Do you believe that this SAR is ready to be developed into a standard? – YES

Mark Henry ERCOT #2	
Alan Johnson Mirant #5, 6	
Peter Burke ATC #1	
Andrew Wilcox NB Power #1	
Jim Cyrulewski ITC #1	
Joe Egloff Tri-State Generation and Transmission Assoc #5	
Clay Young SCE&G #3	
Dale Winter Hoosier Electric	
Gordon Pietsch Great River Energy #1	
Daniel Stosick ISO New England #2	
Dale McMaster Power Pool of Alberta #2	
Richard Kafka Potomac Electric Power #3	
Tom Washburn OUC #3	
Lee Westbrook –Oncor #1	
Chifong Thomas Pacific Gas & Electric #1	Given that the Functional Model is still being developed, this SAR may need to be updated to incorporate as appropriate the pertinent elements of the new Functional Model after it is approved. For example, Page 24 of Draft 5 of the Function Model which has been posted for comments states (under Planning Authority): "Calculates operating and transfer limits. The Planning Authority calculates transfer capabilities and operating limits based on the transmission and resource plans. These operating limits are provided to the Reliability Authority and Transmission Operator(s) for their use in developing next-day and next-hour operating limits." As written in the draft Function Model, the term "operating limit" appears to mean day ahead and hour ahead limits, whereas in the SAR, "System Operating Limit" is intended to cover both real time, day ahead, hour ahead and long term planning time frames. Alignment of the definitions is necessary to avoid confusion later on. Considerations: This is a good observation. A footnote has been added to the SAR to address this comment.
Tom Vandervort for	The Transmission Subcommittee considers the following comments to be significant and worthy of

Transmission Subcommittee	consideration by the "Determine Facility Ratings System Operating Limits and Transfer Capability" SAR Drafting Team: 1. Brief Description, System Operating Limits: The TS believes the reference to "power transfer limits (both thermal and stability)" could be improved by including "voltage" in addition to thermal and stability: to read "power transfer limits (thermal, voltage, and stability)". NYISO, (and others, including PJM) use voltage-based transfer limits where a MW-transfer limit is a proxy for real-time voltage limitations, reactive constraints, or voltage stability limits. As currently stated, the SAR only addresses pure (equipment rating based) voltage limitations. Considerations: The SARDT is using the term "stability limit" to include both angular and voltage stability limits. To avoid confusion, the SAR has been rewritten to read "power transfer limits (thermal, voltage, and stability)". 2. Detailed Description: Based on the Standards Process Manual, the definitions within the posted SAR will eventually be placed into the Standard's Supporting Information Elements "Glossary of Terms." This placement of these definitions into the Glossary of Terms should be noted in the SAR. Considerations: It is the understanding of the SARDT that the definitions of terms will be included in the glossary, as opposed to the standard itself. This is a process issue, however, and the SARDT does not want to require something that may run counter to the decision of the SPM or the SAC. The location of the definitions of the terms used in this SAR will be left to the SAC and the standard drafting team. 3. Detailed Description: System Operating Limits: The "System Operating Limit" definition included in the SAR will be the basis for the Standard Drafting Team. This may not be appropriate since the NERC Operating Committee has assigned the task to define "Operating Limits" to a specific task group. The Transmission Subcommittee recommends that the SAR include a statement for the Standard Drafting Team to consider the "Operating Limits" definition(s) produced by the NERC Operating Limits Definition Task Force. Considerations: The task force referred to has commented that they agree with the definition in the SAR. In general, the actions of any NERC committee or task force will be duly considered and given the same weight as other industry comments, as required by the NERC standards process. Since the definition of system operating limit included in this SAR has been developed in a fair and open manner, allowing for input from the OC and its subcommittees, NERC's standard process does not allow for replacing it with a definition that has not. 4. Detailed Description: Facility Rating: The TS recommends revising the definition of "Equipment Rating" by removing "short-circuit and transient conditions." The definition will read ". . . . . individual equipment apparatus under steady state as permitted or assigned by the equipment owner." Short-circuit and transient conditions are more appropriate for system evaluation rather than for individual equipment ratings. Steady state is correct language for equipment. Considerations: The SAR DT believes that some pieces of equipment, such as generators, have short

	circuit and frequency ratings that must not be violated. Such equipment ratings must be reflected in the associated Facility Ratings, since they could impact the calculation of a System Operating Limit and Transfer Capability to the extent that the system is dynamic-stability limited. The Equipment Rating definition as written states the individual equipment owner has the exclusive responsibility to rate the equipment for any and all conditions requiring a rating -- including steady-state ratings and also short circuit interrupting capability and ratings for transient conditions, where necessary. 5. Detailed Description, Facility Ratings: The "Facility Rating" definition should include a reference to possible time period(s) for the ratings if the time period(s) are applicable. The TS believes that not all ratings have time-related constraints. However, those that do (e.g., emergency ratings, operating ratings, contingency ratings) are important and need to be acknowledged. Possible restatement: ". . . . . that would not violate an applicable rating for a defined time period of any equipment comprising the facility." Considerations: In response to this and other comments, clarifying examples of the conditions under which ratings may apply have been added to the SAR. 6. Throughout the SAR document "will" and "must" need to be replaced with "shall" for consistency. Since these are requirements, "shall" is the appropriate language to used. Considerations: The SARDT agrees with the commenter, but feels that this is an issue to be addressed in the standard, as opposed to the SAR. 7. Detailed Description, Facility Ratings: The TS recommends removing the following paragraph. This paragraph is an Operations paragraph and is better suited in an Operations standard such as "Operate Within System Limits" Standard. It does not belong in this SAR. "The equipment ratings determined by generator and transmission owners must not be violated by the entities responsible for the Reliability Authority, Transmission Operator and Planning Authority functions in planning and operating the bulk electric system." Considerations: This statement has been modified to read, "The equipment ratings determined by generator and transmission owners must not be violated when calculating System Operating Limits and Transfer Capabilities" in response to this and other comments. 8. Detailed Description, Facility Ratings: In the paragraph that starts "The standard will state that equipment owners must document the methodology . . . . . " there are two references that state "NERC, NERC Regions or their successors and entities performing the Reliability Authority and Planning Authority functions." The TS recommends "NERC, NERC Regions or their successors, and entities performing the Reliability Authority and Planning Authority functions" be changed to "entities on an as-need-to-know basis". The TS is sensitive to the confidentiality concerns of the industry and wish to protect those interests by only requiring data-sharing with those needing it for legitimate reliability purposes. Considerations: The SARDT agrees that there is sensitivity associated with sharing this data. Unfortunately, the phrase " on an as-need-to-know basis" is ambiguous and may be interpreted differently

	by different entities. For this reason, the SAR identifies specific entities that must receive the referenced information. 9. Detailed Description, Facility Ratings: The TS considers the paragraph "This portion of this standard will address the need for timely submission of accurate and complete facility rating information including the methodology used to determine them to the users of this information." to be inappropriate, unclear and ambiguous. The paragraph needs to be clarified, enhanced or deleted. The TS recommends deleting the paragraph as written. Considerations: In this case, the SARDT recognized that different entities performing the Reliability Authority function, for instance, might have different timing requirements for when necessary data must be supplied and did not want to force all of the entities performing this function to accept the same submission requirements. During the drafting of the standard, it is expected that more clarity will be added to the submission deadlines. This timeliness issue is different than identifying the entities who must receive the information (see response above), as the same entities will need this information regardless of their timing requirements. 10. Detailed Description, System Operating Limits: The TS recommends rewriting the following paragraph "This standard shall require that reliability margins be considered, identified and defined in the determination of System Operating Limits where appropriate." The descriptive language "identified and defined" are recommended additions. The TS recommends the second sentence of the paragraph be deleted because it is too vague and does not reflect a requirement. The second sentence may be enhanced and incorporated into a "reliability margin" definition. Considerations: The suggestion to identify and define the reliability margins applied adds greater clarity to the SAR and the SAR has been revised to include this new language. Several comments have been submitted during the course of drafting this SAR that indicated the need for illustrative examples of reliability margins. For this reason, the SARDT does not believe industry consensus supports deleting the referenced sentence. It is important that the standards drafting team have guidance as to what constitutes such a margin. 11. Detailed Description, System Operating Limits: The TS considers the paragraph "This portion of this standard will address the need to determine and deliver System Operating Limits to system operators" to be inappropriate, unclear and ambiguous. The paragraph needs to be clarified, enhanced or deleted. The TS recommends deleting the paragraph as written. Considerations: One of the key components of this SAR is to establish the need to provide system operators with system operating limits so that they may reliably perform their duties. That is the reason the referenced sentence is included in the SAR. It also sets the stage for the possible measures that immediately follow it. 12. Detailed Description, Transfer Capability: The TS recommends rewriting the following paragraph "This standard shall require that reliability margins be considered, identified, and defined in the determination of

	Transfer Capability where appropriate." The descriptive language "identified and defined" are recommended additions. The TS recommends the second sentence of the paragraph be deleted because it is too vague and does not reflect a requirement. The second sentence may be enhanced and incorporated into a "reliability margin" definition. Considerations: Please see the response to item 9, above.
Thomas C. Mielnik MidAmerican Energy Co.#3	MidAmerican Energy fully supports the SAR. Delete the extraneous punctuation after the second full sentence on page SAR-5 of the detailed description prior to issuing the SAR as final. The punctuation consists of an extra comma and an extra period. Considerations: Thank you for pointing out this error. It has been corrected in the SAR.
Roman Carter Southern Co Gen & Mktg #3, 5, 6	However, we believe the Standard developed from this SAR should allow use of existing documentation where available. Documentation should not have to be created just for NERC compliance, unless existing documentation is not adequate for the facility rating. Otherwise, additional documentation would place additional burden on the owners of the facility. Considerations: This is the position of the SARDT and it is the intent of the SAR. The SARDT also believes that this is the position of the industry.
John Horakh MAAC Standards Compliance Task Force #2	Concerns that MAAC had with previous versions have been successfully addressed through the posting/comment process. Considerations: Thank you.
Malcolm Thaden Potomac Electric Power #1	Page SAR-4 under Facility Ratings - The "economic lifetime of the equipment" will not affect the rating of a piece of equipment, whereas its age might. Considerations: This phrase has been changed to “the expected replacement date of the equipment” to more accurately portray the intent of the SAR.
Gary Won IMO #2	1. The wording of the conditions and criteria noted under the definitions for "Facility" and "Equipment" ratings should be the same. Considerations: Because all considerations that go into the development of equipment ratings must be reflected in the associated facility rating, it is not necessary that the two definitions be the same. 2. Retaining the three SAR subjects as one SAR (for the time being) is understood. The present SAR does a good job of keeping the definitions and subject areas separated and this approach should be continued into the Standard. The preference is to have separate Standards for each subject. Considerations: After consultation with the requestor, the SAR will not be split, but a provision will be included to allow for the standard drafting team to split the SAR into three standards if this is deemed appropriate. A number of commenters suggested that the SAR be split and the SARDT struggled with the idea of splitting the SAR into pieces from the start. The SARDT agrees with the reasons submitted by commenters for splitting the SAR into three pieces because it contains three distinct pieces that while related, are different enough to require separate standards. On the other hand, the reasons for leaving the SAR as it is center around the interdependency of each piece. For instance, there can be no System

	Operating Limit determination without facility ratings, or any Transfer Capabilities without System Operating Limits. Splitting the SAR prior to moving into standards drafting may result in three separate drafting teams. To have the SAR or standard developed by three different teams working in parallel may result in a loss of coordination among these integrated parts and this may pose a serious problem, as this particular SAR has ramifications for both operators and planners. Much of the confusion expressed by this and other commenters should diminish when the standard is written, as it will have separate requirements and measurements for each of the three pieces listed by the commenter. In addition, the standards will be in both a rulebook and relational database form for easy reference. On balance, therefore, the SARDT and requestor will not split the SAR, but will leave this option open for the standards drafting team. 3. Understand that it is up to the owner to determine ratings as they see fit, but there should be some commonality to the ratings provided. For example, the ratings should cover a consistent set of conditions that might be expected in the operations or studies timeframes, ie under normal continuous or emergency use, similar to that described under the System Operating Limits list in the SAR now. This is not dictating a particular methodology, but is asking for ratings that have a common set of conditions as their basis. Considerations: The SAR requires that the conditions under which the ratings apply must be specified. The conditions considered and the associated ratings are at the discretion of the facility owner, which has been supported by industry consensus during the drafting of this SAR. Not all facility owners may need the same rating periods or system condition considerations, so it is not practical to require a common set of conditions due to the diversity of facility owners.
Roger Champagne Hydro-Quebec TransEnergie #1	Hydro-Québec, as a member of NPCC, has a more stringent Regional Difference- Although the existing NERC BOT approved version of the Process Manual allows for more stringent Regional Differences, Hydro-Québec, along with NPCC, would like recognition of this to appear in the standard even though it is not "Interconnection Wide". This will promote industry awareness and ultimate acceptance of the existence and validity of our more stringent criteria which may become increasingly important if reliability legislation passes as it pertains to the enforcement of these yet to be developed standards. Considerations: The SAR has been modified to show that NPCC has more stringent requirements in the Regional Differences box, as requested by this and other commenters. We would like to submit the following for DT consideration; 1) In the Brief Description of Facility Rating section of the SAR itself, it should include the term "applicable" and that we describe "applicable" to include such examples as seasonal, normal, short and long term ratings as well as emergency ratings, etc. This precision shall be addressed in the detailed description as well. This ultimately is attaching a time period to facility ratings. Considerations: In response to this and other commenters, clarifying examples of the conditions under which ratings may apply have been added to the SAR.

	2) 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 which considers; a) "A permanent phase to ground fault on any transmission circuit, transformer or bus section with delayed fault clearing. b) "Simultaneous permanent phase to ground faults on different phases of each of two adjacent transmission circuits on a multiple circuit tower with normal fault clearing." Also these are considered when performing "stability assessments" as stated in the criteria from Section 5.1. c) Power transfer limits (both thermal and stability)" should include "voltage" in addition to thermal and stability: to read "power transfer limits (thermal, voltage, and stability)". Areas within NPCC (and others, including PJM) use voltage-based MW transfer limits that represent real-time voltage limitations (pre- to post-contingency voltage drop), reactive resource constraints, or voltage stability (voltage collapse) limits. The SAR presently only addresses pure (equipment rating based) voltage limitations. Considerations: The SARDT is using the term "stability limit" to include both angular and voltage stability limits. To avoid confusion, the SAR has been rewritten to read "power transfer limits (thermal, voltage, and stability)". In response to items (a) and (b), the fact that NPCC has more stringent criteria has been noted on the SAR. 3) The 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 Transfer Capabilities. The development of RS for Transfer Capabilities should take asynchronous ties into consideration. Furthermore Québec Area within NPCC has and should be allowed to maintain more stringent criteria than NPCC and NERC. Considerations: This SAR does not require a single common methodology for determining Transfer Capabilities. It is acceptable for Quebec to include its local conditions and criteria in determining Transfer Capability. The fact that NPCC has more stringent requirements is now included in the Regional Differences box on the SARs. 4) Due consideration is also given to operating under High Risk Conditions, i.e. unusual weather. (as stated in A-2 Section 6.4) Inclusion of the NPCC and members Regional Difference in the SAR "Regional Differences" Section as presented in Bullet 2 and 3 above. Considerations: The fact that NPCC has more stringent requirements is now included in the Regional Differences box on the SARs.
Rick Stegehuis Wisconsin Electric #3, 4, 5	Wisconsin Electric supports developing this SAR into a standard, with the following exception: Eliminate the following paragraph from the "System Operating Limits" and "Transfer Capability" sections on pages SAR-5 and SAR-6:

	"This standard will require that reliability margins be considered in the determination of [System Operating Limits/Transfer Capability] where appropriate. Such margins might reflect: uncertainty in system conditions (demand levels, generation dispatch), operation of controllable elements such as phase shifting transformers, and the impact of third party loop flows, or other uncertainties." The SAR should address the development of limits and capabilities that reflect the full physical operating capacities of the transmission system. Statements elsewhere in the SAR adequately express the intent to consider the inherent uncertainties. The above paragraph could be interpreted as suggesting margins that are part of determining the commercial use of the transmission system (such as elements of TRM or CBM). Prior industry comments did not support inclusion of these margins. Considerations: Reliability margins are intended to reflect the full, reliable, physical operating capability of the system, but system models have inherent error in them. Thus the need for the margins. When Transfer Capability is not thermally limited, it is common to include reliability margins in its determination.
David Little Nova Scotia Power #1, 3, 5	Although the existing NERC BOT approved version of the Process Manual allows for more stringent Regional Differences NPCC members would like recognition of this to appear in the standard, not just the Manual. This will promote industry awareness and possible acceptance of more stringent criteria. This will become increasingly important if reliability legislation passes as it pertains to the enforcement of these yet to be developed standards. Considerations: The fact that NPCC has more stringent requirements is now included in the Regional Differences box on the SARs. A reference to an applicable time period should be included in the definition of Facility Rating to allow for Seasonal, Short Term and Long Term Emergency ratings. Considerations: In response to this and other commenters, clarifying examples of the conditions under which ratings may apply have been added to the SAR.
NERC Operating Limit Definition Task Force (8 members)	Provided that the standard developed recognizes that while Reliability Authorities are obligated to respond to all System Operating Limit (SOL) violations, there are differences in the response depending on the severity of the violation. Specific actions are required within specific time frames for those violations that expose large areas of the Bulk Electric system to uncontrolled separation, cascading outages, voltage or transient instability, or violation of applicable reliability performance criteria. It is the opinion of the members of the Operating Limit Definition Task force that when SOL are exceeded resulting in these conditions, they represent a special subset of SOL that should be defined separately and specifically. Considerations: The intent of this SAR is to set the limits and there is another SAR ("Operate Within Limits") that addresses the actions necessary to avoid violating the limits. "Operate Within Limits" is currently in the standards drafting phase.
Dilip Mahendra SMUD #1	-- Given that the Functional Model is still being developed, this SAR may need to be updated to incorporate as appropriate the pertinent elements of the new Functional Model after it is approved. For example, Page 24 of Draft 5 of the Functional Model which has been posted for comments states (under Planning Authority):

	"Calculates operating and transfer limits. The Planning Authority calculates transfer capabilities and operating limits based on the transmission and resource plans. These operating limits are provided to the Reliability Authority and Transmission Operator(s) for their use in developing next-day and next-hour operating limits." As written in the draft Function Model, the term "operating limit" appears to mean day ahead and hour ahead limits, whereas in the SAR, "System Operating Limit" is intended to cover both real time, day ahead, hour ahead and long term planning time frames. Alignment of the definitions is necessary to avoid confusion later on. Considerations: This is a good observation. A footnote has been added to the SARs to address this comment.
George Bartlett Entergy #1	We suggest the SAR be changed to place the requirement to develop OSLs on the owner of the facilities, or the Transmission Service Provider. The Reliability Authority should not be developing the OSLs. Considerations: This comment appears to conflict with the defined responsibilities identified for these functions in the NERC Functional Model. The TSP function administers the transmission tariff (including accepting or denying transmission reservations based upon Available Transfer Capability (ATC) after consideration of transmission limits already determined by other functions). The Transmission Owner function develops facility ratings, which are a key input to the determination of transmission limits, but this function does not set transmission limits. It is the Reliability Authority, Planning Authority and Transmission Operator functions that set transmission limits, according to the Functional Model.
Ralph Rufrano NYPA #1	NYPA basically in agreement with the comments provide by both Con Edison and NPCC regarding this SAR. NPCC has a more stringent Regional Differences which need to be recognized.(see NPCC comments) Considerations: NPCC's more stringent requirements have been now been noted in the Regional Differences box. 1. Where Facility Ratings are provided, specific details of limiting elements should not be required. Considerations: The SAR does not require disclosure of limiting elements, but instead the facility rating and the methodology used to determine it. It is not the intent of the SAR that limiting element information be disclosed. The Brief Description of the SAR has been modified to remove confusing language. 2. In explaining the methodology utilized in determining ratings, specific algorithms should not be required, especially where proprietary data or software is used in making such determinations. Considerations: The methodology is at the discretion of the facility owner, as specified in the SAR. While the methodology is to be disclosed, it is not the intention of the SAR to require disclosure of the specific algorithm used. Specific Changes to sections shown below are in [ ] s; 3. The determination of System Operating Limits must address: - the applicable (such as seasonal, normal, emergency, short term etc) Equipment Ratings and Facility Ratings - the applicable Contingency Criteria [, local reliability rules, environmental and safety regulations] Considerations: The bullet regarding contingencies has been modified to add clarity, in response to this

	comment. 4. System Operating Limits, which will be applicable to flows through a specific transmission facility or interface in the system, must then provide a reasonable certainty that the following do not occur: - uncontrolled separation within the system [damage to equipment, or safety hazards to the public or employees.] Considerations: The facility rating should be such that it allows only acceptable damage (as determined by the facility owner) and does not result in safety hazards to the employees of the facility owner or its customers. The consideration of equipment damage is at the discretion of the facility owner.
Paul Johnson AEP #1	AEP agrees that this SAR is generally ready to be developed into a standard. Recognizing that the development this standard is to ensure the reliability of the bulk electrical system, this standard must be developed in a manner so that adherence to this standard by all industry participants will further reliability, 'results' or 'measurements' required by this standard can be quantitatively measured, and must NOT simply be a measure of when data is submitted or if some particular documentation was readily available. Additionally to the extent practical, existing NERC reference documents, and technical definitions should not be discarded, but rather employed in the development of this standard. Considerations: The SARDT appreciates the comment and agrees with the observations made. This is consistent with the goals of the NERC standards development process.
Robert Waldele NYISO #2	NYISO believes that the SAR is ready for standard development, but believes that it can be improved by considering the following comments on the definitions: Facility Ratings: Equipment ratings contains a reference to "short-circuit and transient conditions" but there is no other reference to either short-circuit study, limitations or fault-duty analysis in the SAR. The context is confusing as it is not clear if the "short-circuit" reference is to breaker interrupting rating, or "fault" as a disturbance event. Fault duty (or short-circuit limitations) should be a engineering design (i.e., planning) issue, and, as such, does NOT belong in the context of system operating limits and transfer capabilities. Equipment fault-duty ratings, and application of those ratings, need to be addressed separately to avoid confusion with traditional system transfer limitations. Reference to short-circuit should be removed. Considerations: The SAR DT believes that some pieces of equipment, such as generators, have short circuit and frequency ratings that must not be violated. Such equipment ratings must be reflected in the associated Facility Ratings, since they could impact the calculation of a System Operating Limit and Transfer Capability to the extent that the system is dynamic-stability limited. The Equipment Rating definition as written states the individual equipment owner has the exclusive responsibility to rate the equipment for any and all conditions requiring a rating -- including steady-state ratings and also short circuit interrupting capability and ratings for transient conditions, where necessary. System Operating Limits:

	NYISO believes that the (several) references: "power transfer limits (both thermal and stability)" could be improved by including "voltage" in addition to thermal and stability: to read "power transfer limits (thermal, voltage, and stability)". NYISO, (and others, including PJM) use voltage-based MW transfer limits that represent real-time voltage limitations (pre- to post-contingency voltage drop), reactive resource constraints, or voltage stability (voltage collapse) limits. As currently worded, the SAR only addresses pure (equipment rating based) voltage limitations. Considerations: The SARDT is using the term "stability limit" to include both angular and voltage stability limits. To avoid confusion, the SAR has been rewritten to read "power transfer limits (thermal, voltage, and stability)".
John Blazekovich Exelon #1, 3, 5, 6	It is Exelon's position that other entities have a valid need for model data, therefore this SAR needs to clearly state that facility ratings developed for public models must be consistent with planning models Considerations: The intent of the SAR is that the entities performing the Planning Authority, Reliability Authority and Transmission Operator functions all must receive consistent facility ratings information so that they may carry out their duties. It is also the intent of the SAR that the facility ratings be consistently applied to all users of the transmission system to maintain reliability.
Guy Zito NPCC #2	NPCC Has a more stringent Regional Difference- Although the existing NERC BOT approved version of the Process Manual allows for more stringent Regional Differences NPCC would like recognition of this to appear in the standard even though it is not "Interconnection Wide". This will promote industry awareness and ultimate acceptance of the existence and validity of our more stringent criteria which may become increasingly important if reliability legislation passes as it pertains to the enforcement of these yet to be developed standards. Considerations: NPCC's more stringent requirements have been now been noted in the Regional Differences box. I would like to submit the following for DT consideration; 1) There may be a potential for some confusion with the existing wording "short circuit". Does this refer to a breaker interrupting rating or the fault current as a result of a disturbance event? Fault duty or short circuit limitation is more of an engineering or design issue and may be inappropriate to reference during the discussion of transfer capabilities and system operating limits. Considerations: The SAR DT believes that some pieces of equipment, such as generators, have short circuit and frequency ratings that must not be violated. Such equipment ratings must be reflected in the associated Facility Ratings, since they could impact the calculation of a System Operating Limit and Transfer Capability to the extent that the system is dynamic-stability limited. The Equipment Rating definition as written states the individual equipment owner has the exclusive responsibility to rate the equipment for any and all conditions requiring a rating -- including steady-state ratings and also short circuit interrupting capability and ratings for transient conditions, where necessary. 2) In the Brief Description of Facility Rating section of the SAR itself, it should include the term "applicable"

	and that we describe "applicable" to include such examples as seasonal, normal, short and long term ratings as well as emergency ratings, etc. This ultimately is attaching a time period to facility ratings Considerations: In response to this and other comments, clarifying examples of the conditions under which ratings may apply have been added to the SAR. 3) 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 which considers; a) "A permanent phase to ground fault on any transmission circuit, transformer or bus section with delayed fault clearing. b) "Simultaneous permanent phase to ground faults on different phases of each of two adjacent transmission circuits on a multiple circuit tower with normal fault clearing." Also these are considered when performing "stability assessments" as stated in the criteria from Section 5.1. 1. Power transfer limits (both thermal and stability)" should include "voltage" in addition to thermal and stability: to read "power transfer limits (thermal, voltage, and stability)". Areas within NPCC (and others, including PJM) use voltage-based MW transfer limits that represent real-time voltage limitations (pre- to post-contingency voltage drop), reactive resource constraints, or voltage stability (voltage collapse) limits. The SAR presently only addresses pure (equipment rating based) voltage limitations. Considerations: The SARDT is using the term "stability limit" to include both angular and voltage stability limits. To avoid confusion, the SAR has been rewritten to read "power transfer limits (thermal, voltage, and stability)". 3) I have attached a copy of the NPCC A-2 Criteria for later consideration/use by the Standard Drafting Team. 4) The 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 Transfer Capabilities. The development of OS for Transfer Capabilities should take asynchronous ties into consideration. 5) Due consideration is also given to operating under High Risk Conditions, i.e. unusual weather. (as stated in A-2 Section 6.4) 6) "Please see additional comments from some of our member systems that are being forwarded to you in separate attachments". This will acknowledge our comments. Considerations: The remaining comments (in Items 3-6) have been addressed in the responses to Hydro Quebec, NYPA and ConEd.
Peter Mackin WECC Tech Studies Subcommittee #2	Given that the Functional Model is still being developed, this SAR may need to be updated to incorporate as appropriate the pertinent elements of the new Functional Model after it is approved. For example, Page 24 of Draft 5 of the Function Model which has been posted for comments states (under Planning Authority): "Calculates operating and transfer limits. The Planning Authority calculates transfer capabilities and operating

	limits based on the transmission and resource plans. These operating limits are provided to the Reliability Authority and Transmission Operator(s) for their use in developing next-day and next-hour operating limits." As written in the draft Function Model, the term "operating limit" appears to mean day ahead and hour ahead limits, whereas in the SAR, "System Operating Limit" is intended to cover both real time, day ahead, hour ahead and long term planning time frames. Alignment of the definitions is necessary to avoid confusion later on. Considerations: This is a good observation. A footnote has been added to the SARs to address this comment.

Do you believe that this SAR is ready to be developed into a standard? – NO

Linda Campbell, FRCC #2 #1: Chuck Harper, Progress Energy – Florida Eric Grant – Progress Energy – Florida Bill Slater – Progress Energy - Florida Marty Mennes – Florida Power & Light Company Beth Young – Tampa Electric Company Jose Quintas – Tampa Electric Company #3: Mark Bennett – Gainesville Regional Utilities Ted Hobson – JEA Richard Gilbert – Lakeland Electric Paul Shipps – Lakeland Electric Tom Calabro – Orlando Utilities Commission Rusty Foster – City of Tallahassee Robert Miller – Kissimmee Utility Authority Greg Woessner –Kissimmee Utility Authority Bob Remley – Clay Electric Cooperative Steve Treece – Ft. Pierce Utilities Authority Joe Roos – Ocala Electric Utility Tim Beyrle – Utilities Commission of New Smyrna Beach John Giddens – Reedy Creek Energy Services Generator Gary Jackson – Calpine Corporation Douglas Bullock – Indiantown Cogeneration, L.P. John Twitchell – Mirant Americas Development Mike Antonell – Reliant Energy Services Transmission Dependent Utilities Steve Wallace – Seminole Electric Cooperative Joe Welborn – Seminole Electric Cooperative	In the earlier postings, there were numerous comments stating a belief that this SAR should be separated into 3 SARs. The SAR drafting team did not think that was appropriate since all three items are related. The FRCC OC supports the suggestions of earlier commenters and recommends that the SAR drafting team reconsider this. The FRCC OC agrees that the items are related; however, that does not necessitate they be all lumped into one standard. In fact, page SAR-7 already identifies other related SARs, so it would seem appropriate to separate these and correlate them through that table. There needs to be a clear understanding of the three issues and putting them together adds confusion, not clarity. Each of the sections will have much more detail once the standard drafting begins so we believe it makes more sense to separate them now, and show they are connected through the table. Considerations: After consultation with the requestor, the SAR will not be split, but a provision will be included to allow for the standard drafting team to split the SAR into three standards if this is deemed appropriate. A number of commenters suggested that the SAR be split and the SARDT struggled with the idea of splitting the SAR into pieces from the start. The SARDT agrees with the reasons submitted by commenters for splitting the SAR into three pieces because it contains three distinct pieces that while related, are different enough to require separate standards. On the other hand, the reasons for leaving the SAR as it is center around the interdependency of each piece. For instance, there can be no System Operating Limit determination without facility ratings, or any Transfer Capabilities without System Operating Limits. Splitting the SAR prior to moving into standards drafting may result in three separate drafting teams. To have the SAR or standard developed by three different teams working in parallel may result in a loss of coordination among these integrated parts and this may pose a serious problem, as this particular SAR has ramifications for both operators and planners. Much of the confusion expressed by this and other commenters should diminish when the standard is written, as it will have separate requirements and measurements for each of the three pieces listed by the commenter. In addition, the standards will be in both a rulebook and relational database form for easy reference. On balance, therefore, the SARDT and requestor will not split the SAR, but will leave this option open for the standards drafting team. The following are some comments on specific areas of the current SAR, We believe that Reliability Principle 7 would also apply since a System Operating Limit and Transfer Capability could impact a wide area. Considerations: Reliability Principle 7 has been checked in the final version of the SARs

	dealing with SOL and TC. Thank you for pointing this out. In the Facility Ratings section, it states that this information is to be supplied to the RA, TOP and PA in a "timely manner". There should be more definition of what a timely manner is. It also states that the documentation of the methodology should be made available to NERC, NERC Regions, the RA or PA upon request. We believe that there should be a "need to know" basis for supplying this information. It also states that equipment owners must make facility ratings available in a pre-defined form, but that form is not identified. Considerations: In this case, the SARDT recognized that different entities performing the Reliability Authority function, for instance, might have different data requirements and did not want to force all of the entities performing this function to accept the same submission requirements (timing, format). During the drafting of the standard, perhaps more clarity can be added to the submission deadlines. The issue of "need-to-know" is a different matter. The information required in this standard must be submitted to the listed functions to ensure reliability, regardless of the format or the timing. Absent specific identification of the function to which this information will be supplied, the standard will leave it open as to who determines who "needs to know", from the standpoint of both the party releasing the information and the party receiving it. In the System Operating Limits section, it states that only the RA and PA will establish System Operating Limits. We also believe the transmission operator should be involved in this determination. Considerations: After further review of the Functional Model, the SARDT agrees with this comment and the SAR has been revised accordingly. In the Transfer Capability section, the third paragraph provides examples of reliability margins. There is no mention of either first contingency or single worst contingency as being reflected. We believe these should also be considered in the determination of Transfer Capability. Considerations: Although transfer capabilities must be developed with consideration of appropriate (ie first and worst) contingencies, these are not considered to be the only factors in the determination of reliability margins. Elsewhere in the SAR, a reference to existing Planning Standard Table 1 is included as the types of contingencies to be evaluated. In reviewing previous comments, there were several mentions of Regional Differences, but none were identified on the table on page SAR-7. We do understand many were general in nature, but NPCC and WSCC identified specific differences. Perhaps the entire difference does not need to be spelled out in the SAR, but at a minimum the table should indicate that those regions do in fact have more stringent requirements. Considerations: In response to this and other comments, both NPCC and WECC will have

	Regional Differences noted in the box on the SAR.
Gerald Rheault Manitoba Hydro #1, 3, 5	Manitoba Hydro believes that the present draft of this document is quite good as is but requires some modifications to further clarify the intent. The items to be changed are the following: -In the "Facility Rating" section of the Detailed Description, the reliability reason for requiring that the facility rating methodology documentation be made available to the listed entities should be stated more clearly. Considerations: Comments were received during the second posting of this SAR that stated that Facility Ratings methodologies must be provided to ensure the consistent application of ratings to maintain reliability. -In the second last paragraph of the "Facility Rating" section the words "facility ratings across NERC.,." should be changed to "facility ratings by all generation and transmission owners in each NERC region. Considerations: This statement has been revised to delete “across NERC” in the SAR. Thank you for pointing this out. -The Functional Model assigns responsibility for developing System Operating Limits to the Reliability Authority. Because of legal or regulatory reasons, some transmission owners /operators cannot delegate authority for developments of these limits to the Reliability or Planning Authority. Therefore paragraph 2 of the "Definitions" in the System Operating Limits of this SAR should be worded to allow for entities other than the Reliability Authority and the Planning Authority to develop the System Operating Limits. The Functional Model should also be modified to allow for Functional Authorities other than the Reliability and Planning Authorities to develop System Operating Limits. This comment will also be forwarded to the Functional Model Review Task Group in response to their comment request related to their report dated January 1, 2003. Considerations: The SARDT must develop a SAR that identifies the appropriate functions for each requirement as stated in the NERC Functional Model. The Functional Model does not specify who performs the functions, but rather what the functions are. In response to this and other comments, a footnote has been added to the SARs to recognize that the Functional Model may be changed in the near future and that the standard must accommodate this. In this manner, if the model is changed in response to this comment, it can be incorporated. -The second bullet of the paragraph "The determination of System Operating Limits" should clarify the term "Contingency Criteria". This term should be clearly defined and examples of what it is should be provided. -The nature of "Contingency Criteria" may be different from region to region based on

	operational requirements of the electrical system in each region. Therefore the Standard should allow for regional differences in the manner in which "Contingency Criteria" is defined in different regions as warranted. Considerations: This bullet has been revised to read “applicable contingencies”, to be consistent with the intent of the SAR, which is that contingencies be applied in determining System Operating Limits. -In the last sentence of paragraph 2 of Transfer Capability Definitions, the words "transmission owners and third party system topology should be changed to "system topology". Considerations: The SAR has been revised as suggested. Thank you for pointing this out.
Bob Pierce Duke Power #1	The SAR, as proposed, addresses 3 topics that are complex and different enough to require development of 3 separate standards. The Transfer Capability topic should be addressed jointly by NAESB and NERC. Facility ratings are based on equipment characteristics and assumptions about their operating modes and environment. Facility ratings methods are well established and are based on a generally accepted set of assumptions. Creating a standard based on reliability principles alone is feasible and should be done by NERC. The SAR presently provides acceptable guidance for development of such a standard. System operating limits are derived using analytical methods that typically result in limits based on voltage or stability issues (thermal limits are relatively straightforward). The analytical methods rely on assumptions that will need to have a clear reliability basis and some level of consistency. Guidance should be provided on the number/types of contingencies evaluated, allowance for re-dispatch, implementation of operating guides or procedures, assumed base system conditions, reliability margins… Because of the complexity of the subject and analytical difference from establishing facility ratings, a separate standard should be developed. First Contingency Incremental Transfer Capability (FCITC) is the basic calculation normally used to determine transfer capability. FCITC calculations can be impacted by the assumed source and sink designations, contingencies examined, required participation factors, allowance for operating guides, as well as other assumptions employed in the base model. Affecting the result of FCITC calculations will have an obvious impact on the ultimate calculation of ATC values used by the market. Because transfer capability calculation has market implications, the procedures used should be addressed jointly by NAESB and NERC.

	Considerations: After consultation with the requestor, the SAR will not be split, but a provision will be included to allow for the standard drafting team to split the SAR into three standards if this is deemed appropriate. A number of commenters suggested that the SAR be split and the SARDT struggled with the idea of splitting the SAR into pieces from the start. The SARDT agrees with the reasons submitted by commenters for splitting the SAR into three pieces because it contains three distinct pieces that while related, are different enough to require separate standards. On the other hand, the reasons for leaving the SAR as it is center around the interdependency of each piece. For instance, there can be no System Operating Limit determination without facility ratings, or any Transfer Capabilities without System Operating Limits. Splitting the SAR prior to moving into standards drafting may result in three separate drafting teams. To have the SAR or standard developed by three different teams working in parallel may result in a loss of coordination among these integrated parts and this may pose a serious problem, as this particular SAR has ramifications for both operators and planners. Much of the confusion expressed by this and other commenters should diminish when the standard is written, as it will have separate requirements and measurements for each of the three pieces listed by the commenter. In addition, the standards will be in both a rulebook and relational database form for easy reference. On balance, therefore, the SARDT and requestor will not split the SAR, but will leave this option open for the standards drafting team. In the second posting of this SAR, the industry was specifically asked if this SAR should address ATC and its related margins. The overwhelming response was that it should not, as ATC and its related margins have commercial impacts and that this SAR should deal only with transfer capabilities determined purely for reliability purposes. NERC and NAESB jointly coordinate the development of reliability standards and business practices to avoid duplication and to remain true to NERC's mission to develop reliability standards and NAESB's to develop business practices. Upon NERC Standards Authorization Committee approval of this SAR to move into standards drafting, it will be submitted to a joint committee of NERC and NAESB representatives for review and assignment to the appropriate process (NERC or NAESB) for development, as agreed to in the Memorandum of Understanding between NERC and NAESB, signed in November 2002.
Robert Wolaver WECC Reliability Subcommittee #6	I believe there are a few changes necessary before this SAR becomes a standard. The discussion of liability should be deleted. Assignment of liability is outside the scope of NERC's role.

	Considerations: The reference to liability has been removed, as suggested by this and other commenters. The use of the term "System Operating Limits" is not clear. Clear connections to existing terms such as ATC, and TTC should be established. Considerations: In the second posting of this SAR, the industry was specifically asked if this SAR should address ATC and its related margins. The overwhelming response was that it should not, as ATC and its margins have commercial impacts. Care was taken to define the terms used in this SAR, including System Operating Limit, in terms that are general enough to be applicable throughout North America.
Ray Morella FirstEnergy #1	FirstEnergy continues to believe that this SAR is not ready to be developed into a standard. This proposed SAR seems to be trying to address multiple, and somewhat independent subjects in one SAR. Determine Facility Ratings, System Operating Limits and Transfer Capability should each be addressed in individual and specific SARs. Discussions of Facility Ratings and System Operating Limits may be able to be addressed satisfactorily in one SAR, but would be much better served by incorporating two SAR's on this subject matter. The subject of Transfer Capability can only be properly be addressed in its own distinct SAR. The discussion on Transfer Capability addresses the application of the determined ratings in transfer capability analysis. Transfer Capability also needs to include discussion of ATC and the related margins (CBM and TRM), which again emphasizes the importance of keeping this area separate and distinct. A Transfer Capability 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, a Transfer Capability 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 levels. Considerations: After consultation with the requestor, the SAR will not be split, but a provision will be included to allow for the standard drafting team to split the SAR into three standards if this is deemed appropriate. A number of commenters suggested that the SAR be split and the SARDT struggled with the idea of splitting the SAR into pieces from the start. The SARDT agrees with the reasons submitted by commenters for splitting the SAR into three pieces because it contains three distinct pieces that while related, are different enough to require separate standards. On the other hand, the reasons for leaving the SAR as it is center around the interdependency of each piece. For instance, there can be no System

	Operating Limit determination without facility ratings, or any Transfer Capabilities without System Operating Limits. Splitting the SAR prior to moving into standards drafting may result in three separate drafting teams. To have the SAR or standard developed by three different teams working in parallel may result in a loss of coordination among these integrated parts and this may pose a serious problem, as this particular SAR has ramifications for both operators and planners. Much of the confusion expressed by this and other commenters should diminish when the standard is written, as it will have separate requirements and measurements for each of the three pieces listed by the commenter. In addition, the standards will be in both a rulebook and relational database form for easy reference. On balance, therefore, the SARDT and requestor will not split the SAR, but will leave this option open for the standards drafting team. In the second posting of this SAR, the industry was specifically asked if this SAR should address ATC and its related margins. The overwhelming response was that it should not, as ATC and its related margins are commercial issues. Clarification regarding the duration to which ratings apply has been added to the SAR. The handling of operating procedures and TLR to mitigate violations of facility ratings, system operating limits, and transfer capabilities will be addressed in the "Operate Within Limits" standard that is currently being drafted.
Joanne Borrell FirstEnergy Solutions #3	FirstEnergy Solutions believes that this SAR is not ready to be developed into a standard. This proposed SAR is combining multiple and independent subjects into one SAR. Facility Ratings, System Operating Limits and Transfer Capability should be addressed individually. Discussions of Facility Ratings and System Operating Limits may be able to be addressed satisfactorily in one SAR. The subject of Transfer Capability needs its own distinct SAR. The discussion on Transfer Capability addresses the application of the determined ratings in transfer capability analysis. Transfer Capability also needs to include discussion of ATC and the related margins (CBM and TRM), which emphasizes the importance of keeping this separate. A Transfer Capability SAR should address the appropriate application of various normal and emergency ratings (one hour, four hour, long term) in determining operating limits, and should consider the appropriate application of defined operating procedures. In addition, a Transfer Capability 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 levels.

	Considerations: Please see previous response to same comment from FirstEnergy.
Al DiCaprio MAAC #2	The SAR itself would have been acceptable in its current form. The MAAC issue is with responses provided to the commenters in version 2 but not highlighted in version 3. The SAR DT is urged to make sure that there is a public consensus on the following responses that they provided in Version 2" In the general question (#9 of ver 2) of "Should avoidance of equipment damage be added to the purpose of this SAR?" Response Yes -29 No- 24. Obviously no consensus, yet the DT responses: "…this is an expected consideration in the determination of facility ratings when facilities are rated by the owner." Considerations: When this question was posed to the industry, there was no clear consensus to include specific provisions in the SAR to avoid equipment damage. For this reason, such a provision has not been included in the SAR. The drafting team does recognize, however, that the industry does consider impacts to the life of equipment when rating and operating facilities. For this reason, the SAR does not preclude such consideration when facility owners rate their own facilities. To an AMEREN comment on this question "What about thermal overloads? Are they ok?...." The DT Response: "Thermal ratings are considered facility ratings that must not be violated….." That response indicates that the DT envisions that NERC will enforce every overload of every thermal limit whether or not that limit affects wide-area reliability (where wide area reliability is defined in the SAR Purpose as "cascading outages, …."). The SAR Purpose does not seem to mesh with that response. If the DT believes that the SAR will include such a standard, then they are asked to pose that question to the public to ensure that everyone agrees with that interpretation. The DT then responds to a NY-ISO comment" …any voltage limit … can determine a system operating limit…" This response focuses on system (inter-regional?) limits. Is that what the DT meant in its response to AMEREN? Did the DT mean ALL ratings or just all ratings that are defined in the system limit itself? MAAC asks that the SAR DT be clear and precise on this matter: Does this SAR require

	NERC-enforced compliance on EVERY limit on every facility? or Does this SAR require NERC-enforced compliance on just system security limits (as defined in the SAR Puropose)? Considerations: Enforcement of the Standard is an issue that is addressed in the standards drafting phase and not during the development of the SAR. Additionally, while this SAR would set limits, another standard (Operate within Limits) would ensure that they are adhered to. Allowing the violation of some facility ratings, yet not others, is de-facto re-rating the facility and re-rating the facility may only be done by the facility owner. MAAC would also ask that the NERC OC's Operating Limit Definition Task Force help in providing the clarification (if any is deemed necessary) in the SAR sent on to the Standards Drafting Team for this SAR request. Considerations: The task force referred to has commented that they agree with the definition in the SAR. In general, the actions of any NERC committee or task force will be duly considered and given the same weight as other industry comments, as required by the NERC standards process. Since the definition of system operating limit included in this SAR has been developed in a fair and open manner, allowing for input from the OC and its subcommittees, NERC's standard process does not allow for replacing it with a definition that has not.
Ed Riley CA ISO #2	The California ISO believes that substantial progress has been made in development of this SAR. However, we still have several questions and/or concerns that we feel need to be addressed. 1. The definition of "Facility" may still be inadequate for some situations in the Western Interconnection. As defined, a Facility would or could be composed of several pieces of individual equipment. An example may be equipment, such as circuit breakers, disconnects, wave traps and conductor, could make up a facility called a transmission line. In the Western Interconnection we have numerous situations where several transmission lines make up a "Transfer Path". These Transfer Paths are usually rated on a stability basis which normally would be less than the thermal limits of each individual line. We believe the ratings of Transfer Paths should be covered by this SAR. Considerations: A WECC Transfer Path is analogous to a System Operating Limit, as described in the SAR and will thus be covered under the requirements of the standard. 2) On page five in the definition of System Operating Limit the term "interface" is used. It is unclear as to the intent of this word. Is it trying to identify this SAR as only applicable to points of interconnection between Control Areas? We believe this SAR should be

	applicable to the entire Bulk Power System regardless of whether it is inter or intra in relationship to Control Areas. Also, in this definition we are still concerned about how the concept of "operational experience" will be interpreted and implemented. It still appears to us as too vague a term. Considerations: In response to this comment, the term “interface” has been removed to avoid unintended confusion. 3) On page three under the section Applicable Reliability Principles we believe that Box 7 should also be checked. Considerations: In response to this and other comments, Box 7 has been checked. 4)On page seven in the Regional Differences section WSCC should be changed to WECC. Considerations: Thank you for pointing this out. It has been corrected in the SAR. 4) On page 6 in the Possible Measures section, in the section on System Operating Limits, we believe the following measure may also serve the industry well. "Maintain a list of critical facility rating. Also, for the past three years provide the date of all changes to a critical facility and the associated rating change." Considerations: The possible measures were not meant to be all-inclusive and were intended to help the standards drafting team. Further measures will be developed by the standards drafting team. The SAR DT encourages the commenter to review these measures when they are developed. 6) We believe that there should be specific recognition of the WECC operating limit changes that take place in real time based on established nomograms or operating procedures between the parties in the interconnection. Considerations: Such applications are not precluded in the SAR. The definition of System Operating Limit allows for the approach specified. The SARDT notes that the System Operating Limit section of the SAR states that, among other things, “depending upon local system conditions a System Operating Limit may be a relatively independent quantity (indicating relative independence of the conditions on other facilities) or may be an interdependent quantity expressed in nomograms or equations indicating dependencies on other interfaces or transmission facilities, prior outage conditions and other system conditions.”
Kenneth Githens Allegheny Energy Supply #5	With the MOU between NERC and NAESB now signed, Allegheny Energy Supply would suggest the developement of the standard be delayed until NAESB can review and comment on the proposed standard. The section on transfer capability should be deleted and refered to NAESB for developement of a standard due to the commercial/market apsects of this section. Considerations: NERC and NAESB jointly coordinate the development of reliability

	standards and business practices to avoid duplication and to remain true to NERC's mission to develop reliability standards and NAESB's to develop business practices. Upon NERC Standards Authorization Committee approval of this SAR to move into standards drafting, it will be submitted to a joint committee of NERC and NAESB representatives for review and assignment to the appropriate process (NERC or NAESB) for development, as agreed to in the Memorandum of Understanding between NERC and NAESB, signed in November 2002. In keeping with consensus comments expressed by the industry, this SAR does not address commercial transfer capabilities.
Ed Stoneburg Illinois Power #1, 3	In its comments on the 2nd Posting of this SAR Illinois Power identified the need to change the bullet reading "- cascading outages" to "- outages cascading outside of a transmission owner's system or group of cooperating transmission owners' systems". This change was 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. In response to that comment the SARDT said: 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 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." Illinois Power still believes such a change is needed. Our concern is that simply saying "cascading outages" could lead to a "reliability at any cost" standard. We are, for some parties, arguing semantics, but for others we are arguing over level of redundancy and who pays for it. One way to look at the problem with the SAR is there is no universal definition or understanding of "cascading". Current system design and operation allows that some load gets interrupted for some outages, therefore, the "standard" should not automatically impose requirements as if this were "unacceptable". Nor should the standard impose a level of reliability for which the impacted parties do not want to pay. Illinois Power believes simply saying cascading outages may lead to a standard that does that. For example: A radial load, where load gets interrupted for a single contingency to protect underlying subtransmission which would otherwise "cascade," should not violate a standard.

	Similarly, with two or more lines, if the design and plan is to let some load trip (this trip is in itself, some stakeholders would say, a "cascade", especially if it is "their own" load) for some potential contingencies, but the result is a well contained and quantifiable outage that should not fit into a the definition of "cascade". In addition, the potential that a next contingency could trigger one of these situations should not mean the load should be shed in advance in anticipation of a potential contingency. Finally, IP believes that its proposal is totally consistent with the Planning Standard definition referenced with by the SARDT. Illinois Power is NOT proposing to allow "uncontrolled loss of elements" which cannot be restrained from sequentially spreading beyond an area predetermined by appropriate studies and practices. IP is saying it and it's stakeholders should be able to define the predetermined area. One other suggested change is to include "failure modes" in the consideration in the list in the third paragraph of the definition of "Equipment Rating". For example, if a manual switch rated at 164 MVA would fail in the closed position and would not cause disconnection up to a higher MVA amount, the owner should have the option of disregarding the switch rating. Considerations: "The uncontrolled successive loss of system elements triggered 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" is the definition the SAR DT believes the industry supports being applied in this SAR. The examples cited by the commenter are addressed in the footnotes to Table 1 and are not considered cascading. Under extreme conditions, Category D of Table 1 recognizes that cascading outages may occur. The SAR DT still believes that the industry will not support a standard that permits a transmission owner to unilaterally decide to willingly permit cascading outages, outside those in footnote 1 of the referenced table.
Chuck Rusowicz Con Edison #1	1 - Where Facility Ratings are provided, specific details of limiting elements should not be required. -overall facility ratings only should be provided - specific limiting components should not be provided - general methodology only should be provided but not detailed calculations for each facility - in many cases proprietary software is used to generate ratings and we cannot demand people make that available Considerations: The SAR does not require disclosure of limiting elements, but instead the facility rating and the methodology used to determine it. It is not the intent of the SAR that limiting element information be disclosed. The Brief Description of the SAR has been

	modified to remove confusing language. 2 - In explaining the methodology utilized in determining ratings, specific algorithms should not be required, especially where proprietary data or software is used in making such determinations. Considerations: The methodology is at the discretion of the facility owner, as specified in the SAR. While the methodology is to be disclosed, it is not the intention of the SAR to require disclosure of the specific algorithm used. Specific Changes to sections shown below are: 3 -The determination of System Operating Limits must address: - the applicable (such as seasonal, normal, emergency, short term etc) Equipment Ratings and Facility Ratings - the applicable Contingency Criteria , local reliability rules, environmental and safety regulations -theaccuracy of system model and tolerences -special protection systems or remidial accition plans (see SAR "Assess Transmission Future Needs and Develop Transmission Plans") -transmission system configuration, generation dispatch and load level -the assumptions implicit in the limits developed for the specific condition being tested Considerations: The bullets regarding system models and tolerances and contingencies have been modified to add clarity, in response to this comment. 4 -System Operating Limits, which will be applicable to flows through a specific transmission facility or interface in the system, must then provide a reasonable certainty that the following do not occur: - uncontrolled separation within the system - cascading outages .. - voltage and transient instability .. - violation of applicable reliability performance criteria (for example in the planning horizon as specified in Table 1: Transmission System Standards-Normal and Contingency Conditions, page 13 of NERC Planning Standards. - [damage to equipment, or safety hazards to the public or employees.] Considerations: The facility rating should be such that it allows only acceptable damage (as determined by the facility owner) and does not result in safety hazards to the employees of the facility owner or its customers. The consideration of equipment damage is at the discretion of the facility owner. 4. This SAR should be split into 3 individual SARS- Facility Ratings, Operating Limits, and Transfer Capability -Operating Limits and Transfer Capability are often driven by local

	reliability rules which are more stringent and should be included Considerations: After consultation with the requestor, the SAR will not be split, but a provision will be included to allow for the standard drafting team to split the SAR into three standards if this is deemed appropriate. A number of commenters suggested that the SAR be split and the SARDT struggled with the idea of splitting the SAR into pieces from the start. The SARDT agrees with the reasons submitted by commenters for splitting the SAR into three pieces because it contains three distinct pieces that while related, are different enough to require separate standards. On the other hand, the reasons for leaving the SAR as it is center around the interdependency of each piece. For instance, there can be no System Operating Limit determination without facility ratings, or any Transfer Capabilities without System Operating Limits. Splitting the SAR prior to moving into standards drafting may result in three separate drafting teams. To have the SAR or standard developed by three different teams working in parallel may result in a loss of coordination among these integrated parts and this may pose a serious problem, as this particular SAR has ramifications for both operators and planners. Much of the confusion expressed by this and other commenters should diminish when the standard is written, as it will have separate requirements and measurements for each of the three pieces listed by the commenter. In addition, the standards will be in both a rulebook and relational database form for easy reference. On balance, therefore, the SARDT and requestor will not split the SAR, but will leave this option open for the standards drafting team.
Frank McElvain Tri-State Gen and Trans #1	Facility Ratings Remove the term "liabilities" from the Facility Ratings standard. It is neither the responsibility of NERC nor the SAR drafting team to assign liability. Considerations: The term liabilities has been removed, in response to this and other comments. System Operating Limits and Transfer Capability The classification of System Operating Limits and Transfer Capabilities is redundant. One reads the same paragraphs except where the term, "System Operating Limits", is replaced with, "Transfer Capabilities". I have interpreted the difference in these terms to be a non-simultaneous capability versus a simultaneous capability (or a collection of operating limits). However, this is not clear in the definitions and the SAR itself. Considerations: The definitions of System Operating Limits and Transfer Capability are actually not the same and apply to very different concepts. A System Operating Limit is the amount of power that can be reliably transferred over a facility or a small set of facilities. An example of a System Operating Limit would be the OTC limit determined for a particular

	path (such as "Path 66" in WECC). A Transfer Capability on the other hand is the maximum amount of power that can be transferred *over all transmission lines (or paths)* between two areas. Note that both concepts cover all study time periods from real time operations to long term planning scenarios. I also second the suggestion of the WECC Reliability Subcommittee that this and other SARs utilize definitions that link terms to accepted terminology, such as Total Transfer Capability, Rated Transfer Capability or Operating Transfer Capability. These are terms on which the industry has become educated and they have a high degree of acceptance. Considerations: This is a good suggestion, however, some of the terminology listed is not common in the other Interconnections. Care was taken in the SAR to use terms that are common and to define key terms. According to the NERC standards development process, once a SAR is accepted by the Standard Authorization Committee (SAC) to be developed into a Standard, the Standards Drafting Team (SDT) cannot change the content of the SAR. Therefore, the SAR Drafting Team aims to structure the definitions of the System Operating Limits and Transfer Capabilities, etc., so that they would be broad enough to allow the SDT to develop a standard that can be applied to all regions.
Toni Timberman BPA #1	There has been a great deal of effort expended in developing this SAR to this point but because the scope of the SDT effort is specifically limited to what is defined in the SAR, there are critical clarifications needed before it is ready to be passed on to the SDT. Detailed Description: Please add a disclaimer that some entities only calculate System Operating Limits rather than both System Operating Limits and Transfer Capability. We want to avoid the inadvertent requirement that all entities are required to calculate Transfer Capability, even if it is not used in operating their system. The distinction between the two is still fuzzy and we would appreciate further effort in the definitions. Considerations: The SARDT must develop a SAR that identifies the appropriate functions for each requirement as stated in the NERC Functional Model. The Functional Model does not specify who performs the functions, but rather what the functions are. Likewise, the SAR only requires that limits be determined to ensure the reliable planning and operation of bulk electric system. It is up to the entities performing the Reliability Authority, Planning Authority and Transmission Operator functions to decide which limit (SOL or TC or both) needs to be determined for each path to ensure the reliability of the bulk electric system. The definitions of System Operating Limits and Transfer Capability are actually not the same and apply to very different concepts. A System Operating Limit is the amount of power that can be reliably transferred over a facility or a small set of facilities. An example of a System Operating Limit would be the OTC limit determined for a specific path (such as "Path 66"in

	WECC). A Transfer Capability on the other hand is the maximum amount of power that can be transferred between two areas. Note that both concepts cover all study time periods from real time operations to long term planning scenarios. The determination of OTC Limits and Path Ratings has been added as a Regional Difference for WECC. Facility Ratings: (first paragraph after Definitions): please include requirement that along with the facility ratings, the conditions for which those ratings were calculated be supplied. This would avoid the inadvertent use of a 20C rating for a 30C study, or use of a steady state transformer rating when a 4-hour rating could safely be used. Considerations: In response to this and other comments, clarifying examples of the conditions under which ratings may apply have been added to the SAR. (top of page 5):what is meant by "transient" facility ratings? does this mean emergency ratings? need more details on what is required or expected by this statement. Considerations: The reference to transient facility ratings has been removed in response to this and other comments. System Operating Limits: 2. Brief Description, System Operating Limits: We believe the reference to "power transfer limits (both thermal and stability)" could be improved by including "voltage" in addition to thermal and stability: to read "power transfer limits (thermal, voltage, and stability)". We use voltage-based transfer limits where a MW-transfer limit is a proxy for real-time voltage limitations, reactive constraints, or voltage stability limits. As currently stated, the SAR only addresses pure (equipment rating based) voltage limitations. Considerations: The SARDT is using the term “stability limit” to include both angular and voltage stability limits. To avoid confusion, the SAR has been rewritten to read “power transfer limits (thermal, voltage, and stability)”. (definition): the parenthetical statement that "Stability and voltage limits will be reflected as a permissible loading level" is confusing. Is this not true for thermal limits as well? Considerations: Yes. It is assumed a thermal limit is directly related to the flow through the facility and its permissible loading level. Stability and voltage limits are sometimes reflected as loading levels as proxies. (second paragraph): Clarification must be given to determine the prevailing operating limit in the event of a difference in limits calculated by the RA vs the PA, or in limits calculated between two different RA's. For example, if a path is between regions, and both regions calculate Operating Limits for their part of the path, which set of limits is respected? In our area, limits are calculated by the two RA's for their respective part of the path and the lower

	of the two limits is used as the Operating Limit for the path. Considerations: The coordination and adherence to limits are addressed in another SAR (Operate Within Limits). “Operate Within Limits” is currently in the standards drafting phase. Regarding calculation of System Operating Limits and Transfer Capability: please add a statement to the effect that "This Standard does not require the development or use of a single methodology or study tool for the calculation of System Operating Limits or Transfer Capability. However, the methodology used to determine System Operating Limits or Transfer Capability must be available to NERC, NERC Regions or their successors upon request." (or, based on need-to-know, similar to requirement to provide methodology used to calculate ratings) Considerations: The SAR does not require a single methodology for the determination of System Operating Limits or Transfer Capabilities. The SAR has been modified to more clearly state that calculated Transfer Capabilities and System Operating Limits must be substantiated, upon request by NERC or the entities responsible for administering regional compliance and enforcement. We recommend that the following statement "The equipment ratings determined by generator and transmission owners must not be violated by the entities responsible for the Reliability Authority, Transmission Operator and Planning Authority functions in planning and operating the bulk electric system." be modified to the following: "The equipment ratings determined by generator and transmission owners must not be violated when calculating System Operating Limits and Transfer Capabilities." This removes the conflict with the"Operate Within Limits" SAR. Considerations: This is a good suggestion and the SAR will be modified to incorporate this change to more clearly state the desired intent. Regarding Contingency Criteria: Our previous comment was "Contingency Criteria is not defined. This should instead say Reliability Criteria." The response from the SDT was "Considerations: The contingency criteria are those included in Table 1 of existing Planning Standards I A S1-4, or their successors." This clarification (definition?) was not carried through into the revision of the SAR. If the Planning Standards are to be used for developing System Operating Limits and Transfer Capabilities then it must be stated in the SAR so that it may be commented on rather than being left to the readers imagination. We would suggest that the Planning Standards may be used when determining limits and capabilities for Planning purposes, but that a different set of standards may be more appropriately used for calculating limits for the Operating timeframe. Also, the response to another question regarding this criteria included the statement "Because all areas of NERC are not susceptible

	to the referenced criteria," . If this is true, then Contingency Criteria must be specifically defined rather than just referencing the Planning Standards. Considerations: The reference to contingency criteria has been modified in response to this and other comments.
Edward Stein FirstEnergy Solutions #6	FirstEnergy Solutions believes that this SAR is not ready to be developed into a standard. This proposed SAR is combining multiple and independent subjects into one SAR. Facility Ratings, System Operating Limits and Transfer Capability should be addressed individually. Discussions of Facility Ratings and System Operating Limits may be able to be addressed satisfactorily in one SAR. The subject of Transfer Capability needs its own distinct SAR. The discussion on Transfer Capability addresses the application of the determined ratings in transfer capability analysis. Transfer Capability also needs to include discussion of ATC and the related margins (CBM and TRM), which emphasizes the importance of keeping this separate. A Transfer Capability SAR should address the appropriate application of various normal and emergency ratings (one hour, four hour, long term) in determining operating limits, and should consider the appropriate application of defined operating procedures. In addition, a Transfer Capability 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 levels. The following is my own personal comments which should help you why I voted no. It took NERC (NAPSIC) over 50 years to standardize the timing and ramping of schedule changes. Schedule change ramps began at various times; 10 minutes before the hour, 5 minutes before the hour and on the hour. NERC's solution to this reliability problem was to have both the sending and receiving parties agree on the start times and duration of the ramp. This somewhat worked due to the limited number of scheduling entities. As the number of scheduling entities increased, reliability problems began to increase. Even then, it took the industry years to standardize the way schedule changes were handled. This SAR needs to be unbundled into three SARs; ratings, operating limits and ATCs. This will allow the writers to concentrate on one issue. As an example, much work needs to be in the ratings standards. Currently The Transmission Owner (TO) sets the rating based on their own criteria. The RTO/ISO accepts this rating with little or no review of rating. One TO may set the line limit based on "0" sag in order to minimize vegetation management costs while another TO sets the line limit based on a 1/2 hour rating with maximum sag. This will

	create abnormalities in the market resulting in high congestion costs and inefficient markets. When developing the ratings standard the TO needs some flexibility in setting the rating in cases where there is a physical problem such as transformer gassing. Operating limits generally fall into three categories - thermal, voltage and stabililty. Each has a different time line for required actions which should result into different ATC's calculation. Having three separate SAR's goes a long way in standardizing the NERC process. NERC has already taken a single reliability function and divided it into three authorities; Scheduling, Balancing and Reliability. It should be an easy step in taking one complicated SAR and dividing it into 3 easily managed SAR's. In addition of having three separate SAR's the writing teams can devote more effort in getting the SAR's correct which will go a long way in achieving an efficient market as envisioned by FERC SMD. Considerations: Please see previous response to same comment from FirstEnergy and FirstEnergy Solutions.
Krit Shah Ameren Services #1	We would like to commend SARDT for their time and effort in compiling the version 3 of this SAR and giving us opportunity to provide a 3rd round of comments. This version has been reorganized and has incorporated several suggestions based on the 2nd round of comments. However, we still believe that this SAR is not ready to be developed into a standard because 1. We still believe that this SAR should be broken into three separate SARs as follows: A. Facility Ratings, B. Development of Operating Limits, and C. Transfer Capability (including ATC). Our reasons for this position again are that (a) the Facility Rating issue by itself is very important and involve and ratings are foundation of almost every Planning and Operating tasks that SAR should be developed to cover it by itself (b) as the SARDT concluded that other items we mentioned earlier are input in determination of Operating Limits and Transfer Capabilities, we submit to the SARDT that facility ratings are also input to determination of these quantities, and (c) Transfer Capability SAR should include ATC issues, as ATC is nothing but calculation of transfer capability with some different considerations. We believe that SARDT has already agreed to have a separate SAR for ATC, which should include Transfer Capability issue discussed here to make it more complete. Considerations: After consultation with the requestor, the SAR will not be split, but a

	provision will be included to allow for the standard drafting team to split the SAR into three standards if this is deemed appropriate. A number of commenters suggested that the SAR be split and the SARDT struggled with the idea of splitting the SAR into pieces from the start. The SARDT agrees with the reasons submitted by commenters for splitting the SAR into three pieces because it contains three distinct pieces that while related, are different enough to require separate standards. On the other hand, the reasons for leaving the SAR as it is center around the interdependency of each piece. For instance, there can be no System Operating Limit determination without facility ratings, or any Transfer Capabilities without System Operating Limits. Splitting the SAR prior to moving into standards drafting may result in three separate drafting teams. To have the SAR or standard developed by three different teams working in parallel may result in a loss of coordination among these integrated parts and this may pose a serious problem, as this particular SAR has ramifications for both operators and planners. Much of the confusion expressed by this and other commenters should diminish when the standard is written, as it will have separate requirements and measurements for each of the three pieces listed by the commenter. In addition, the standards will be in both a rulebook and relational database form for easy reference. On balance, therefore, the SARDT and requestor will not split the SAR, but will leave this option open for the standards drafting team. In the second posting of this SAR, the industry was specifically asked if this SAR should address ATC and its related margins. The overwhelming response was that it should not, as ATC and its related margins are commercial issues. In addition to the above, the following are some general comments: 3. From Planning perspective, transfer capability is a mean not an end for a robust and reliable planning of the transmission system. Transfer capability is used as a proxy to gauge strength of the transmission system. As such a trend over a period of time or a range of transfer capabilities are developed considering several scenarios or sensitivities. These trends and/or ranges are more valuable input in the planning process rather than determination of a single value and use of reliability margins as described on page SAR-6. Considerations: The SARDT agrees with this philosophy and does not believe the SAR precludes it. 3. On page SAR-6, second paragraph, line 1, states that "Use of the system shall not exceed the transfer capability". This is vague, as which transfer capability (some single value of FCITC, nonsimultaneous, or simultaneous?) are we talking about? How does this concept

	apply in planning? Do we need to say "Planned use of the system …." ? Considerations: Care was taken in the SAR to use terms that are common and to define key terms. According to the NERC standards development process, once a SAR is accepted by the Standard Authorization Committee (SAC) to be developed into a Standard, the Standards Drafting Team (SDT) cannot change the content of the SAR. Therefore, the SAR Drafting Team aims to structure the definitions of the System Operating Limits and Transfer Capabilities, etc., so that they would be broad enough to allow the SDT to develop a standard that can be applied to all regions. 4. On page SAR-1, description of System Operating Limits and Transfer Capabilities include "predefined" system reliability performance criteria while at other places in the document (page SAR-6, bullet 6) the phrase "applicable" is used. Considerations: This inconsistency has been corrected. Thank you for pointing this out. 5. If system is in an operating state beyond which it was planned for (say beyond first or second contingency state) due to ice storm or any other such condition, these limits may have to be exceeded to continue to serve load. The standard should recognize these extreme but credible conditions. Considerations: Ratings for extreme conditions should be developed to aid operators during the conditions mentioned. In some cases, limits cannot be exceeded and load shedding must occur. The Operate Within Limits Standard currently under development addresses adherence to limits. 6. The reliability margin concept in terms of CBM and TRM is mainly used in ATC calculations. What types of reliability margin are proposed in here for determination of System Operating Limits and Transfer Capability? Would they be different in Planning and in Operation? Considerations: There are examples of reliability margins included in the SAR, such as uncertainty in system conditions, operation of controllable elements, and impacts of third party loop flows. CBM and TRM are not addressed in this SAR, in accordance with industry consensus. 7. On page SAR-7, first line, Availability may get confused with ATC. Either Availability word should not be used or replaced with Adequate. Considerations: Thank you for pointing this out. This statement has been clarified to more clearly state the desired intent.

	8. In discussion of Transfer Capability use of Operating Guides including redispatch option, should be included. Considerations: The inclusion of redispatch and operating guides is not precluded in the SAR for purposes of determining Transfer Capability. The actual use of these tools to mitigate violations of Transfer Capability limits is addressed in the Operate Within Limits SAR. 9. On page SAR-6, first bullet, should include load distribution also. Considerations: Load distribution is assumed to be part of the transmission system configuration.