”, based upon the comments received. The SAR will be revised to require that the ratings methodology be made available to NERC, Regions or their successors, and entities performing the Reliability Authority function upon request.

AEP	Among other reasons, there may be proprietary information used in assessing risk as one of the inputs to establishing the ratings. There is no reliability based need to 'make public' an equipment owner's rating methodology. The reliability-based requirement is that the facility ratings --themselves -- are public and that the ratings determined by the equipment owner are applied in a consistent and non-discriminatory manner.
Allegheny Energy Supply	No – But if documented, any disputes could be easily settled.
Ameren	We do not believe that standard should require the rating methodology to be made public. The facility owner should have a methodology and should apply it consistently.
ATC	Yes - The methodology might as well be public since anybody with a strong interest to see it could obtain it by subpoena. Considering that it can't be kept from public view anyway, making it public might help to dispel suspicion.
BPA	No
CA-ISO	No - While the methodology doesn't have to be made public, it should be available upon request.
City Utilities of Springfield, Missouri	Yes – This isn't rocket science or something patentable . At the very least it should be provided to the entity responsible for Standards Compliance.
Corps of Engineers	Yes. Could be NO if sufficient accountability is available and a severe penalty with collection teeth is possible.
CWLP	Yes - Organizations should be held accountable for their methodologies in determining facility ratings to prevent gaming of the system and the subsequent potential of bogus ratings. I would not necessarily advocate publishing these methodologies, but rather suggest that they be available and provided upon request from a bona-fide interested party.
CWLP - 2	Yes
Dominion VA Pwr	No
Duke Energy	No - However, the capability for a private review by an authorized entity should be established for compliance purposes.
Duke Power	No - The standard need not be made publicly available but should be provided to an independent entity that the transmission owner is a part of - RTO, ITP or reliability council to allow for an evaluation of conformance to good engineering

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	practice.
Entergy	No
Exelon	No
FirstEnergy Solutions	Yes - Rating methods must be available to market monitors and independent system operators. Moreover, the resulting operating limits should be publicly disclosed. They are essential for market participants to form rational forward-looking strategies.
FristEnergy Corp	Yes – Consistent with the availability of other information utilized in performance of system studies.
Great River Energy	No – If a rating is called into question then the NERC or Regional Compliance Office can review the methodology for sound engineering.
Hydro-Québec TransÉnergie	Yes – Transfer capability methodology must be public, facility ratings methodology must be available to the reliability authority
Illinois Power Company	No – This information should only be made available on a confidential basis to the TO's RTO and for NERC audits.
Los Angeles Dept of Water and Power	Yes – ANSI and IEEE Standards are developed using an open and public process. In fact, the new NERC standard making process is to adopt the ANSI process.
MAIN	Yes - The document should be readily available to NERC and the Regions (or equivalent function) for verification and consistent application. Values are not JUST FOR MODEL BUILDERS. Many resultant ratings establish transfer capability limits. It seems reasonable to provide documentation of fundamental methodology as defined in current measurements on request. Such documentation should show consistent and reasonable application.
Manitoba Hydro	No - The owner of the facility should have a documented methodology to determine facility ratings but he should not have to make it public. Any requirement of this standard for owner documentation of facility rating methodology should be directed to only address issues related to impacts on reliability or public safety. The Standard should require adherence to good utility practice, or an obligation on the owner to address the risk his approach to facility rating will have on reliability.
MAPP	No – The requirement for public disclosure is a business decision.
MECS	Yes – This is the best way to ensure that no stakeholder is having unfair access to such information. There is no security reason for withholding such information.
MidAmerican Energy Company	Yes - Making methodology documentation public further encourages careful review and setting of facility ratings, as well as, better coordination between owners of neighboring facilities for the benefit of system reliability.
Mirant	Yes - Making rating methodologies public brings transparency to the planning process. System planners and market participants will be able to better understand and apply facility ratings provided. The provision of methodologies will also enable analysis of rating discrepancies among transmission providers using the same or similar equipment. This will result in a more efficient and reliable transmission system.
NB Power	Yes
Nebraska Public	No

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Power District	
New York State Department of Public Service	No – Ratings methodologies need not routinely be disclosed publicly, but should be available to regulatory bodies as outlined in the comments to question 1
Nova Scotia Power	No – Methodology should be available on request
NPCC	Yes
NY ISO	Yes - It does not necessarily need to be publicly posted, but available on request as non-confidential information. It might be more acceptable to all stakeholders to have each facility owner's documentation on file with the Area Reliability Authority.
NY Power Auth	No - Rating methodologies should be made available to the reliability authorities and regulatory entities to ensure that they meet with Good Industry Practice.
Ohio PUC	No - Facility limits is a risk-based decision which should remain with the owner/investor, but relevant regulatory agencies or organizations should be afforded access.
Oncor	No - Mandatory public review is productive only if the facility owner can be forced to change the methodology.
OUC	Yes
Pepco	No – The facility owner may make several decisions based on experience and judgment that would make public availability of the methodology meaningless.
Pepco (2)	No
PG&E	No
PJM	Yes
PSE&G	No - Available to NERC, Regional Council or RTO on request
Reliant Resources	Yes – A methodology should be a part of the standard.
SDGE	No
Southern Company Services SOCO	No – See Comment for Question 1. Also, much documentation is proprietary.
The IMO	Yes (The concern is with the accuracy of the ratings, whether transmission or generator. We need to know that the facility in question can deliver at its rated capability when required by the system, for the required time; or that an element will respond according to it's stated characteristic. Having an element unexpectedly fall short of its rated capacity could adversely affect system reliability and security. The publication and use of accepted methodologies provides assurance that the stated values are credible. In lieu of this, some other acceptable (whatever that might be) assurance is required. It would not be unreasonable to require that the ratings and methodology be auditable by parties that are impacted by the results.)
TVA	No - The current practice of submitting rating methodologies to the Regional Councils, upon request, under confidentiality practices is sufficient. The

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	methodologies should be treated as proprietary documentation. The Compliance/Audit process is the established checks and balances process to review the equipment owners rating methodologies against the Standard.
TVA - Transmission	No – Under the present wording of II.C.S1, these ratings are as a result of Regional, subregional, power pool, and individual transmission provider/owner planning criteria. As such, the particular methodologies are proprietary in nature, and by forcing them to become public record, litigation would undoubtedly follow to force transmission providers/owners to divert from their established criteria. Having this documentation available for review by the appropriate compliance body should be sufficient. In addition, allowances should be made for differences regionally, between utilities, and even within a utility, assuming all methodologies are based on sound engineering practice.
U.S. Bureau of Reclamation	No - We believe that the owner has the best knowledge about their facility. In addition, the public disclosure of ratings and rating methodology may have security ramifications.
US Army Corps of Engineers	In order to verify that the facility rating was accurately represented, the methodology used to determine the facility rating should be used. This would lessen any second guessing as to the honesty/accuracy of the rating. Also, this would assist the security coordinators in assessing the trustworthiness of a declared facility rating.
WECC	Yes
WECC Technical Studies Subcommittee	No
Westar Energy	Yes - It is fair and equitable to new entrants to the marketplace as well as to existing facility owners to know how the value (e.g. capacity) to be given for new facilities will be determined.
Wisconsin Electric	No – This documentation need only be made available to reliability authorities.

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4. Should this standard include requirements related to ATC determination?

Summary: Yes – 8, No – 43

Considerations: The majority of responses do not support inclusion of ATC determination in this SAR. This is the way this SAR was written in the second posted version and will not be modified, respecting these comments. It should be noted that several commenters believe that a separate SAR should be developed to address ATC determination (in response to this question and others).

AEP	No
Allegheny Energy Supply	No
Ameren	No - There should be a separate Standard for ATC, similar to the existing NERC Planning Standard I.E.
ATC	No
BPA	No
CA-ISO	Yes
City Utilities of Springfield, Missouri	No
Corps of Engineers	Yes
CWLP	No
CWLP - 2	No
Dominion VA Pwr	No
Duke Energy	No
Duke Power	No
ECAR - TSPP	No
Entergy	No
Exelon	Yes
FirstEnergy Solutions	No
FristEnergy Corp	No
Great River Energy	No
Hydro-Québec TransÉnergie	No
Illinois Power Company	No
Los Angeles Dept of Water and Power	No
MAIN	Yes
Manitoba Hydro	No
MAPP	Yes
MECS	No
MidAmerican Energy Company	Yes
Mirant	No
NB Power	No
Nebraska Public Power District	Yes
New York State Department of Public Service	Yes
Nova Scotia Power	No
NPCC	No
NY ISO	Yes
NY Power Auth	No
Ohio PUC	No

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Oncor	No
OUC	No
Pepco	No
Pepco (2)	No
PG&E	No
PSE&G	No
Reliant Resources	No
SDGE	No
Southern Company Services SOCO	No
TVA	No
TVA - Transmission	No
U.S. Bureau of Reclamation	No
WECC	No
WECC Technical Studies Subcommittee	No
Westar Energy	No
Wisconsin Electric	No

1.

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5. Should this standard include requirements related to Transmission Reliability Margin (TRM) and/or Capacity Benefit Margin (CBM)*?

Summary: Yes – 16, No – 36

Considerations: The majority of responses do not support inclusion of TRM and/or CBM requirements in this SAR. This is the way this SAR was written in the second posted version and will not be modified, respecting these comments. It should be noted that several commenters believe that a separate SAR should be developed to address ATC determination, including TRM and CBM (in response to this question and others).

AEP	Yes
Allegheny Energy Supply	No
Ameren	No. TRM and CBM should be included in the ATC Standard.
ATC	No
BPA	No
CA-ISO	Yes
City Utilities of Springfield, Missouri	No
Corps of Engineers	Yes
CWLP	No
CWLP - 2	No
Dominion VA Pwr	No
Duke Energy	No
Duke Power	No
ECAR - TSPP	No
Entergy	No
Exelon	Yes
FirstEnergy Solutions	No
FristEnergy Corp	No
Great River Energy	No
Hydro-Québec TransÉnergie	Yes
Illinois Power Company	No
Los Angeles Dept of Water and Power	No
MAIN	Yes
Manitoba Hydro	Yes
MAPP	Yes
MECS	No
MidAmerican Energy Company	Yes
Mirant	No
NB Power	No
Nebraska Public Power District	Yes
New York State Department of Public Service	Yes
Nova Scotia Power	No
NPCC	Yes
NY ISO	Yes

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NY Power Auth	Yes
Ohio PUC	No
Oncor	No
OUC	No
Pepco	No
Pepco (2)	No
PG&E	Yes
PSE&G	No
Reliant Resources	No
SDGE	No
Southern Company Services SOCO	No
TVA	No
TVA - Transmission	No
U.S. Bureau of Reclamation	No
WECC	No
WECC Technical Studies Subcommittee	Yes
Westar Energy	No
Wisconsin Electric	No

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6. If you answered, "Yes" to question 5 above, please identify what aspects of ATC and its margins should be addressed and at what level of detail.

Considerations: Industry consensus does not support including ATC determination (including CBM and TRM) in this SAR. This SAR does not preclude the use of reliability-based margins in the determination of system operating limits and transfer capability. Several commenters did state that a separate SAR should be developed to deal with ATC, TRM and CBM. The comments below will be retained and made available for future SAR development, if one is proposed.

AEP	<p>Available Transfer Capability (ATC) is a commercial quantity. NERC previously defined ATC (in 1996) as ".transfer capability remaining in the physical transmission network for further commercial activity over and above already committed uses". However, transfer capability (also defined by NERC) is a solely a reliability-based term and defined as " ..the measure of the ability of the interconnected electric system to reliably move or transfer power from one area to another over all transmission lines (or paths) between those areas under specified system conditions." These definitions remain appropriate and applicable in the current industrial environment. NERC should incorporate the transfer capability concepts, without alteration, into the proposed Standard as documented in the NERC May 1995 "Transmission Transfer Capability" reference document.</p> <p>Transfer Capability -- weather in the operating real-time environment or in the planning environment -- is determined using models and numerous assumptions. As such, in the real time operating mode, the system should not be allowed to operate to the calculated transfer capability value (or the calculated System Operating Limit), but rather a value lower than the theoretical or calculated value(s) in order to account for inherent modeling 'error' and inaccuracies in the assumptions in order to maintain reliability of the interconnection. Therefore, the need for operating reliability margins should be acknowledged in the proposed Standard. Similarly, beyond the real-time environment (the planning environment) reliability margins (TRM) must be acknowledged to insure that the inaccuracies in forecasting do not result in unreliable operation in the real time.</p> <p>This standard should only address the reliability based the need for operating (real-time) margins and predictive margins (TRM). This standard should not address the explicit calculation of ATC.</p>
BPA	<p>No, because ATC, TRM and CBM relate to scheduling procedures for determining ability to make sales, not operating limits and should be addressed outside of this SAR</p>
CA-ISO	<p>The standard should begin with defining TTC and process for computing, then defining TRM and how it is computed, and finally, defining ATC, the remainder after TTC & TRM.</p>
Corps of Engineers	<p>Transmission reliability assessments are inexact and should be included with all assumptions noted.</p>
Exelon	<p>Exelon believes that the development of this SAR, if it includes the development of ATC & TTC calculations, has reliability and business implications based on the number of options that will be considered in the development and implementation of this Standard. As such we recommend that the development of this SAR be a joint effort between NAESB WEQ and NERC.</p>

	<p>TTC/ATC Calculations:</p> <p>Both TTC and ATC are transfer capability values. The NERC defines transfer capability as “the measure of the ability of interconnected electric systems to reliably move or transfer electric power from one area to another area by way of all transmission lines (or paths) between those areas under specified system conditions”. Exelon is not aware of any transfer capability values that are calculated to be unreliable. Therefore both TTC and ATC must be considered reliability values governed by a standard. In highly interconnected portions of the Eastern Interconnection ATC cannot be correctly derived from TTC by the following equation $TTC=ATC+TRM+CBM+Reservations$ because the TTC and ATC are normally limited by different limiting elements and contingencies. Therefore both TTC and ATC must be considered reliability values governed by a standard.</p> <p>The following aspects of ATC and its margins need to be addressed:</p> <p>All entities that are responsible for ATC calculations must have an ATC methodology that is documented and publicly available. The methodology will be reviewed by the NERC or the appropriate authority on a yearly basis to determine if it is compliant with the standard. The methodology must address the following topics:</p> <p>ATC calculations must be consistent with transmission organizations and/or owners published planning criteria. For example contingencies, generation dispatches and the amount of counterflow used that are not planned for by the transmission owner should not be applied to ATC calculations. This is based on the reasoning that all firm transmission customers have equal rights to the transmission system. Therefore scenarios not planned for native load customers should not be applied in determining ATC.</p> <p>The consistency between ATC calculations and a transmission organizations and/or owners published planning criteria is meant to be applied to the planning horizon and does not apply to actual transmission or generation outages and resulting generation dispatches modeled in an ATC base case. That is, a transmission organizations and/or owners planning criteria should always be applied where appropriate to the base case conditions modeled.</p> <p>The methodology must also describe the process used to ensure that TTC and ATC calculations are consistent with transmission organizations and/or owners published planning criteria.</p> <p>Include a narrative explaining how TTC and ATC values are determined.</p> <p>Account for how the reservations and schedules for firm (non-recallable) and non-firm (recallable) transfers, both within and outside the transmission provider’s system, are included.</p> <p>Account for the ultimate points of power injection (sources) and power extraction (sinks) in TTC and ATC calculations. Explain how source and sink points used in the calculation are determined.</p> <p>Describe how incomplete or so-called partial path transmission reservations are addressed. (Incomplete or partial path transmission reservations are those for which all transmission reservations necessary to complete the transmission path from ultimate source to ultimate sink are not identifiable due to differing reservation priorities, durations, or that the reservations have not all been made.)</p> <p>Require that TTC and ATC values and postings within the current week be determined at least once per day, that daily TTC and ATC values and postings for</p>
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	<p>day 8 through the first month be determined at least once per week, and that monthly TTC and ATC values and postings for months 2 through 13 be determined at least once per month.</p> <p>Indicate the treatment and level of customer demands, including interruptible demands.</p> <p>Specify how system conditions, limiting facilities, contingencies, transmission reservations, energy schedules, and other data needed by transmission providers for the calculation of TTC and ATC values are used and shared with other TTC/ATC calculators. In addition, specify how this information is to be used to determine TTC and ATC values. If some data is not used, provide an explanation.</p> <p>Describe how the assumptions for and the calculations of TTC and ATC values change over different time (such as hourly, daily, and monthly) horizons.</p> <p>Describe the practice used for netting of transmission reservations for purposes of TTC and ATC determination.</p> <p>TRM:</p> <p>The entity responsible for TTC/ATC calculations must have a published and publicly available methodology describing how TRM values are determined. The methodology will be reviewed by the NERC or appropriate authority on a yearly basis to determine if it is compliant with the standard. The methodology must address the following points:</p> <p>Specify the update frequency of TRM calculations.</p> <p>Specify how TRM values are incorporated into ATC calculations.</p> <p>Specify the uncertainties accounted for in TRM and the methods used to determine their impacts on the TRM values. The following components of uncertainty, if applied, shall be accounted for solely in TRM and not CBM: aggregate load forecast error (not included in determining generation reliability requirements), load distribution error, variations in facility loadings due to balancing of generation within a control area, forecast uncertainty in transmission system topology, allowances for parallel path (loop flow) impacts, allowances for simultaneous path interactions, variations in generation dispatch, and short-term operator response (operating reserve actions not exceeding a 59- minute window). Any additional components of uncertainty shall benefit the interconnected transmission systems, as a whole, before they shall be permitted to be included in TRM calculations.</p> <p>Describe the conditions, if any, under which TRM may be available to the market as non-firm transmission service.</p> <p>Describe the formal process to grant any variances, if allowed, to individual transmission organizations and/or owners from the TRM methodology.</p> <p>Require review of the consistency of the transmission owner's TRM components with its published planning criteria. Describe the process used to determine if a transmission owner's TRM components are consistent with its published planning criteria. The review will be done at minimum on an annual basis. A TRM value is considered consistent with published planning criteria if the same components that comprise TRM are also addressed in the planning criteria. The methodology used to determine and apply TRM does not have to involve the same mechanics as the planning process, but the same uncertainties must be considered and any simplifying assumption explained. It is recognized that ATC determinations are often time constrained and thus will not permit the use of the same mechanics employed in the</p>
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	<p>more rigorous planning process.</p> <p>Require TRM values to be periodically updated (at least prior to each season (winter, spring, summer, and fall), as necessary, and made available to transmission users in the electricity market.</p> <p>CBM:</p> <p>As long as CBM is not a paid for reservation, the entity responsible for ATC/TTC calculations must have a published and publicly available CBM methodology. The methodology will be reviewed by the NERC or the appropriate authority on a yearly basis to determine if it is compliant with the standard. The methodology must address the following points:</p> <p>Specify that the method used to determine the generation reliability requirement as the basis for CBM shall be consistent with the generation planning criteria. Require review of the consistency of the CBM components with its published planning criteria. Describe the process used to determine the consistency. The review will take place at minimum on an annual basis. A CBM value is considered consistent with published planning criteria if the same components that comprise CBM are also addressed in the planning criteria. The methodology used to determine and apply CBM does not have to involve the same mechanics as the planning process, but the same uncertainties must be considered and any simplifying assumptions explained. It is recognized that ATC determinations are often time constrained and thus will not permit the use of the same mechanics employed in the more rigorous planning process.</p> <p>Specify the frequency of calculation of the generation reliability requirement and associated CBM values. Require CBM values to be periodically updated (at least annually) and available to the transmission users in the electricity markets.</p> <p>Require that generation unit outages considered in a transmission provider's CBM calculation be restricted to those units within the transmission provider's system.</p> <p>Require that CBM be preserved only on the transmission provider's system where the load-serving entity's load is located (i.e., CBM is an import quantity only).</p> <p>Describe the inclusion or exclusion rationale for generation resources of each LSE including those generation resources not directly connected to the transmission provider's system but serving LSE loads connected to the transmission provider's system.</p> <p>Describe the inclusion or exclusion rationale for generation connected to the transmission provider's system but not obligated to serve native/network load connected to the transmission provider's system.</p> <p>Describe the formal process and rationale to grant any variances, if allowed, from the CBM methodology.</p> <p>Specify the relationship of CBM to the generation reliability requirement and the allocation of the CBM values to the appropriate transmission facilities. The sum of the CBM values allocated to all interfaces shall not exceed that portion of the generation reliability requirement that is to be provided by outside resources. Explain how CBM is incorporated into ATC calculations.</p> <p>Describe the inclusion or exclusion rationale for the loads of each LSE, including interruptible demands and buy-through contracts (type of service contract that offers the customer the option to be interrupted or to accept a higher rate for service under certain conditions).</p>
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	Describe the inclusion or exclusion rationale for generation reserve sharing arrangements in the CBM values.
FristEnergy Corp	The following comments are provided as clarification of our 'NO' response to the above questions 3 and 4. We believe that requirements for transfer capability that include ATC, TRM and CBM should not be included in a SAR that is being developed to address equipment and facility ratings. The importance of defining requirements associated with the determination of transfer capability, including ATC, TRM, and CBM, would be better accommodated in a specific SAR. BUT, if transfer capability requirements are going to be addresses within this SAR it must include issues associated with the determination of the indicative ATC which is reliably available, therefore those aspects of ATC determination should be addressed, including TRM and CBM.
Hydro-Québec TransÉnergie	TRM should be addressed in the standard if TTC is covered; CBM should not be addressed in the standard. TRM standard should address explicitly the normal variability in the TTC forecast. TRM should not address unanticipated system event (forced outage) impacting TTC. Any priority use of the transmission system should not be address in the TRM standard. TRM standard should allow both deterministic (based on extreme case) and probabilistic (based on operating experience) methodology. TRM determination methodology must be documented and made public. TRM accuracy should be measured. Although CBM address transmission use related to system reliability, it introduces a priority use of the transmission system. Priority use of the transmission system is on the market domain and should not be address by the system reliability standard.
MAIN	It is reasonable to address the fundamental aspects of how the providers apply TRM and CBM in their transfer capability determinations. Detailed numerical should not be necessary. A logical conceptual explanation should be sufficient.
Manitoba Hydro	This SAR must address all aspects of transmission and other system limits with a reliability implication, including the nature of margins which are required for reliability. The capacity benefit margin (CBM) is not appropriate in this SAR, since it is related to generation adequacy. TRM is needed to address unknowns such as; the cumulative impacts of loop flows arising from transactions outside the study scope and the deliverability of Reserves. 6. ATC is not appropriate in this SAR because it principally addresses commercial consideration and is not reliability related. It is derived by adjusting the reliability related parameter TTC lower, for TRM and the scheduled transactions on the transmission facility.
MAPP	Total Transfer Capability (TTC) should continue to be determined by facility owners or operators through reliability analysis. Typically the tariff administrator increments and decrements ATC. Therefore TTC should be included in the SAR and ATC should not be included. A definition of Reliability Margin should be added to the SAR. The reliability aspects

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	of TRM should be included in the definition.
MidAmerican Energy Company	Total Transfer Capability is a reliability quantity that should be covered by the standard. A definition for Reliability Margin should be added to the standard. The reliability aspects of TRM should be included in this definition.
Nebraska Public Power District	TTC and TRM are critical reliability components of the ATC determination. TTC and TRM should be determined separately and should be determined by the owner of the limiting facilities. TRM needs to be a separate analysis since it accounts for solution accuracy of the models, uncertainties with actual operating conditions / load levels and short term operating reserves in the MAPP region.
New York State Department of Public Service	If ATC is used such that reliability can be impacted, than it should be covered under this SAR. TRM and CBM are standards implementation calculations; while the methodology for their calculation should come under this SAR, alternative implementation methodologies (such as those used in the west) for the base reliability standard should also be identified and accommodated.
NPCC	TRM should be addressed in the standard if TTC is covered, however CBM is a market related quantity. CBM was introduced to identify priority use of the transmission system.
NY ISO	Provision should be made in the Standard to insure consistent application and interpretation of these margins in the determination of transfer capability/operating limits between Regions and among Areas within each Region.
Oncor	(Note – Oncor answered “No” to question 5) Transfer capability determination, which is addressed explicitly in this SAR, is likely to have implications for the commercial market; however, explicit requirements on how ATC, TRM, and CBM are determined should be developed separately from this SAR.
PG&E	TRM should be assessed during the determination of SOL and TC since the values determined for SOL and TC are by definition supposed to account for uncertainty in system operating conditions and system models (which is what TRM is for). A value for TRM does not have to be explicitly determined. Therefore, when calculating ATC, only CBM would be used to the extent that TRM is already incorporated in the determination of the TC.
Reliant Resources	ATC values are only a portion of a transmission facility's transfer and loading capability. ATC values have high commercial and market impacts and are not reliability values.
US Army Corps of Engineers	The ATC calculation data should at a minimum be made available to the general public so that: a) system security evaluations can be made b) the need for additional transmission lines can be debated in a public forum
WECC Technical Studies Subcommittee	TRM should be assessed during the determination of SOL and TC since the values determined for SOL and TC are by definition supposed to account for uncertainty in system operating conditions and system models (which is what TRM is for). A value for TRM does not have to be explicitly determined. Therefore, when calculating ATC, only CBM would be used to the extent that TRM is

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	incorporated into the determination of TC.
Westar Energy	ATC (or Available Flowgate Capability) should be very detailed in a separate SAR. This additional SAR should also cover exactly how both TRM and CBM are to be included.

7. Are you aware of any Regional differences that should be identified in this SAR?

General Consideration: A “Regional difference” has a special connotation in NERC standards development. From the NERC Standards Process Manual:

“Regional Differences

A Regional Difference is an aspect of a NERC Reliability Standard that applies only within a given Region or Regions. A Regional Difference may be used, for example, to exempt a particular Region from all or a portion of a NERC Reliability Standard that does not apply in that Region. A Regional Difference may establish different measures or performance criteria as necessary to achieve reliability within that Region.

To the maximum extent feasible, Regional Differences should be addressed through the NERC standards process and incorporated into and approved as part of the NERC Reliability Standard. In all cases, if a requirement would otherwise be inconsistent with or less stringent than a NERC Reliability Standard, then that Regional Difference shall be made part of the NERC Reliability Standard.

Regional Differences should be identified and considered when the SAR is posted for comment. Regional Differences should also be considered in the drafting of a standard, with the intent to make any necessary Regional Differences a part of the standard. Public comments on the draft standard provide a second opportunity to ensure necessary Regional Differences have been accommodated in the draft. The public posting also allows for all impacted parties to identify the requirements of a NERC Reliability Standard as applied within all Regions and Interconnections.

Regional Differences that are proposed to be made part of a NERC Reliability Standard shall be considered during the NERC standards process in accordance with the Criteria for Regional Standards and Regional Differences section below. These criteria provide that:

- Interconnection-wide Regional Differences are presumed to be valid, and there is a burden of proof to demonstrate otherwise in accordance with the stated criteria; and
- Regional Differences that are not applied on an Interconnection-wide basis are not presumed to be valid but may be demonstrated by the proponent to be valid in accordance with the stated criteria.

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Regional Standards

Regions may develop, through their own processes, separate Regional Standards that go beyond, add detail to, or implement NERC Reliability Standards, or that cover matters not addressed in NERC Reliability Standards. Regional Standards may be developed and exist separately from NERC Reliability Standards, or may be proposed as NERC Reliability Standards. Regional Standards that exist separately from NERC Reliability Standards shall not be inconsistent with or less stringent than NERC Reliability Standards.

A Regional Standard that is proposed to be made a NERC Reliability Standard shall be considered during the NERC standards process in accordance with the Criteria for Regional Standards and Regional Differences section below. These criteria provide that:

- Interconnection-wide Regional Standards are presumed to be valid, and there is a burden of proof to demonstrate otherwise in accordance with the stated criteria; and

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- Regional Standards that are not applied on an Interconnection-wide basis are not presumed to be valid but may be demonstrated by the proponent to be valid in accordance with the stated criteria.

Criteria for Regional Standards and Regional Differences

Proposals for Regional Standards or Regional Differences that are intended to apply on an **Interconnection-wide basis** shall be presumed to be valid and included in a NERC Reliability Standard unless there is a clear demonstration within the NERC standards process that the proposed Regional Standard or Regional Difference:

- Was not developed in a fair and open process that provided an opportunity for all interested parties to participate;
- Would have a significant adverse impact on reliability or commerce in other Interconnections;
- Fails to provide a level of reliability of the bulk electric system within the Interconnection such that the Regional Standard would be likely to cause a serious and substantial threat to public health, safety, welfare, or national security; or
- Would create a serious and substantial burden on competitive markets within the Interconnection that is not necessary for reliability.

Proposals for Regional Standards or Regional Differences that are intended to apply only to **part of an Interconnection** will be included in a NERC Reliability Standard only if the proponent demonstrates that the proposed Regional Standard or Regional Difference:

- Was developed in a fair and open process that provided an opportunity for all interested parties to participate;
- Would not have an adverse impact on commerce that is not necessary for reliability;
- Provides a level of bulk electric system reliability that is adequate to protect public health, safety, welfare, and national security and would not have a significant adverse impact on reliability; and
- Is based on a justifiable difference between Regions or between subregions within the Regional Council’s geographic area.”

A number of the responses received appear to address Regional policies or procedures that may be different, but do not identify any aspects of the standard that should not be applicable. Regional differences submitted in response to this question in the SAR Comment Form were considered by the SAR DT and none appear to be applicable to this SAR in its current form. However, these submissions will be made available to the Standards Drafting Team and considered in their work.

Specific responses to some comments are listed below.

AEP	<p>Yes - Because of ERCOT's unique situation as a single regional reliability organization, control area, and independent operator, regional differences relative to ATC should be permitted, as needed.</p> <p>Considerations: ATC determination will not be included in this SAR, consistent with industry consensus. This being the case, the Regional difference for ERCOT is not applicable here.</p>
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Allegheny Energy Supply	No
Ameren	No - There should not be a different standard for each Region. However, application of a standard may be followed differently by different entity. For example, a different ambient temperature may be considered by different entity for calculating conductor ratings. <i>Considerations: It is not intended that there be different standards for each Region, but rather that specific differences in the Regions be recognized and accounted for in the standards as they are developed.</i>
ATC	No
BPA	Yes In the West, the Reliability Coordinator (Reliability Authority?) is not involved in the development of Facility Ratings, System Operating Limits or Transfer Capability. <i>Considerations: Facility ratings will be determined by the facility owner, consistent with industry consensus. The entity (or entities) performing the reliability authority function and/or planning authority function will be responsible for determining system operating limits and transfer capability.</i>
CA-ISO	No
City Utilities of Springfield, Missouri	No
Corps of Engineers	No
CWLP	No
CWLP - 2	No
Dominion VA Pwr	No
Duke Energy	Yes – If the rating methodology is determined by the facility owner, regional factors will be addressed in their methodology.
Duke Power	Yes - With respect to facility rating methods, there are a variety of reasons to allow for regional differences, but all that is necessary in the SAR is a generic statement addressing the issue. The statement should explain that the existing transmission systems were designed and operated to differing, pre-existing standards according to the safety & reliability needs of their systems. New, universal standards should not be used to force transmission owners to make changes in their methods that may be unwarranted or unneeded. The SAR should provide guidance regarding the appropriate methods that should be employed in development of facility ratings. <i>Considerations: Consistent with industry consensus based upon comments received, this SAR will not require the development or use of a single methodology to determine facility ratings, rather, facility ratings will be determined by the facility owner using a methodology developed and documented by the facility owner.</i>
Entergy	No
Exelon	Yes - There are some entities that act as Control Areas that encompass multiple transmission owners other Control Areas include only one transmission owner. The calculation of ATC & TTC appears to differ between the larger all encompassing organizations compared to the smaller organizations. Exelon sees a need for a review of practices to

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	<p>ensure consistency between all Transmission organizations and/or owners. Considerations: The determination of ATC and TTC values used for commercial purposes will not be included in this SAR, consistent with industry consensus. The transfer capability addressed in this SAR is a reliability quantity.</p> <p>This comment will be retained and made available for future SAR development, if one is proposed.</p>
FirstEnergy Solutions	No
FristEnergy Corp	No
Great River Energy	No
Hydro-Québec TransÉnergie	<p>Yes - As ERCOT and the Western Interconnection, Québec Area within NPCC has asynchronous ties with the Eastern Interconnection. This allows direct control of the transfers on the ties and modifies significantly the methodology for determining Transfers Capabilities. The development of OS for Transfers Capabilities should take asynchronous ties into consideration.</p> <p>Operating Limits and TTCs are a function of the NPCC criteria and NPCC has more stringent contingency criteria than some other Regions/Areas, i.e. NPCC Normal and Emergency Transfer Criteria, Document A-2 and multiple contingency criteria (stuck breakers and double circuit tower contingencies). Furthermore Québec Area within NPCC has and should be allowed to maintain more stringent criteria than NPCC and NERC.</p> <p>Considerations: Regions may set more stringent criteria than designated in the NERC Standards, as explained in the general response that precedes this section of industry comments.</p>
Illinois Power Company	No – Not based on the intent described in this standard request. When the details of the actual standard are developed, it is possible that regional differences may be identified.
MAIN	No - From a conceptual standpoint, the Regional differences can usually be explained by application, e.g. all areas can use CBM from a conceptual standpoint but if the area is essentially an island, the calculations will yield a zero value - hence the statement - "we do not use it"
Manitoba Hydro	<p>Yes - The level of reliability required differs between regions, so performance criteria as specified in Table I of the present NERC Planning Standards document, should reflect this fact. For example, in regions that are generation surplus, and characterized by remote generation and long transmission lines, the application of generator tripping following the loss of a transmission element (n-1) to preserve stability is an acceptable practice that has minimal impact on reliability.</p> <p>Considerations: Regions may set more stringent criteria than designated in the NERC Standards, as explained in the general response that precedes this section of industry comments.</p> <p>It is unclear from this comment whether the commenter believes that the example provided is more stringent than NERC requirements or not. Although Regions may set criteria that is more stringent than that contained in the NERC Reliability Standards, they may not set criteria that is less stringent.</p>

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MAPP	<p>Yes -: Permissible loading level is not defined under the definition of System Operating Limit developed for this SAR. Each Region may implement different forms of the loading level control. MAPP for example utilizes local generation loading limits to maintain transient stability limits. If this practice is not covered by permissible loading level, then it should be added to the SAR as a Regional Difference for MAPP.</p> <p>Considerations: The terminology used in the SAR is intended to be general enough to be applicable to all Regions. While the forms of loading level control may differ, the method used to determine transient stability limits should not vary widely from Region to Region. It is not clear why this should result in a Regional difference.</p>
MECS	<p>Yes - Recognition needs to be given to the difference in transmission grid structure within the various interconnections. For example, the Western Interconnection is composed of many long radial transmission lines; the Eastern Interconnection is not.</p> <p>Considerations: While this is true, it is not clear how this would impact or exempt the West from determining facility ratings, transfer capabilities or system operating limits.</p>
MidAmerican Energy Company	<p>MAPP utilizes local generation loading limits to maintain transient stability limits. If this practice is not covered by "permissible loading level" under the definition of System Operating Limit in the SAR, then the MAPP utilization of local generation loading limits to maintain transient stability limits should be listed as a Regional Difference for MAPP.</p> <p>Considerations: Please see the responses to MAPP and Exelon in this section.</p>
Mirant	No
N Y ISO	<p>The development and application of a standard for determining Operating Limits should respect the processes extant in all regions. It should not seek a lowest common denominator, or minimum level, but allow for each Region, and Areas/Reliability Authorities within each Region, to determine the acceptable level of risk and the appropriate criteria consistent with it. The NPCC Basic Criteria for Design and Operation (document A-2) contains some of the strictest requirements for determination of transfer capabilities/operating limits among all of the NERC Regions. A NERC Standard should not subvert or supersede that acceptable level of risk.</p> <p>The Standard should also allow sufficient flexibility to allow Regions and Areas to address specific issues that are not of general concern interconnection-wide. An example of this could be parallel asynchronous HVdc ties between Areas: is an intra-regional issue within NPCC, but could be considered an inter-regional issue to ERCOT or WSCC.</p> <p>Considerations: The intent of the Standard is consistent with this comment.</p>
NB Power	No
Nebraska Public Power District	<p>Yes - The MAPP Region can be limited by transient stability, low frequency damping, transient voltage response, voltage stability, relay margins and thermal loading. The TTC limits for some MAPP flowgates are established in coordination with other flowgates which involves multiple facilities and</p>

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	<p>owners. The MAPP Region also utilizes flow-based methodologies to determine the committed uses of the existing system and ATC.</p> <p>Considerations: Please see the response to MAPP in this section.</p>
New York State Department of Public Service	<p>Yes - - While generally meeting the same reliability goals, individual utility systems have been designed differently from each other based on geography, economic efficiency and load profiles. Care should be given to identify the overriding reliability goals of the SAR and then allow alternative implementation strategies that are cost-effective for each region.</p> <p>Considerations: The standard will identify the reliability goals and performance. If alternative methods are available to meet these goals, they can be employed by those responsible to comply. The standard will not attempt to identify the most cost-effective ways to meet its performance requirements.</p>
Nova Scotia Power	No
NPCC	<p>Yes - Transmission service is provided in a number of ways in NPCC based on the different energy markets that exist with the Region. Consideration should be given to accommodating these differences when developing the OS. TTCs are posted in NPCC and Control Area differences for these TTCs are accepted and identified however not mitigated. This allows the Control Areas to define their levels of acceptable risk and determine the impacts on their respective markets. NPCC has a control area that has asynchronous ties with the Eastern Interconnection and the development of this OS should take this into consideration.</p> <p>Operating Limits and TTCs are a function of the NPCC criteria and NPCC has more stringent contingency criteria than some other Regions/Areas, i.e. NPCC Normal and Emergency Transfer Criteria, Document A-2 and multiple contingency criteria (stuck breakers and double circuit tower contingencies). Furthermore Areas within NPCC have and should be allowed to maintain more stringent criteria than NPCC.</p> <p>Considerations: Regions may set more stringent criteria than designated in the NERC Standards, as explained in the general response that precedes this section of industry comments.</p>
NY Power Auth	<p>Yes - Although different at times the calculation of facility ratings have been developed over time and experience to be workable in certain parts of the country and should not be dismissed off hand for a generic method. Also the setting of operating limits and transfer capability are often driven by local reliability rules which are more stringent and were imposed for specific reasons which should not be forgotten.</p> <p>Considerations: Regions may set more stringent criteria than designated in the NERC Standards, as explained in the general response that precedes this section of industry comments.</p>
Ohio PUC	<p>No - A clarification of the term "regional" should be provided. "Regional" under an RTO could mean something different than "regional" under reliability standards. Because RTOs will operate a common or uniform system, there should not be major differences between regions within the RTO. The SAR need not address regional differences.</p> <p>Considerations: "Regional" in this case means the 10 NERC Regional Councils</p>

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	and not geographic regions. The SAR and standard must accommodate all legitimate Regional differences.
Oncor	Yes - Because ERCOT is itself an interconnection and is a single control area, some NERC policies may need to recognize that requirements different from those imposed upon smaller control areas that are part of a larger interconnection are appropriate. Such requirement areas include time error monitoring, time error correction, inadvertent interchange management, control performance, load-shedding and system restoration, and disturbance reporting. Considerations: It appears this is a general response to NERC Standards for ERCOT. Are there any specific differences associated with this SAR that the commenter would like to identify?
OUC	No
Pepco (2)	No
PG&E	More specific information on the requirements in this SAR is needed before Regional differences can be identified.
PSE&G	No
Reliant Resources	No - The Organizational Standards should be a requirement applicable across all systems regardless of system configuration or market structure. However, a facility standards rating calculation methodology may have specific guides or requirements for particular system equipment that may vary regionally, such as hydro-generation, phase-shift transformers, shunt compensators and others. Considerations: In accordance with industry consensus, facility ratings will be determined by each facility owner, and the standard will not require that a single ratings methodology be employed NERC-wide. Also, it is not intended that there be different standards for each Region, but rather that specific differences in the Regions be recognized and accounted for in the standards as they are developed
SDGE	Yes - Approaches to facility ratings require risk tradeoffs with liability issues for transmission owners which means each owner may rate similar facilities differently. Operating/transfer limits are determined by operating authorities that recognize the inherent differences in the networks across the country. These differences should be recognized. Considerations: As indicated by industry consensus, the determination of facility ratings will be the responsibility of the facility owners. It is unclear from the comment which Region(s) will require a difference for the determination of system operating limits and transfer capabilities.
Southern Company Services SOCO	No
The IMO	No - With regard to facility ratings, there are widely known standards (IEEE etc) that might apply to all regions. As noted by others, this is not to say that a single method be dictated, but only that a credible method be used that has some consistency with those used by others.
TVA	No - Differences will exist due to the lack of a single North American standard for facility ratings (do we want to go there?). However, those differences need not be identified in the SAR.
TVA -	No – None within the local region. Interconnections to other utilities are normally

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Transmission	governed by MOUs and other agreements.
U.S. Bureau of Reclamation	Yes Considerations: Are there any specific Regional differences that the Bureau can help identify?
WECC	Yes – see proposal Considerations: The WECC proposal is addressed in industry comment section 9.
Westar Energy	No
Wisconsin Electric	No

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8. Are you aware of any aspect of the revised SAR that would have an adverse impact on markets?

Considerations: The consensus of comments received is that this SAR deals with reliability issues and should not have an adverse impact on markets. Some commenters stated that if ATC, TRM and CBM are included in the SAR, that this might cause adverse market impacts. In support of comments received on this version of the SAR, ATC, CBM and TRM will not be included.

AEP	No - Assuming that this standard does not address the ATC (beyond reliability margins for real time operating environment and the planning horizon) there does not appear to be aspects that unduly impact the market.
Allegheny Energy Supply	No
Ameren	No – We do not consider reliability as an adverse impact. Actually, a reliable and robust transmission system would enhance marketing activities.
ATC	No
BPA	No
CA-ISO	No - However, the definition and process for calculation of CBM needs more work by the industry.
City Utilities of Springfield, Missouri	Yes – Ratings determine ATC. If the methodology is not disclosed, there is the possibility (or at least the perception) of manipulation of ATC. This is exacerbated by the potential proliferation of Locational Marginal Pricing (and congestion charges) as mandated in the FERC SMD NOPR. The potential of "Gaming" in all its forms should be avoided if at all possible.
CWLP	No
CWLP - 2	No
Dominion VA Pwr	No
Duke Energy	Yes - If SAR process includes consideration of ATC and CBM issues, then any revision of the SAR would have an impact on the market and should be addressed by NAESB. DENA did not anticipate that ATC and CBM would be part of this SAR.
Duke Power	No - The "No" response assumes that determination of operating limits and transfer capability is not covered in the scope of this SAR. A comprehensive SAR on transfer capability would be more detailed, including issues such as TRM & CBM and possibly have market/commercial aspects.
Entergy	No
Exelon	Yes - Exelon believes that the development of this SAR, if it includes the development of ATC & TTC calculations, has reliability and business implications based on the number of options that will be considered in the development and implementation of this Standard. As such we recommend that the development of this SAR be a joint effort between NAESB WEQ and NERC.
FirstEnergy Solutions	No – Limit determining methodology needs to be documented and followed under the oversight of a Market Monitor
FristEnergy Corp	No – As long as the limit determining methodology is documented and followed under the oversight of a Market Monitor.
Great River Energy	No

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Hydro-Québec TransÉnergie	No
Illinois Power Company	No
MAIN	No
Manitoba Hydro	Yes/No- The goal of this SAR should be to lead to standards which result in the definition of transmission which can be used for any and all commercial purposes; so that commerce can proceed subject only to these reliability limits. The standards must be compatible with Standard Market Design principles and must be flexible enough to allow risk management techniques to be used to maximize the amount of transmission available for all users. The standards should provide for a definition of limits which can be considered as the limits to flows, as opposed to commerce. These limits would be the limits which would require operator or control or protection intervention to ensure they are not violated. These limits may be evaluated before some reliability margins are applied.
MAPP	No
MECS	No
MidAmerican Energy Company	No
Mirant	No
NB Power	No
Nebraska Public Power District	No
New York State Department of Public Service	Yes - - Stating that rating methodologies need not be written or shared could be interpreted as an attempt to disrupt potential market power investigations.
Nova Scotia Power	No
NPCC	No
NY ISO	Yes - Inconsistent treatment of transfer capability vs. operating limits, or the potential for different rules used to determine ATC/TTC that those used to determine real-time operating constraints. Inconsistent use of models can also lead to conflicting results, so the Standard should seek to insure that a consistent model/base representation is used for the determination of transfer capability and operating limits.
NY Power Auth	No
Ohio PUC	No
Oncor	No
OUC	No
Pepco	No
Pepco (2)	No
PG&E	No
PSE&G	No
Reliant Resources	Yes - It is difficult to determine whether a standard can be developed based upon the wording in the SAR that will not have an adverse impact on the market.

Summary of Comments on 2nd Posting of Determine Facility Ratings System Operating Limits and Transfer Capability SAR

	NERC should instead ensure that commercial impacts can be properly vetted by developing a Memorandum of Understanding with NAESB to address commercial impacts that may arise after approval of the SAR.
SDGE	No
Southern Company Services SOCO	No - As long as the standard focuses on requiring ratings, not defining methodologies. It may be appropriate to standardize the methodologies for how SOME ratings and limits are calculated. However, since such standards would have significant commercial concerns, they should be vetted through the NAESB process. As such, it would seem appropriate for the development of this standard to be accompanied by a request from NERC to NAESB to consider the development of rating methodology standards for certain types of transmission facilities.
The IMO	No
TVA	No
TVA - Transmission	No
U.S. Bureau of Reclamation	No
WECC	No
WECC Technical Studies Subcommittee	No
Westar Energy	Yes - The proposed SAR must have enforceability implicit in its wording. For example: "owners shall consider such items as" instead of the currently worded "should consider". Without such certainty, it may be possible to withhold capacity from the system which may provide economic benefit to the entity withholding such capacity.
Wisconsin Electric	No

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9. Should avoidance of equipment damage be added to the Purpose of this SAR?

Summary: Yes – 29, No – 24

Considerations: After reviewing the comments, the SARDT is satisfied that the SAR is sufficient as written on the topic of equipment damage, since this is an expected consideration in the determination of facility ratings when facilities are rated by the owner.

AEP	No - There is no need to explicitly address 'equipment damage' in this SAR. The extent of 'allowable' equipment damage will be considered by the equipment owner when the owner determines the proper rating for the equipment. Loss of equipment life (a modest form of equipment damage) is generally recognized as an acceptable risk in establishing emergency ratings. In any case, the SAR does not seem to preclude an asset owner from establishing ratings that would avoid loss of life or other equipment damage.
Allegheny Energy Supply	No – Facility ratings should be set to prevent equipment damage.
Ameren	Yes – Equipment damage or loss of life is one of the major considerations in developing equipment rating or its loading capability.
ATC	No – Equipment damage should be covered by the transmission owners' ratings methodology. Some TO's will accept loss of life ("damage") on certain facilities
BGE	Yes
BPA	No – If the Industry Standards and other guides mentioned in the Equipment Ratings section are applied appropriately, equipment damage will be avoided.
CA-ISO	Yes - It should be noted, however, that this does not necessarily refer to manufacturer's equipment specifications, warranties and/or technical specifications, which are not necessarily in accordance with operating capabilities, but rather to the actual operating capabilities of the equipment.
City Utilities of Springfield, Missouri	Yes
Corps of Engineers	Yes
CWLP	Yes
CWLP - 2	Yes
Dominion VA Pwr	No
Duke Energy	Yes
Duke Power	Yes
ECAR - TSPP	No – The equipment owner should bear the responsibility for taking the risk of loading their equipment, as long as it does not threaten reliability of the system. If the system is planned and operated according to ratings and limits, then equipment damage is the risk of the owner and should not be mandated by this SAR.
Entergy	Yes
Exelon	Yes
FirstEnergy Solutions	It is the equipment owner's concern and responsibility to protect its facilities from damage
FristEnergy Corp	No – As an example, accelerated transformer loss of life may be interpreted as equipment damage, and is not a reliability risk if effectively managed.

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Great River Energy	Yes
Hydro-Québec TransÉnergie	Yes
Illinois Power Company	No – Avoidance of equipment damage is a commercial issue taken into account by the equipment owner in establishing equipment and facility ratings.
MAIN	Yes - For new players, the obvious is not always obvious. Silence on an issue is not helpful. The fact that the question is being asked here means that others also want to know.
Manitoba Hydro	No - The owner’s right to determine ratings must be preserved. However, there may be a requirement to consider the impact of equipment damage and extended outages on reliability; perhaps in the form of a requirement for long term contingency planning (the need for spares may be one aspect). Although equipment damage can have reliability impacts, the commercial impacts are usually much more significant.
MAPP	No – The selected asset management choice by the facility owner will address the equipment risk issue.
MECS	Yes – This should be one of the major objectives of this SAR
MidAmerican Energy Company	Yes – The SAR should include some basic requirements for owners to follow in setting facility ratings. If owners take too much risk with equipment, the reliability of the system is endangered.
Mirant	No – Don’t think it needs to be added to the purpose (it’s inherent). However, would not be opposed to adding it if other entities feel strongly that such language is needed.
NB Power	Yes
Nebraska Public Power District	Yes
New York State Department of Public Service	Yes - - Avoidance of equipment damage is applicable to the SAR, but to what degree is a question. The SAR should seek to avoid catastrophic equipment failure, but the amount of incremental loss of life that should be tolerated per incident is a risk factor that needs to be established by each transmission owner in their determination of ratings.
Nova Scotia Power	Yes
NPCC	Yes
NY ISO	No - Avoiding or limiting equipment damage is implicit in the development of facility ratings. The assumptions that the facility owner(s) use in arriving at the facility rating is based on the physical characteristics of the hardware, environmental considerations, and anticipated loss of life resulting from exposure to operation outside those parameters assumed in that facility rating. A standard that explicitly requires "avoidance of equipment damage" is both unrealistic and not enforceable.
NY Power Auth	No – I believe that this is incorporated in the development of any facility rating methodology.
Ohio PUC	No – The purpose of the SAR is reliability not “to avoid equipment damage.”
Oncor	No – The facility owner can set facility ratings to account for damage potential at its option.
OUC	Yes

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Pepco	No - The facility owner determines the ratings. It is their choice if they are willing to let the equipment be damaged.
Pepco (2)	No - Avoidance of equipment damage and level of acceptable risk is part of the consideration in determining acceptable ratings and should be left to the equipment owner's discretion.
PG&E	If avoidance of "equipment damage" is to be included in the purpose at all, it should be modified to specify "undue equipment damage" since theoretically "equipment damage" occurs every time we energize a piece of equipment.
PSE&G	Yes
Reliant Resources	No - Current references in definitions for Facility Rating, "would not violate an applicable rating of any equipment" already encompasses this criteria. It is difficult to understand what the issue is surrounding this question without the benefit of first hand discussion. There should be a clarification to industry.
SDGE	No - Owners should determine what risk they are willing to take with facility ratings and the possible damage to equipment.
Southern Company Services SOCO	Yes - Avoidance of equipment damage is fundamental to ensuring that reliability of equipment and facilities are maintained. This, in turn, contributes to maintaining reliability of the grid. Operations personnel need to have a clear understanding that exceeding limits or ratings that ultimately result in equipment damage could be adverse to system reliability.
The IMO	Yes - The equipment owner has responsibility to take care of his own equipment by way of appropriate ratings, but having a critical element fail is not in the best interests of anyone, including the ensuing impact on system reliability and security. Including this objective in the SAR Purpose would not be incorrect, but it would seem to be common sense and is understood to be an objective, similar to that of protection of the environment and public and employee safety.
TVA	No - Inherently, ratings are established to mitigate equipment damage/failure as a business practice to ensure employee/public safety, optimize equipment life cycle performance, as well as ensure system reliability. Therefore, equipment damage should not be added to the Purpose of this SAR.
TVA - Transmission	No - There already exist standards by which designs are completed, and avoidance of equipment damage is already assumed.
U.S. Bureau of Reclamation	Yes
WECC	Yes
WECC Technical Studies Subcommittee	If avoidance of "equipment damage" is to be included in the purpose at all, it should be modified to specify "undue equipment damage" since theoretically "equipment damage" occurs every time we energize a piece of equipment.
Westar Energy	No - It is not possible to operate the interconnected system in such a way that no loss-of-life will occur. "Good Utility Practice" implicitly means balancing equipment risk against service risk.
Wisconsin Electric	No - The facility owner establishes the ratings and assumes the risks associated with those ratings. For example, a facility owner may choose an emergency rating that allows for some excess loss of life expectancy.

10. Please use the space below to submit any other comments you may have on this SAR:

<p>AEP</p>	<p>The Purpose/Industry Need and Brief Description seem to ignore the requirement that ratings and limits ensure no violation of reliability performance criteria (the "Table 1 Standards"). As such the Purpose/Industry Need and Brief Description are inconsistent with the body of the SAR.</p> <p>The SAR also fails to make a clear connection that operating within established facility ratings and operating limits will avoid cascading outages, etc. Consider modification to the standard Purpose/Industry Need as follows: "Determine facility ratings, system operating limits, and transfer capabilities necessary to plan and operate the bulk electric system within predefined facility and operating limits such that cascading outages, uncontrolled system separation, and voltage and transient instability are avoided.</p> <p>The 'measurements' associated with this proposed standard should measure the 'what' and the 'results' and should not simply be a measure of when data was submitted or if documentation is available.</p> <p><i>Considerations: The Purpose/Industry Need portion of the SAR will be revised as suggested. Operating within limits is dealt with in a separate SAR (Operate Within Limits – Monitor and Assess Short-term Reliability). The measurement portion of the SAR has been revised.</i></p>
<p>Ameren</p>	<p>We commend the SARDT for revising the earlier version based on the comments received. The revised SAR has more details than the earlier one; however, it is still not very clear and not well organized. Therefore, we do not agree that this SAR is ready for use in developing a standard. We believe that this SAR needs more work to make it complete, clear, and better organized. From the White Paper on NERC's Set of Organization Standards, we understand that after the first posting, the successive posting should include several items. The second posting of this SAR does not include items, such as compliance requirements, trial use testing requirements, implementation plan, and cost estimates.</p> <p>Additionally, we would like to offer some general comments and some specific comments on this SAR for SARDT consideration. The following comments have been offered mainly from the Planning perspective:</p> <p>General Comments:</p> <p>We and others made comments earlier that this SAR should be split into two or more SARs. Though the SARDT responded with the reasons that it is premature and we need to keep the number of standards minimum, with the revised version we strongly believe that this SAR should be divided into three SARs:</p> <ul style="list-style-type: none"> A. Facility Ratings, B. Development of Operating Limits, and C. Transfer Capability (including ATC) <p>The reason for this comment is that these three are different issues. Of course, the facility ratings and transfer capability are related, but that does not mean that they should be parts of the same standard. Models and transfer capability are related and/or load forecast and models are related, does not mean that load forecast, model building, and transfer capability should be covered in one standard.</p> <p><i>Considerations: The commenter's reference to the white paper is correct, but the white paper is incorrect in stating that subsequent versions of SARs will include the listed</i></p>

items. The white paper should state that the *standard* will include these elements.

Several commenters have suggested that this SAR should be broken into separate pieces. In response to these comments, the SAR has been re-organized to add greater clarity between the distinct pieces of this SAR, including whom they apply to and what the measurements are. Because the issues dealt with in this SAR are highly interrelated in that they physically impact the loading of the transmission system, progressing from equipment ratings to system operating limits and transfer capabilities, the SARDT believes they are most appropriately addressed in a single SAR. Although the commenter points out that other issues are also related to this SAR, the examples provided are not limits in the use of the system, but rather inputs into the determination of the limits.

The consensus of industry comments received do not support including ATC in this SAR.

Specific Comments:

1. On page SAR-2, Transmission Provider should be included since they use ratings and transfer capabilities to assess transmission service that is available.

Considerations: Although impacted, this standard does not *apply to* the Transmission Service Provider (TSP) function, because it deals with the development of limits and not their application. From the NERC Functional Model, the TSP function administers tariffs, but does not determine transfer capabilities. The Reliability Authority, Transmission Owner and Planning Authority functions will develop transfer capabilities and facility ratings.

2. What does the word “respect” (facility rating) mean? Does it mean “consider” or does it mean “enforce”?

Consideration: “Respect” means that the facility rating will not violate the respective ratings of each piece of equipment that comprises that facility. The SAR will be revised to better state this intent.

3. On page SAR-5, what are transient facility ratings and why should any facility ratings be made public? It is true that all applicable ratings should be provided to the transmission operator/provider, but why must the ratings be made public? It is suggested that ratings for specific pieces of equipment not be made public also due to national security issues.

Considerations: In accordance with industry consensus, it is up to the equipment owners to both determine the facility rating and all conditions under which the rating applies. The issue of public disclosure is addressed in the general response to section 2 of the industry comments.

4. The definition of facility does not include transformer as a facility. In many cases, transformer with circuit breaker, switches, CTs could constitute as a facility.

Considerations: The list was intended as an example and not intended to be all-

	<p>inclusive.</p> <p>5. System problems to be avoided as listed include cascading outages, uncontrolled system separation, voltage instability, and transient instability. What about thermal overloads? Are they ok? Does the SAR DT consider thermal loading as “proxy” for some of the system problems? How can one determine transfer capability based on cascading?</p> <p>Considerations: Thermal ratings are considered facility limits that must be not be violated. Voltage or stability limits may be expressed in terms of loading levels as a proxy, in some cases. Transfer capability must be determined in a manner that avoids cascading outages.</p> <p>6. On page SAR-4, paragraph 3, last sentence, “Appropriate.....operation”. We do not believe that simply calculation of ratings, operating limits or transfer capabilities form the basis for the proper planning to ensure reliable operation. It is adherence to these limits in Planning and consistent application of these limits in operation ensures reliable system performance.</p> <p>Considerations: The intent of the sentence is that ratings, operating limits and transfer capabilities are used in setting the foundation for reliable operations and system planning. It is recognized that setting limits, in itself, does not guarantee reliable operation or proper planning. The sentence will be revised to make this clear.</p> <p>7. On page SAR-4, system operating limit definition states that Stability and Voltage limits will be reflected as a permissible loading level? What does this mean? How do you determine it?</p> <p>Considerations: Voltage or stability limits may be expressed in terms of loading levels as a proxy in some cases. The SAR does not dictate the manner in which this translation occurs.</p> <p>8. Should there be a difference between limit recognized in Planning versus in Operation? The SAR does not address this.</p> <p>Considerations: The SAR has been revised to state more clearly that planning and operating limits may differ, but both must not exceed facility ratings.</p> <p>9. On page SAR-5, System Operating Limits section needs better organization.</p> <p>Considerations: The SAR has been re-organized in response to this and other industry comments.</p> <p>10. On page SAR-5, all applicable equipment rating includes seasonal, normal, emergency, short-term etc. What's difference between emergency and short-term? We should try to avoid use of etc in the Standard.</p> <p>Considerations: It is up to the equipment owners to both determine the facility rating and all conditions under which the rating applies.</p> <p>11. On page SAR-5, third bullet in System Operating Limits section “Accuracy of System models”. How would the Standard address this?</p> <p>Considerations: This standard does not address the accuracy of system models, but merely mentions that this is a consideration in determining reliability-based margins.</p> <p>12. On page SAR-5, last part states, ... must then ensure that the followings do not occur... How does one ensure all of the items listed? Since relays are generally not modeled in simulations, and you can not completely guard against equipment malfunction or human error, it is difficult to “ensure”. We believe that one can guard against violation of reliability performance criteria in Planning and Operation which in turn would greatly enhance system security.</p>
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	<p>Considerations: The intent is that there is a reasonable certainty that the listed conditions do not occur. The sentence has been re-written to add clarity.</p> <p>13. Transfer Capability – Which transfer capability is referred to? NITC, FCITC, FCTTC, non-simultaneous, simultaneous, or all of the above?</p> <p>Considerations: All of the above.</p> <p>14. The STARDT should follow major part of the existing NERC Standard Measurement II.C.M1,II.C.M2, and IE in developing SAR.</p> <p>Considerations: These measurements have been reviewed by the SARDT in developing the SAR.</p>
BG&E	<p>: On page SAR-4 Equipment Ratings, the following items listed do not directly affect equipment ratings:</p> <ul style="list-style-type: none"> - Equipment warranties - Age of the equipment - Economic lifetime of the equipment - Problems with the equipment - Maintenance condition <p>We believe that these items should not be part of the standard.</p> <p>Considerations: These items can influence equipment ratings. The degree to which they impact ratings is at the discretion of the facility owner.</p>
BPA	<p>Clarification is needed whether the Reliability Authority means Reliability Coordinator. If not, then what is the difference between the two functions?</p> <p>Considerations: The Reliability Authority (RA) function is performed by a Reliability Coordinator (RC). RA is the function, RC is the entity that performs it.</p> <p>Detailed Description, P. 4, first paragraph: Does 'reliability margins' mean TRM and CBM specifically (if so, it should state this) or does it mean the margins included in the Reliability Criteria related to adding margin to the calculated Operating Limit to ensure that the calculated limit does not place the system on the edge of stability? If the latter, then the language must be firmed up, avoiding use of words like 'considered' and 'where appropriate'. Use of these type of margins is mandated by reliability criteria and is always appropriate.</p> <p>Considerations: The intention is the latter. The SAR has been revised to add greater clarity regarding reliability-based margins used in determining transfer capabilities and system operating limits.</p> <p>Also on P. 4, in the definition of Facility, the information in parenthesis in the first paragraph of Facility Ratings on Page 5 should be substituted for the information in parenthesis existing here.</p> <p>Considerations: Page 4 lists examples of facilities, while Page 5 lists examples of possible components that comprise a facility.</p> <p>Page 4, last sentence of the third paragraph: The sentence should read as follows. Appropriate equipment ratings, system operating limits and transfer capabilities form the basis for the proper planning and reliable operation of the system. The way the sentence was originally worded implies that proper planning ensures reliable operation which is only true if the system is operated to the same standard. This can become a bigger issue if the system is planned to a lesser criteria than it has to operate to.</p> <p>Considerations: The intent of the sentence is that ratings, operating limits and transfer</p>

	<p>capabilities are used in setting the foundation for reliable operations and system planning. The sentence will be revised to make this clear.</p> <p>It would be helpful if the definitions of System Operating Limit and Transfer Capability were further clarified. Is System Operating Limit intended to be a 'rated maximum' or 'seasonal maximum' rating, and then the Transfer Capability be the daily or instantaneous limit?</p> <p>Considerations: The definitions of system operating limits and transfer capabilities included in the SAR are intended to accommodate local variations in operating and planning terminology, because it is not practical to use Region or locale specific terminology. The SAR has been revised and reorganized to add greater clarity in response to this and other industry comments. It is hoped that this will satisfactorily respond to this comment. If the SAR is still not clear, please let the SARDT know.</p> <p>Page 5, Facility Ratings, Last Sentence: Delete '..because it does not materially impact system reliability.' This could be challenged because there are times when there is a disagreement on a rating, and the methodology for determining the rating must be provided in order to resolve the disagreement. The rating of the facility could impact reliability if it is rated too high and causes system problems due to overload.</p> <p>Considerations: We received numerous comments to require that the rating methodology be documented (see industry comments section 1). The SAR has been changed to include this.</p> <p>Page 5, System Operating Limits, first sentence: Delete "..by reliability authorities and planning authorities..". Regional differences will determine who calculates the System Operating limits.</p> <p>Considerations: The terms Reliability Authority and Planning Authority identify functions that must be performed, regardless of the Region. Who performs this function may vary.</p> <p>Second sentence: Delete (as determined by the reliability authority). In the west the Reliability Authority (Reliability Coordinator) is not involved in the determination of how soon system operating limits must be available.</p> <p>Considerations: The terms Reliability Authority and Planning Authority identify functions that must be performed, regardless of the Region. Who performs this function may vary. The Reliability Authority is a function; the Reliability Coordinator is an entity.</p> <p>Second bullet: Contingency Criteria is not defined. This should instead say Reliability Criteria.</p> <p>Considerations: The contingency criteria are those included in Table 1 of existing Planning Standards I A S1-4, or their successors.</p> <p>Third bullet: need clarification of 'system protection - what does this include? I.e., system protection is often referred to as relaying, however Remedial Action Schemes which can be independent of relaying is also considered system protection. What should be included in this definition of system protection?</p> <p>Considerations: RAS is addressed as a separate item in the next bullet after system protection in the SAR.</p> <p>Page 5, second set of bullets: delete first three bullets. The Reliability Performance Criteria sets the requirements</p>
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	<p>for system performance.</p> <p>Considerations: Because all areas of NERC are not susceptible to the referenced criteria, it is important that the referenced points not be eliminated.</p> <p>Page 6: Transfer Capability, first sentence: Delete 'planned' so that the sentence reads 'Use of the system shall not exceed the transfer capability. This avoids conflict between 'planned use' versus 'actual use'.</p> <p>Considerations: The sentence will be modified as suggested.</p> <p>First paragraph: BPA would like this paragraph to clarify the idea that operating limits may be static or dynamic. A slight rewording of the sentence as follows would help: Depending upon local system conditions, a system operating limit may be a relatively static quantity (indicating relative independence of the conditions on other facilities) or may be a dynamic quantity expressed in nomograms or equations indicating dependencies on other interfaces or transmission facilities, prior-outage conditions and other system conditions.</p> <p>Considerations: The SAR has been revised to add clarity.</p> <p>Third Paragraph: Include Transmission Operator as one of the entities that may be involved in calculating transfer capabilities. Again, how does this differ from calculating System Operating Limits? The same factors seem to apply. Adherence to Reliability Criteria should be included in the considerations.</p> <p>Considerations: Although impacted, this standard does not <i>apply to</i> the Transmission Operator function, because it deals with the development of limits and not their application. Transmission Operators operate within limits and help define system operating limits, but do not determine transfer capabilities. The Reliability Authority, Transmission Owner and Planning Authority functions will develop transfer capabilities and facility ratings.</p> <p>I believe that the rest of the Transfer Capability section is not relevant to Transfer Capability, but to the Standard as a whole, and therefore a new section should be started, titled "This Standard Will Address:"</p> <p>Consideration: The SAR has been re-organized as suggested by this and other commenters.</p> <p>Measures:</p> <p>the first bullet should be deleted. Response times are determined regionally. Need to specify who the measures apply to. Some measures may apply to a regional organization, and others to a Transmission Owner, etc.</p> <p>Considerations: The suggested measurements do not specify who determines response times. The measurements were included as a starting point. The industry will be asked to submit appropriate measurements for this Standard.</p>
CA-ISO	<p>Based on the current wording in the SAR, the CAISO feels that it cannot sufficiently understand the distinction to be able to accept or adequately comment on the sections, "System Operating Limits" and "Transfer Capability". The CAISO would like further clarification of what is intended by these two headings.</p> <p>Considerations: The definitions included in the SAR are intended to explain the difference between system operating limits and transfer capability. Transfer capability is a function of system operating limits and the specific transfer being evaluated.</p> <p>Under the heading "Detailed Description", the CAISO feels that the term "reliability Margins" should be defined as part of the SAR process.</p>

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	<p>Considerations: The SAR has been modified to add clarity in this area in response to this and other comments.</p> <p>In the same section, under the fourth bullet item, the CAISO feels that the portion of the phrase that reads "...and/or operational experience." should be eliminated, as this should be part of the process that creates the system studies.</p> <p>Consideration: Operational experience plays a key role in the determination of limits, because system studies cannot possibly model all system conditions. It may not be possible to reflect this experience in all studies. For this reason, this phrase is included in the SAR.</p> <p>On page SAR-5, under the heading "System Operating Limits", bullet item 3 in the first section, the CAISO feels that the term Reliability is more appropriate to the intent of this item.</p> <p>Considerations: It is unclear where the commenter would like the term "reliability" to be applied in the referenced bullet. In response to other comments, this area of the SAR has been re-worded.</p> <p>In the second section, under the same heading, the CAISO feels that it should be specified how many levels of contingency are required to be planned - n-1, n-4?</p> <p>In the same section, the CAISO feels that the sentence should read "...must then ensure that the system is being planned and operated within planning criteria."</p> <p>Considerations: The contingency criteria are those included in Table 1 of existing Planning Standards I A S1-4, or their successors. More restrictive criteria may be applied, depending upon local conditions and requirements.</p>
Corps of Engineers	<p>How can real time control needs be met without a criteria that accounts for the changing power capacities? If MVar loading is high, MW capacity suffers. If a run-of-the-river Hydroplant opens up, how long until the forebay drops, the tailwater rises and therefore MW production suffers? Steam plants have a similar problem. If a group of plants respond to a low frequency how quickly will the line be overloaded? If part of the system doesn't respond at the same rate as others, capacity issues will move quickly to the transmission system and generation capacities may not matter.</p> <p>The bottom line is that real time conditions must be taken into account. This is especially true for the one component that is the most limiting, at the moment. Capacities without some accounting for real dynamic limiting conditions can be highly misleading.</p> <p>Considerations: The standard is not intended to lock facility owners into fixed ratings that may not be appropriate based upon component failures, ambient conditions, etc. The rating methodology developed should be flexible enough to allow for changing conditions.</p>
Dominion VA Pwr	<p>1) The following statement appears under Purpose/Industry Need: "Determine facility ratings, system operating limits, and transfer capabilities necessary to plan and operate the bulk power electric system....."</p> <p>On page 5, last paragraph of 'Facility Ratings' Section says: "This standard does not require the development of a standard methodology for the calculation of facility ratings, nor does it require that the methodology used by the facility owner be documented." The two statements seem contradictory-the purpose cannot be achieved without</p>

	<p>developing a standard methodology for determining the calculation of facility ratings. Considerations: The consensus of the comments received support the requirement for documenting ratings methodology; however, the facility owner will determine the methodology to be used to determine the facility ratings. The SAR has been modified to include this requirement.</p> <p>2) As commented by Dominion, Duke and several other companies earlier, the determination of facility ratings and transfer capabilities should be under different SARs-they are different subjects. Considerations: Several commenters have suggested that this SAR should be broken into separate pieces. In response to these comments, the SAR has been re-organized to add greater clarity between the distinct pieces of this SAR, including who they apply to and what the measurements are. Because the issues dealt within this SAR are highly interrelated in that they physically impact the loading of the transmission system, progressing from equipment ratings to system operating limits and transfer capabilities, the SARDT believes they are most appropriately addressed in a single SAR.</p> <p>3) The following statement appears on page 5, second paragraph: "The standard will state that equipment owners must make applicable facility ratings (including steady-state and transient) public in a pre-defined form (including the conditions under which the ratings apply)." This information cannot be made "public". The statement should be revised to clarify that the data recipients are those identified in the third paragraph and not the general public. Considerations: The issue of public disclosure is addressed in the general response to industry comment section 2.</p> <p>4) The following statement appears in the first paragraph (second sentence) of page 4: "This standard will require that reliability margins be considered in the determination of transfer capability and system operating limits where appropriate." It appears to conflict with the following statement from the second paragraph under Transfer Capability on page 6: "This standard does not specifically address available transfer capability (ATC), or its margins." It also appears to conflict with the third bullet item on page 6: "documentation of the determination of transfer capability values, including risk evaluations, and margin evaluations" Considerations: Please see the response to industry comments section 3.</p> <p>5) In general, the SAR seems to be poorly organized and contains many broad statements that could be interpreted in different ways. It could benefit from a re-write. It needs to identify its scope in specific, concise terms. Considerations: The SAR has been re-organized in response to this and other industry comments.</p>
Duke Energy	<p>(1). Under the System Operating Limits and Transfer Capabilities Brief Description use the following language " shall be established for requiring the determination of system operating limits and transfer capabilities that apply facility ratings data...", in</p>

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	<p>order to consistently apply a "What" vs. a "How" Standard. Considerations: The SARDT believes that the current language does address the desired outcome without dictating how to achieve it.</p> <p>(2). Define term "Facility Rating" - the measurement of voltage, current," etc. instead of "the maximum voltage." Considerations: The facility rating is not a measured quantity.</p> <p>(3) Eliminate - (Stability and voltage limits will be reflected as a permissible loading level) in the definition of System Operating Limit. Considerations: This item has been reworded to add clarity in response to this and other comments.</p> <p>(4) Eliminate the consistency reference in applying facility ratings to reliability studies and system operations due to vagueness.</p> <p>(5) Eliminate the term "RESPECT" in such phrases as "Facility Ratings shall respect the equipment ratings" due to vagueness.</p> <p>(6) The definition of Transfer Capability is also vague. Considerations (comment 4-6): The SAR has been revised to add greater clarity and avoid using vague terms. The definition of transfer capability was carefully considered by the SARDT and SAR requestor. If the commenter can make some suggestions to improve the definition, please submit them.</p>
<p>Duke Power</p>	<p>The issue of transfer capability determination is significant enough to deserve its own standard. The SAR mentions some of the issues related to ATC calculations, but does not provide any explicit guidance on what the ATC related content should be. This SAR does not adequately address the details necessary to properly assess transfer capability. Considerations: Please see the response to industry comments section 2.</p> <p>Facility ratings determination and documentation is primarily a basic modeling issue and should have its own SAR. Operating limits and transfer capability are primarily system operating issues with potential market/commercial aspects - these subjects should not be linked together in the same SAR with facility ratings. Considerations: Several commenters have suggested that this SAR should be broken into separate pieces. In response to these comments, the SAR has been re-organized to add greater clarity between the distinct pieces of this SAR, including whom they apply to and what the measurements are. Because the issues dealt with in this SAR are highly interrelated in that they physically impact the loading of the transmission system, progressing from equipment ratings to system operating limits and transfer capabilities, the SARDT believes they are most appropriately addressed in a single SAR.</p>
<p>ECAR - TSPP</p>	<p>There is confusion on what exactly is meant by the term "Transfer Capability". Since the SAR does not specifically address or include ATC type values or margins, does it refer to the transfer capabilities that are calculated in seasonal assessments from Region to Region or area to area? Clarification is needed in the wording of this SAR. Considerations: The definition of Transfer Capability in this SAR does encompass concepts such as those mentioned. The consensus of the comments received indicates that ATC should not be addressed in this SAR.</p>

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<p>Entergy</p>	<p>Entergy is concerned about the amount of "public" information and national and regional security. Therefore, we suggest that facility ratings be "made available to entities certified by NERC.", instead of making the ratings "public".</p> <p>We also suggest that an entity's methodology for the determination of ratings should not be made "public" or "made available to" anyone else.</p> <p>Considerations: The issue of public disclosure is addressed in industry comments section 2.</p>
<p>FirstEnergy</p>	<p>There are two major points that we would like to address in our comments 1) The ultimate purpose of this SAR and 2) addressing ATC, TRM, and CBM.</p> <p>This proposed SAR seems to be trying to address multiple, and somewhat independent subjects in one SAR. System Operating Limits and Transfer Capability should each be addressed in individual and specific SARs.</p> <p>The main topic of this SAR was the documentation of an individual Transmission Owners methodology for determining equipment and facility ratings. This will allow assurance that ratings are consistently determined and applied by a Transmission Owner, and documenting the effective risk taken in the determination of normal and emergency ratings.</p> <p>The discussion on System Operating Limits addresses the application of the determined ratings in operations and planning assessments. This subject is more appropriately addressed in a separate SAR focused on assurance of reliable system operations and planning assessments. The SOL SAR should address the appropriate application of various normal and emergency ratings (one hour, four hour, long term) in determining operating limits, and should also consider the appropriate application of defined operating procedures.</p> <p>Considerations: Several commenters have suggested that this SAR should be broken into separate pieces. In response to these comments, the SAR has been re-organized to add greater clarity between the distinct pieces of this SAR, including whom they apply to and what the measurements are. Because the issues dealt with in this SAR are highly interrelated in that they physically impact the loading of the transmission system, progressing from equipment ratings to system operating limits and transfer capabilities, the SARDT believes they are most appropriately addressed in a single SAR.</p> <p>17. The discussion on Transfer Capability also addresses the application of the determined ratings in transfer capability analysis. A discussion on Transfer Capability also needs to include discussion of ATC and the related margins (CBM and TRM). This subject is also more appropriately addressed in a separate SAR. The TC SAR should address the appropriate application of various normal and emergency ratings (one hour, four hour, long term) in determining operating limits, and should also consider the appropriate application of defined operating procedures. In addition, the TC SAR should consider the coordination of the use of the various normal and emergency ratings, and defined operating procedures, with the implementation of various TLR</p>

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	<p>levels.</p> <p>Considerations: Please see the response to industry comments section 3.</p> <p>19. There needs to be a clarification to the reference to 'maintenance condition' under the Equipment Rating description. Equipment ratings should consider the current condition of the equipment. For example, a transformer which is currently generating increased levels of gassing (indicative of an internal problem) may have a lower rating (normal and emergency) than a similar transformer not experiencing excessive gassing. However, equipment ratings should not be excessively conservative as an alternative to Good Utility Practice in the maintenance of equipment. Equipment Ratings should reflect whatever the equipment's current capability is.</p> <p>Considerations: Maintenance condition is one of a list of items that may be considered by the owner of the facility in determining the facility's rating. The list of items is intended to be illustrative and not all-inclusive.</p>
<p>FirstEnergy Solutions</p>	<p>The ultimate purpose of this SAR was the documentation of an individual Transmission Owners methodology for determining equipment and facility ratings. However, then trying to address ATC, TRM and CBM within this SAR should be left to be addressed in a separate SAR.</p> <p>Considerations: Please see the response to industry comments section 3.</p> <p>The System Operating Limits addressed in this SAR does mention seasonal, normal, emergency and short term equipment ratings, but in the Equipment Ratings section it does not mention these various ratings. This SAR should address the appropriate application of various normal and emergency ratings of one hour, four hour and normal 24 hour equipment ratings in determining the operating limits in a separate SAR. These ratings should be standardized and those responsible for the reliable operation of the system must use these standard ratings to minimize the number of TLRs that are imposed which will improve the transition to a smooth liquid market.</p> <p>Considerations: It is up to the equipment/facility owners to both determine the facility rating and all conditions under which the rating applies.</p>
<p>Illinois Power Company</p>	<p>In the Detailed Description, IP suggests the following change in the third paragraph of the System Operating Limit Section:</p> <p>Change the bullet reading "- cascading outages" to "- outages cascading outside of a transmission owner's system or group of cooperating transmission owners' systems".</p> <p>This change is proposed because IP believes transmission owners and providers should be able to manage the risk on their respective system. Outages that only affect the transmission owner or the group of cooperating transmission owners and their respective customers should be managed by that/those transmission owner/owners.</p> <p>Considerations: The SARDT believes that industry consensus is that cascading outages are not acceptable reliability performance. There are users of the transmission system that will be impacted, even if transmission owners can 'contain' the cascading. Regardless of agreements reached by transmission owners, a NERC standard cannot permit cascading outages. Footnote c in Table 1 of existing Planning Standard IA S1-S4 defines Cascading as "the uncontrolled successive loss of system elements triggered</p>

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	<p>by an incident at any location. Cascading results in widespread service interruption which cannot be restrained from sequentially spreading beyond an area predetermined by appropriate studies.”</p>
Los Angeles Dept of Water and Power	<p>If the requester believes the existing NERC planning standards are not sufficient to determine transfer capability, then it would be appropriate to propose revision of existing standards to address the shortcomings. As it is, this SAR request new NERC standards with no proposal on what to do with the existing NERC standards. Considerations: This is a valid comment that is outside of the scope of the SARDT. This issue will be referred to NERC.</p>
MAAC	<p>This is a general comment for this revised SAR, and does not include answers to the detailed questions above. MAAC and/or MAAC members may submit separate answers and comments to the detailed questions above. This revised SAR, when reposted for comments, should include a redlined version showing the changes made from the previous version. Otherwise, it is difficult and time consuming to figure out what has changed, by reviewing the Comments and Considerations, and by reviewing the questions on the new Comment Sheet. Knowledge of the changes is important, to determine whether or not you can accept the changes. This concept of providing a redlined version with a reposting should apply to all SARs and Organizational Standards. Considerations: The SARDT will try to do this in the future, where it is appropriate. Depending upon the number of changes, the redlined version may not be useful. Because the revised SAR has been reorganized in response to industry comments, the number of changes makes “redlining” it ineffective this time.</p>
Manitoba Hydro	<p>Manitoba Hydro believes that the Facility Ratings should be a separate SAR. There are at least two other proposed SARs that are equally dependent on Facility Ratings; namely, the SAR - Assess Transmission Future Needs and Develop Transmission Plans and the SAR – Monitor and Assess Short-term Transmission Reliability – Operate within Limits. Therefore why should the Facility Ratings be a part of this SAR rather than the Planning SAR or the Short-term Reliability SAR? Considerations: Several commenters have suggested that this SAR should be broken into separate pieces. In response to these comments, the SAR has been re-organized to add greater clarity between the distinct pieces of this SAR, including whom they apply to and what the measurements are. Because the issues dealt with in this SAR are highly interrelated in that they physically impact the loading on the transmission system, progressing from equipment ratings to system operating limits and transfer capabilities, the SARDT believes they are most appropriately addressed in a single SAR.</p> <p>The standard will require that reliability margins be considered in the determination of transfer capability. Consequently, the nature of the reliability margin must be defined in the SAR. Such margins might reflect:</p> <ul style="list-style-type: none"> • The accuracy of system models – the basic network, loads, generator models • Uncertainty in system condition modeling – load levels, generation patterns • Worst contingencies • Operation of control systems (e.g., phase shifters) which can operate independently of the system conditions • The cumulative impacts of loop flows arising from transactions outside of the study

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	<p>scope</p> <ul style="list-style-type: none"> • Deliverability of reserves • Restoration of reserve levels • The limitations of the transaction analysis functions – simplifications for posting, evaluation • Corrections from the measurement point to the sale point for transmission • Margins to ensure system protection (e.g., out-of-step protection) does not operate for any anticipated and studied contingencies • Treatment of counterflows <p>Considerations: The suggestions above will be used to add greater clarity to this portion of the SAR, in response to this comment and others.</p>
MAPP	<p>Owners should be required to set ratings based on the equipment and facility's physical characteristics. The ratings should not be based on transfer capability.</p> <p>MAPP believes that the NERC SAR has described the reliability purpose for the standard and is well written in all aspects except those specifically described above in our comments. We fully support NERC developing a standard from the SAR and ask that these changes are made.</p> <p>Considerations: The SARDT agrees that ratings should not be based upon transfer capabilities and that the SAR states this. The SARDT believes industry consensus, too, supports this position.</p>
MECS	<p>Having common definitions and standard terminology should be a major consideration when this standard is written. Also need to develop common time frames for application of ratings. These items are especially important to RTOs/ISOs/ITPs that could potentially span several states and regional reliability areas.</p> <p>Considerations: The SARDT agrees with the need for common definitions of terms and believes that the SAR contains definitions of key terms used in it. It is up to the equipment owners to both determine the facility rating and all conditions under which the rating applies, as supported by consensus of the comments received.</p>
MidAmerican Energy Company	<p>The SAR should contain basic requirements for owners in setting facility ratings, such as ratings should be based on the equipment and facility's physical characteristics. Improper ratings of facilities will not only cause equipment damage but will endanger system reliability.</p> <p>MidAmerican believes that there is reliability purpose for the standard and fully supports the development of a standard from the SAR. We ask that changes be made in accordance with our comments above. Otherwise, we believe the SAR is well-written.</p> <p>Considerations: The SARDT believes that industry consensus is that the determination of facility ratings is at the discretion of the facility owner. The SAR requires that the methodology be documented, but does not require a single NERC-wide methodology for all facility owners to use.</p>
Nebraska Public Power District	<p>NPPD does not support the use of contract path flowgates as valid indicators of regional transfer capability limitations.</p> <p>Considerations: The SAR does not state that contract path flowgates are valid indicators of regional transfer capability limits.</p>

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<p>New York State Department of Public Service</p>	<p>- The SAR designates that facility ratings will be determined by the transmission owner and that system operating limits will be determined by reliability authorities. However, the SAR does not draw a "bright line" between the two categories. In fact, the SAR as currently written repeatedly uses the same descriptive terms for both classifications. A clear dividing line should be established.</p> <p>Considerations: The SARDT believes that industry consensus is that the determination of facility ratings is at the discretion of the facility owner. System operating limits are related, but distinct from facility ratings. System operating limits may involve multiple facilities and cannot be determined by a single facility owner. The reliability authority function is not the same as a transmission owner function. These functions can be performed by the same entity or different entities.</p> <p>As a general note, standards should only state what actions are required and should not address what does not have to be done.</p> <p>Considerations: The SAR is the scope for the standard. It is useful in setting the scope to be specific regarding what will and will not be included in the standard. The SARDT agrees that the standard should not address what does not have to be done and should focus on required actions and outcomes.</p>
<p>Nova Scotia Power</p>	<p>Question 3 re: ATC is an issue that should be included in the Operate Within Limits SAR</p> <p>Considerations: Please see the response to industry comments section 3.</p> <p>General question related to the use of the term "reliability margins" in line 2 of the detailed Description: How are definitions to be handled in the new Reliability Standards, will a general Glossary be developed?</p> <p>Considerations: The SAR has been revised to add more clarity to the term "reliability margins." The Standard associated with this SAR will contain further detail on this topic. A glossary of terms used in NERC's standards is outside of the scope of this SAR, but it is the understanding of the SARDT that terms will be added to a glossary as they are approved through the standards development process.</p> <p>The SAR should include references to the sections of the Operating Manual which will be replaced.</p> <p>Considerations: The SAR has been revised as suggested.</p> <p>In the Detailed Description section: The Transmission Owner should be added to the RA and PA listed as responsible for establishing System Operating Limits, similar to the RA, PA and TO list responsible for the Transfer Capability</p> <p>Considerations: Although the Transmission Owner function is responsible for determining facility ratings, according to the NERC functional model, this function does not set System Operating Limits. The function assigned this responsibility is the Transmission Operator Function. In some cases, entities may perform both of these functions, but only the transmission operator function is responsible for setting the operating limit.</p>
<p>NY ISO</p>	<p>A Standard that attempts to address facility ratings, operating limits and transfer capabilities in a single document may not be realistic. It might have been easier to address these issues through two (or more) standards: one for ratings of facilities, and a second to address determination of transfer limits.</p> <p>Considerations: Several commenters have suggested that this SAR should be broken</p>

into separate pieces. In response to these comments, the SAR has been re-organized to add greater clarity between the distinct pieces of this SAR, including whom they apply to and what the measurements are. Because the issues dealt with in this SAR are highly interrelated in that they physically impact the loading of the transmission system, progressing from equipment ratings to system operating limits and transfer capabilities, the SARDT believes they are most appropriately addressed in a single SAR.

As proposed the Standard leaves open the issue of criteria or rules that would be used to apply the ratings of facilities to determine transfer limits. Are the criteria left to the individual Regions and Areas by default, or will there be a separate Standard to address the "calculation of transfer limits," and appropriate criteria to be applied?

Considerations: Transfer capabilities must not violate system operating limits, which in turn must not violate facility ratings. The SAR will be revised to include a reference to Table 1 (existing Planning Standards 1 A S1-4). The SAR does not dictate the manner in which transfer capability studies are conducted.

The proposal does not clearly distinguish the concept of System Operating Limit vs. a Transfer Capability. We infer that the difference is that the operating limit is specific to a set of transmission facilities, and the capability is a measure of the power that can be transferred between two Areas using all paths and, thereby, incur (or encourage) loop flow or unscheduled transmission usage on parallel (indirect) flow paths.

Considerations: The inference is correct.

The Standard should uniformly apply to all functions involved in the scheduling and use of the transmission system (that is, it should apply to Balancing and Interchange authorities and transmission service providers, also.)

Considerations: The standard should only apply to those functions identified for determination of facility ratings, transfer capabilities and system operating limits. Industry consensus is that these functions do not include the BA, IA or Transmission Service Provider functions.

Reliability Principles should also encompass #s 5 (communication), 6 (personnel training), and 7 (security assessment).

Considerations: Industry consensus is that principles 5-7 do not apply in this SAR. As long as one of the Reliability Principles is met, there is good reason to proceed with the SAR.

Specific comments concerning the Detailed Description:

(3rd paragraph, 2nd line) "safety" should be "security"? Safety is an issue that is well addressed through NEC, ANSI, OSHA, CSA, etc. Attempting to address safety issues through this Standard would appear to be beyond the intent of the request.

Considerations: The SAR has been revised to remove the term "safely".

(4th paragraph, 3rd bullet) facility ratings should include minimum and maximum voltage ratings. Inability to maintain adequate voltage in pre- or post-contingency situations can impact the operability, and, by extension, the reliability of the interconnected system.

Considerations: This bullet has been revised as suggested.

(4th bullet) reference to "voltage limits" should differentiate equipment voltage ratings from the concept of voltage constrained transfers. Further, voltage constrained transfers can be either steady-state or dynamic.

	<p>Considerations: The intent of the SAR is that any voltage limit (facility rating or transfer capability) can determine a system operating limit. The SAR has been re-organized to add more clarity.</p> <p>Equipment Ratings</p> <p>Care should be taken to protect the facility owner(s) right to rate the equipment, but the Standard must also insure coordination individual component ratings where multiple ownership is involved (e.g., ties between transmission owners, between Areas or Regions, or between a generator owner and the transmission owner) and that each is consistent within their respective (documented) design standards and rating methodology(ies).</p> <p>Considerations: It is up to the facility owner to determine the ratings their facilities. In cases of joint ownership, the owners must decide upon the appropriate rating for the facility.</p> <p>Facility Ratings</p> <p>Development of the Standard should consider including a generator's design real (MW) and reactive (MVar) capabilities (net and gross) as accurate information concerning generator capability(ies) is critical to perform voltage constrained transfer limit assessment.</p> <p>Considerations: Ratings for all facilities are addressed in this SAR and must not be violated in determining system operating limits and transfer capabilities. It is expected that the ratings mentioned above will be provided by the facility owners.</p> <p>The facility owner(s) method and assumptions used to determine ratings MUST be documented and available to the Area Reliability Authority.</p> <p>Considerations: The SAR has been modified to require that the ratings methodology be documented and that it be made available on request to NERC, Regions or their successors and reliability authorities, as suggested by this comment and others.</p> <p>System Operating Limits</p> <p>(page SAR-6, 1st paragraph) requirement for "static" limits or "nomograms" would appear to preclude the use of a real-time security constrained dispatch. Control Areas in the Northeast and Mid-Atlantic Regions have been using computer-based dispatch systems for over 25 years; a Standard that requires static limits, nomograms, and loading guides to manually dispatch the system would both severely constrain system operation and adversely impact system reliability.</p> <p>Considerations: This portion of the SAR has been reworded to add greater clarity in response to this comment and others.</p> <p>Transfer Capability</p> <p>This part of the document is vague as to whether it is addressing longer-range reliability planning assessment or short-term (day-ahead) scheduling and commitment. (1st paragraph, 2nd sentence) does the use of the term "planning" imply scheduling or reliability assessment? Please clarify.</p> <p>Considerations: This SAR applies to all transfer capabilities, with the exception of ATC. The transfer capabilities can be long-term or short-term. Industry consensus is that ATC, CBM, and TRM should not be included in this SAR. Some commented that a separate SAR needs to be developed for ATC, CBM and TRM.</p> <p>(3rd paragraph) should clearly state that the separate entities determining transfer capabilities must use consistent (and documented) methods, criteria, rules and procedures. The term "projected transmission use" needs to be defined (and who</p>
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	<p>projects and what do they project?) Considerations: This SAR does not envision a documented methodology for determining transfer capability. Conditions may exist that prevent the application of a single or consistent transfer capability methodology. “Projected Transmission Use” is covered in a separate SAR – “Assess Transmission Future Needs and Develop Transmission Plans”.</p>
PG&E	<p>Page SAR-4, last sentence of the third paragraph, please change the sentence to read: "Appropriate equipment ratings, system operating limits and transfer capabilities form the basis for the proper planning and reliable operation of the system." The way the sentence was originally worded implies that proper planning ensures reliable operation which is only true if the system is operated to the same standard. This can become a bigger issue if the system is planned to a lesser criteria than it has to operate to. Considerations: The intent of the sentence is that ratings, operating limits and transfer capabilities are used in setting the foundation for reliable operations and system planning. It is recognized that setting limits, in itself, does not guarantee reliable operation or proper planning. The sentence will be revised to make this clear.</p> <p>Page SAR-5, under the section on System Operating Limits, the first sentence needs to be modified to add "with concurrence from the transmission owners". So the sentence would read: "System operating limits must be established by reliability authorities and planning authorities with concurrence from the transmission owners to define the maximum reliable loadings for facilities within the bulk power system." Considerations: The system operating limit must not exceed facility ratings determined by the facility owners. The responsibilities for determining system operating limits are the responsibility of the reliability authority and planning authority functions.</p> <p>Page SAR-5, last paragraph, the first two bullets: What is the difference between cascading outages and uncontrolled separation within the system? Uncontrolled separation within the system is normally the result of cascading outages. Considerations: Uncontrolled separation results in islanding, while cascading outages may not.</p> <p>Page SAR-6, first paragraph, the use of the word “static” may cause some confusion. It could be interpreted to mean “unchanged,” or, to mean “steady state”. Replacing the word “static” with the word “independent” may help. Considerations: The SAR has been revised to add greater clarity on this issue in response to this comment and others.</p>
PJM Industrial Customer Coalition	<p>In the detailed description section, paragraph 3, I suggest removing the word "safely". While safety is everyone's concern, it is outside the scope of NERC's objective - Reliability. Considerations: The SAR has been revised to remove the term “safely”.</p> <p>Also in paragraph 3, "detailed knowledge of equipment ratings and facility ratings for all of the components" is too all-encompassing. I would suggest knowledge of critical ratings to be more practical. Considerations: If by “critical ratings”, the commenter means “ratings of the limiting equipment”, then knowledge of the ratings of “all the components” would be needed to determine which would be the most limiting and the conditions under</p>

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	<p>which they apply. This is the intention of the SAR.</p> <p>Under System Operating Limit, planning and operating criteria and ratings are and should be different. Are you suggesting that operations must be held to the same ratings as planning? This should not be the case. Under Equipment Ratings, again, operations should not be held to the same planning criteria ratings.</p> <p>Considerations: The SARDT has received numerous comments that support using the same facility ratings for both planning and operations. In addition to having responsibility for determining facility ratings, facility owners also must identify the conditions under which the ratings apply.</p> <p>Under Facilities Ratings - the determination whether the information is public or not is outside the scope of reliability. Under System Operating Limits, the phrase "within the bulk power system" should be removed. The implication is that there could be a different local standard versus one established by the RA.</p> <p>Considerations: This SAR does not preclude the use of local criteria, provided it is at least as stringent as NERC's requirements.</p>
PSE&G	<p>FERC already requires facility ratings be calculated twice a year, and requires a change reporting process for rating changes. Ensure this Standard is consistent with the FERC requirements and does not add the unnecessary burden of additional rating reviews or re-calculations.</p> <p>Considerations: The SARDT is unaware of this FERC requirement. Can you please provide further information regarding this FERC requirement (Order, rulemaking, etc)?</p>
Reliant Resources	<p>It is unclear what the standard will be comprised of as far as a measurable and enforceable quantity. There is no requirement to document the methodology an owner uses to calculate facility ratings, therefore leaving it up to the honor system to police establishment of the standards. This standard should either have prescribed limits that can be developed and applied to all systems, or require written public documentation for audits to verify behavior.</p> <p>Considerations: The consensus of the comments received support the requirement for a documented ratings methodology. The SAR has been modified to include this requirement.</p>
SDGE	<p>I agree with earlier comments that this SAR may need to be split into two parts; facility ratings and transfer capability ratings. These are two distinct and different issues.</p> <p>Considerations: Several commenters have suggested that this SAR should be broken into separate pieces. In response to these comments, the SAR has been re-organized to add greater clarity between the distinct pieces of this SAR, including whom they apply to and what the measurements are. Because the issues dealt with in this SAR are highly interrelated in that they physically impact the loading of the transmission system, progressing from equipment ratings to system operating limits and transfer capabilities, the SARDT believes they are most appropriately addressed in a single SAR.</p>
Southern Company Services SOCO	<p>Under the Detailed Description on page SAR-5, section titled System Operating Limits, 2nd paragraph, recommend for clarification that the lead statement be revised to say, "In determining system operating limits, the following must be considered:..." Also, recommend deleting the word "all" in the first bullet under this lead statement. The word "applicable" is sufficient.</p>

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	<p>Considerations: The SAR has been revised as suggested.</p>
The IMO	<p>At some point, the SAR might want to specify a common set of conditions for when the ratings apply. This might be under normal system operation, adverse or emergency conditions and for what length of time and for real time or planning time frames. These specifications would be an inherent part of the ratings. The requirement is to have credible ratings that can be relied upon for the stated conditions and purpose. Having equipment fall short of their ratings could have severe reliability and security consequences.</p> <p>Considerations: Industry consensus indicates that it is the responsibility of the facility owner to determine facility ratings, including the conditions under which they apply.</p>
TVA	<p>With respect to questions 3 and 4, the merger of planning and operations standards into a single standard is difficult within itself. When multiple objectives are added to that initiative, the standards become cumbersome and too lengthy to drive home the importance of a single objective. Therefore, the scope of this standard needs to focus on the ratings/limits aspect while the determination of transfer capability (TTC, TRM, CBM, and ATC) needs to be addressed by a separate reliability standard. The commercial aspects of ATC come more into play in the OASIS environment (transmission tariffs, ATC posting requirements, and ATC coordination).</p> <p>Considerations: Industry consensus indicates that ATC should not be a part of this SAR.</p>
TVA Transmission	<p>Care should be taken to cover the requirements of the existing planning standard II.C.S1.M1-M2, dealing with facilities ratings. In addition, it formerly contained a section discussing the coordination of tieline ratings between entities, but that has been removed. It would be prudent to revisit this issue, particularly with the proliferation of independent power producers on transmission systems, although this might be more appropriate in the NAESB arena.</p> <p>Considerations: The SARDT team has examined the existing Planning Standards and key portions (such as Table 1) will be included.</p>
US Bureau of Reclamation	<p>General Comments- It appears that the industry comments in the first round greatly favored separating facility ratings and system operating limits/transfer capabilities. Streamlining the process by reducing the number of standards is a worthwhile goal if it makes the process easier to understand and apply. However this is not the case here. Combining Facility Ratings with System Operating Limits and Transfer Capabilities does not make the standard easier to understand or easier to apply. A standard should apply to an entity or not apply to an entity. However, as this standard is currently written, generation owners who may otherwise have no involvement with System Operating Limits and Transfer Capabilities will be forced to interpret and comply with part of a standard. Facility Ratings stands clearly on its own. Breaking it out as a separate standard provides better clarity than the current draft.</p> <p>Considerations: Several commenters have suggested that this SAR should be broken into separate pieces. In response to these comments, the SAR has been re-organized to add greater clarity between the distinct pieces of this SAR, including whom they apply to and what the measurements are. Because the issues dealt with in this SAR are highly interrelated in that they physically impact the loading of the transmission system, progressing from equipment ratings to system operating limits and transfer</p>

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	<p>capabilities, the SARDT believes they are most appropriately addressed in a single SAR.</p> <p>Comment on Applicable Reliability Principles- We question if Principle 4 “Plans for emergency operation and system restoration...” should also apply. Facility ratings and individual component capabilities are important when restoring the power system. For example, when energizing a transmission line the generation’s reactive capability rating is a fundamental item.</p> <p>Considerations: The SAR has been revised to incorporate this comment.</p>
WECC	<p>The members of the Compliance Process Task Force (CPTF) of the Western Electricity Coordinating Council believe the purpose of the Operate Within Limit should include: The purpose of the proposed standard is to require transmission path operators and owners to certify that seasonal operating limits for bulk power transmission paths (BPTP) have been developed using NERC and Regional Council planning standards and that those operating limits have been provided to operating personnel, reliability coordinators, other participants in the path, the Region Council office, and other affected Regional Council members. If transfer capability limits have not been developed properly or distributed to operating personnel, reliability coordinators, and path participants, the path may be operated outside of limits potentially resulting in loss of load, uncontrolled separation, or causing damage of facilities when an outage of a path element occurs.</p> <p>The industry need for major transmission paths is as follows.</p> <p>Transmission Operators through technical studies need to determine and clearly define Operating Transfer Capability Limits (OTC) for each major transmission path for each operating season using NERC and regional planning criteria. Properly determining path operating limits and distributing those limits to operating employees, other path owners, and reliability coordinators is part of a process to operate a reliable electrical system. Each Path Operator submits documentation that an officer of the organization certifies that OTC limits for major transmission paths as defined by the Regional Reliability Organization were established prior to each operating season using NERC and Regional Council-approved study methods and that the approved OTC limits are provided to operating personnel, reliability coordinators, and others as appropriate.</p> <p>12. A brief description of the proposed standard is as follows.</p> <p>13. Standard</p> <p>14. Each transmission path operator of each transmission path as defined by the Regional Council (attachment 1 for WECC) must submit documentation that an officer of the organization certifies that:</p> <p>15. a. OTC limits for the operating season have been established using NERC and regional-approved study methods and processes for the season and for contingency conditions;</p> <p>16. b. OTC Limits and nomograms (if applicable) for the designated period for the Bulk Power Transmission Paths (“BPTP”) identified by the region have been provided to Path Operating Personnel;</p> <p>17. c. OTC Limits and nomograms for the designated period for the BPTP have been provided to other participants in the BPTP;</p> <p>18. d. Operating Transfer Capability Limits and nomograms for the designated period for the BPTP have been provided to Reliability Coordinators;</p>

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	<p>19. e. Operating Transfer Capability Limits and nomograms for the designated period for the BPTP have been provided to other affected entities; and</p> <p>20. f. Operating Transfer Capability limits and nomograms for the designated period for the BPTP have been provided to the Regional Council office.</p> <p>21. 3. Data Reporting Requirement</p> <p>22. On or before December 1 for each “Winter Season,” on or before May 1 for each “Spring Season,” on or before July 1 for each “Summer Season,” and on or before November 1 for each “Fall Season” specified by the region, each reporting party shall submit to the Regional Council office completed OTC certification forms (attachment 2). Each such season begins on the first day of the month immediately preceding the stated reporting date and ends on the day before the first day of the next season (e.g., the Spring Season runs from April 1 through May 31).</p> <p>23. 4. Compliance Standard</p> <p>24. A reporting party must accurately complete certification that OTC documentation has been completed and distributed.</p> <p>25. 5. Noncompliance Levels</p> <p>26. Level 1: The path operator accurately certifies that items (a) and (b), and all but one of the items (c)-(f) listed above were properly performed for the operating season.</p> <p>27. Level 2: The path operator accurately certifies that items (a), (b), and all but two of items (c)-(f) listed above were properly performed for the operating season.</p> <p>28. Level 3: The path operator accurately certifies that item (a) was properly performed but not all of items (b)-(f) listed above were properly performed.</p> <p>29. Level 4: The path operator cannot certify that item (a) listed above was properly performed.</p> <p>30. 6. Sanctions</p> <p>31. For purposes of applying the sanctions specified for violations of this criterion, the “Sanction Measure” is Normal Path Rating and the “Specified Period” is the Most Recent Operating Season – Spring, Summer, Fall, or Winter (if required by the Regional Council).”</p> <p>Considerations: Much of the comment above is unique to WECC. Particularly the terminology (“Operating Transfer Capability Limits”, “Winter season” “Bulk Power Transmission Paths”) has clear meanings in WECC, but may not in other Regions. Care has been taken in developing this SAR to use general terminology that may be adapted in all Regions.</p> <p>Further, much of the comment appears to be WECC’s compliance procedures and requirements, which may be applicable at a later date for WECC’s use to measure compliance to NERC Standards. The SARDT does not believe that Regional compliance implementation should be part of this Standard.</p> <p>The compliance and sanction comments are most appreciated and will be provided to the standards drafting team for their consideration in developing these portions of the standard.</p>
<p>WECC Technical Studies</p>	<p>Under the section on System Operating Limits, the first sentence needs to be modified to add "with concurrence from the transmission owners". So the sentence would read: System operating limits must be established by reliability authorities and planning authorities with concurrence from the transmission owners to define the maximum</p>

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<p>Sub.</p>	<p>reliable loadings for facilities within the bulk power system.</p> <p>Considerations: It is the intent of the SAR that facility ratings determined by the facility owner must be respected in determining system operating limits. Because this is stated in the SAR, it is not necessary to add the suggested text.</p> <p>Page SAR-4, last sentence of the third paragraph: The sentence should read as follows. Appropriate equipment ratings, system operating limits and transfer capabilities form the basis for the proper planning and reliable operation of the system.</p> <p>The way the sentence was originally worded implies that proper planning ensures reliable operation which is only true if the system is operated to the same standard. This can become a bigger issue if the system is planned to a lesser criteria than it has to operate to.</p> <p>Considerations: The intent of the sentence is that ratings, operating limits and transfer capabilities are used in setting the foundation for reliable operations and system planning. It is recognized that setting limits, in itself, does not guarantee reliable operation or proper planning. The sentence will be revised to make this clear.</p> <p>Page SAR-5, last paragraph, the first two bullets: WECC has a question for the SAR DT. What is the difference between cascading outages and uncontrolled separation within the system? Uncontrolled separation within the system is normally the result of cascading outages.</p> <p>Considerations: Cascading outages may not always result in uncontrolled separation (islanding), although they do adversely impact reliability.</p> <p>Page SAR-6, first paragraph: WECC would like this paragraph to clarify the idea that operating limits may be static or dynamic. A slight rewording of the sentence as follows would help:</p> <p>Depending upon local system conditions, a system operating limit may be a relatively static quantity (indicating relative independence of the conditions on other facilities) or may be a dynamic quantity expressed in nomograms or equations indicating dependencies on other interfaces or transmission facilities, prior-outage conditions and other system conditions.</p> <p>Considerations: The SAR has been reworded to add clarity.</p>
<p>Westar Energy</p>	<p>It is important that this SAR require the development of a detailed, written region-wide method to determine the capacity of equipment. Owners should be required to document exceptions. The Southwest Power Pool Criterion 12 is a public document, built by broad consensus, that details what shall be considered in determining facility ratings. Some limited latitude is given to facility owners. It is very important that there is confidence within a region and across the marketplace that all participants have facilities rated in a consistent manner. Exception reporting when compliance to the standard is not possible leads to more cost effective means to gain incremental increases in the interconnected system capability. Allowances for dynamic ratings in the operating arena are easily accommodated.</p> <p>Considerations: The consensus of the comments received support the requirement for a documented ratings methodology. The SAR has been modified to include this requirement.</p>

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Wisconsin Electric	<ul style="list-style-type: none">· Page 4, under "Equipment Ratings"; add "performance testing" to the list of items that owners should consider for establishing ratings.· Page 5, under "Facility Ratings", second paragraph; the word "public" is too broad. This requirement should be narrowed such that facility ratings need only be made available to industry participants.· Page 6, under "Transfer Capability", third paragraph; specifying "transmission owner and third party system topology" is cumbersome. This could be simplified to "relevant system topology".· Page 6, under "Transfer Capability", "This standard will address:", fourth bullet; the reference to "margin evaluations" should be eliminated. Margins are outside the scope of this standard.· The entities making the transfer capability calculations need to be responsible for coordinating the modeled generation dispatch with the generation owners. Some regional planning and operating models often have an unrealistic redispatch of generation. This implies a redispatch that may not be agreeable to the generation owner. Such an unrealistic generation scenario can significantly skew the calculated transfer capabilities. <p>Considerations: Performance testing has been added to the list of items in the revised SAR. Industry consensus supports the comment that “public” disclosure is too broad and the SAR has been revised accordingly. The use of transmission margins within the context of this SAR has been clarified in the revised version. This SAR does not address the coordination of model development.</p>
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