



NORTH AMERICAN ELECTRIC RELIABILITY COUNCIL

Princeton Forrestal Village, 116-390 Village Boulevard, Princeton, New Jersey 08540-5731

Determine Facility Ratings, Operating Limits, and Transfer Capabilities
SAR Drafting Team Meeting
August 8, 2002 — 0800–1600
Chicago, IL

Agenda:

- 0800 – Welcome and Administrative Items
- 0815 – Review of Duties and Tasks of SAR Drafting Team Members
- 0830 – Discuss Comments Submitted on SAR & Draft Responses
- 1200 – Lunch
- 1300 – Discuss Comments Submitted on SAR & Draft Responses
- 1500 – Revise SAR
- 1330 – Summarize Meeting Action Items & Identify Next Meeting Date
- 1400 – Adjourn

Attachments:

- Summary Comments on “Determine Facility Ratings, Operating Limits, and Transfer Capabilities” SAR
- Industry Response to Question – Is there a reliability-related need for a “Determine Facility Ratings, Operating Limits, and Transfer Capabilities” Standard?

Expand the Scope of the Proposed Standard

Ameren Services -Energy Delivery Technical Services

More details to judge whether or not all reliability related activities are covered or not.

Illinois Power Company

Transmission Operators: They have a responsibility to define operating limits and standards that should apply to them

MAAC

This standard must carefully define what is meant by 'limits' particularly the Operating Security Limit. There must be an effort to clearly distinguish between the impact on interconnected system operations, and the violation of a limit on an interconnected system. Same comment submitted for Operating to transfer

check that all are in alphabetical order and to verify that all comments have been added

Progress Energy - Carolina Power & Light Company and Florida Power Corp.

Common terminology should be used throughout the SARs. If the term "operating limits" is used, a definition is needed. The use of "operating limits" is confusing when past standards have used other terminology such as Operating Security Limits and Operating Security Limit Violations. This standard should address the definition of the terminology used, whether "operating limits" or "Operating Security Limits."

SERC

Common terminology should be used throughout the SARs. If the term "operating limits" is used, a definition is needed. The use of "operating limits" is confusing when past standards have used other terminology such as Operating Security Limits and Operating Security Limit Violations. This standard should address the definition of the terminology used, whether "operating limits" or "Operating Security Limits."

Southeastern Power Administration

The definitions of Operating Limits and Operating Limit Violations.

Southern Company

Common terminology should be used throughout the SARs. If the term "operating limits" is used, a definition is needed. The use of "operating limits" is confusing when past standards have used other terminology such as Operating Security Limits and Operating Security Limit Violations. This standard should address the definition of the terminology used, whether "operating limits" or "Operating Security Limits."

Southern Company

The scope of this SAR is once again poorly stated. The scope uses the term "transfer capabilities" which really applies to TTC, ATC, CBM etc... and interface related measurements and indicators. These subjects are presently covered in the I.E. Standards are should not be addressed in a SAR concerning facility ratings. The facility rating subject is addressed in the I.C. Standard and covers only transmission and not generation. If the intention is to include internal plant generation facilities, a new SAR should be written to address these subjects separate from transmission facilities. It is recommended that the I.C. Standard be used as a template for the development of the standard associated with this SAR. The I.C. Standard has proven to be a very functional standard.

If operational planning is to be included in the standard associated with this SAR then there needs to be provisions that provide for dynamic ratings.

Westar Energy

The determination of generation capability.

Reduce the Scope of the proposed Standard

Allegheny Energy Supply

System Operating Limits and Transfer Capability are based on facilities ratings. System Operating Limits and Transfer Capability limits have a direct impact on the available capacity on the transmission system for the market. This standard should be developed in a process which takes into account market and reliability interests.

BPA

Modify second sentence of the Description to "Facilities included in the standard shall be those that affect TRANSFER CAPABILITY" not RELIABILITY. The last sentence should be reduced to "to adhere to established limits such as voltage, thermal or frequency limits" and remove the reference to power transfer limits, thermal and stability limits.

Calpine

Any aspect that goes beyond establishing specific reliability criteria to be incorporated into the determination of facility ratings, operating limits, and transfer capabilities.

Only Total Transfer Capability and Transmission Reliability Margin should be discussed. Available Transmission Capacity and Capacity Benefit Margin are market/commercial issues and should not be included in any NERC Organization Standard.

Dominion Virginia Power

System Operating Limits and Transfer Capabilities

Electricity Consumers Resource Council (ELCON)

The establishment of this SAR is premature. All commercial implications of the SAR should be identified and mitigated prior to the drafting.

Hydro One Networks Inc.

The standard should identify (a) the accountabilities to establish facility ratings, operating limits and transfer capabilities to meet transmission system performance levels as defined in the standard above, and (b) the need to share this information

Illinois Power Company

In Reviewing the Distribution Provider and Generator responsibilities in the Functional Model, neither has any responsibility indicated for the activities identified in the SAR. Why therefore would this standard be applied to them?

Independent Electricity Market Operator (IMO)

The SAR must be rigorously tested against the White Paper requirements to specify what performance must be achieved rather than how to achieve it.

Manitoba Hydro

functionalities related to system operating limits and transfer capabilities.

Mirant Americas Energy Marketing

the section covering Facility Ratings. Industry standards already exist (e.g. ANSI, IEEE, NEMA, etc) which address equipment design limits and ratings.

National Grid USA

The standard should simply require that the Regions establish facility ratings, operating limits and transfer capabilities as required to meet the transmission system performance levels as defined in the standard above.

Powerex

Calculation of ATC is a business practice, not a core reliability standard. This SAR should be limited to addressing determination of TTC.

Reliant Resources

dependence on requirements and limits that are not specific and measurable.

Other Comments

Ameren Services -Energy Delivery Technical Services

The purpose and description is too general. This standard may require to be split into two or more standards. For example, determination and usage of transfer capability require a standard by itself.

American Electric Power

To the extent that this SAR is transitioning an existing standard from the old world to the new world (Functional Model), then the standard should not go beyond the original scope. Consistent with our general comments, once the clarity is achieved on Standard Market Design and RTO formations, then this standard should be revisited and reevaluated.

One consideration in the development of the new standard would be that the specific facilities ratings will be set by Transmission Owners and should be subject to RTO implementation, which is consistent with FERC's Standard Market Design Order.

American Transmission Company

(1) Should the use of operating guides be addressed in this standard?

Should the transmission operator, if different from the transmission owner, play a role in determining operating limits?

Under "Applicable Reliability Principles", wouldn't #1, "Interconnected bulk electric systems shall be planned and operated in a coordinated manner to perform reliably under normal and abnormal conditions," apply? It would seem to be important that the different TSP's use the same transfer capability ratings between the two of them to determine AFCs.

(2) This SAR is a little puzzling because it seems that Transfer Capabilities are awkwardly tagged onto it. It seems like it might fit better under assessing the system and possibly under emergency conditions. Also, while ratings are important there are numerous other modeling data assumptions that affect the determination of how the system will perform. For example, what rules should be followed for including future changes in generation, load, reinforcements, and transactions? What assumptions should be made about determining the resistance of a conductor? It's not certain that all of these issues apply just to this SAR, they probably apply to others as well.

(3) It is unclear how the Distribution Provider would be included under this SAR.

Baltimore Gas & Electric

The promulgation for comment of these SARs is premature. The industry "standard making process" is in a transition phase and it is overly burdensome to devote resources at this time. Once legislation or FERC firmly determines which entity(ies) is responsible for standards it will make sense to move forward with said entity.

Even if NERC wants to cover reliability standards, almost all standards have a reliability and commercial impact; thereby, necessitating developing a single process that incorporates both commercial and reliability aspects of standards development. The current NERC process risks being changed soon, discounts commercial aspects, and is not part of a finalized overall industry process.

Waiting a short while to move forward on a new standards setting process is acceptable and prudent given that NERC standards are currently in place and the industry can continue to use these standards until the new process and standards setting organization(s) are firmly set.

BPA

The intent of the facility rating portion of this standard should not be to dictate to equipment owners how to rate their equipment. The owners have the liability for these facilities and should retain the responsibility to rate individual facilities.

Bonneville Power Administration - Power Business Line

Seems like Facility Ratings should be separate from operating limits and transfer capabilities. Facility ratings are more applicable to Transmission Owners. Operating limits and transfer limits are developed using facility ratings via planning and operating studies. These studies are done by Planners, Transmission Operators, Reliability Entities and will be applicable to those entities. The process of establishing operating limits will more than likely use facility ratings as an input. It seems two standards might be in order here.

California ISO

"Transmission Operator" should be added to the Reliability Functions that this Organizational Standard would apply to.

This Standard should be used only to set a standardized method for determining transfer capabilities.

Cinergy

Scope is too broad to ascertain exactly what this standard will require. Does it require entities to have published rating methodologies or just publish ratings? It is difficult to determine appropriateness of this SAR and scope due to the broad scope of the description, therefore none of the above boxes were checked.

Dairyland Power Cooperative

Facility ratings and Transfer Capabilities are diverse enough to require separate standards. This is especially true in regions where Transfer capabilities are limited by Transient Stability concerns.

This SAR should define a need for a properly documented and consistently applied rating methodology document. The elements to be included in this document should be flexible enough to address region specific requirements. The use of the term "etc." in the SAR description leaves the scope of this SAR open-ended. The scope of the SAR should be stated and complete.

Dominion Virginia Power

As currently written, this SAR is too broad, combining both planning and operating issues. It is recommend that this SAR be revised to address only Facility Ratings, and be retained in the "Transmission Adequacy" category.

The subject of "Transfer Capability" applies to both planning and operations. Each transmission system should be planned to allow for transfers in various directions. Perhaps a separate SAR titled "Planning for Transfer Capability" should be created and included in the "Transmission Adequacy" category. A third SAR covering transfer capability from the operations side could be combined with System Operating Limits and included in the "Transmission Reliability and Resource Balance" category, or combined with existing SAR # 6, which is already in that category.

Duke Power

The determination of facility ratings should be in a separate SAR from determining operating limits and transfer capabilities. Facility ratings are directly related to evaluation of equipment design, performance, and operating conditions. The operating limits and transfer capabilities are more concerned with the analysis of transmission system models and operating practices of the transmission owner/operator. Maintaining separation would provide appropriate scope for each standard and avoid confusion on the interrelationship of these issues.

Dynegy, Inc.

The purpose/industry need section should start with: The purpose of this standard is to ensure that a consistent, uniformly applied standard is developed ...

Entergy Services

This SAR is really a requirement to establish facility ratings, operating limits and transfer capabilities. We view the contents of this SAR to be one of the "how"s for meeting the renamed Organization Standard "Operate Within Limits - Monitor and Assess Short-Term Transmission". As such, it does not rise to the level of "core reliability" Organization Standard.

Each transmission owner, operator and provider should be required to have in place processes for the determination of facility ratings, operating limits and transfer capabilities. "How" those are developed should be specified by the owners, operators and providers.

ERCOT

This SAR and the other posted SARs provide an appropriate framework for transitioning existing NERC Operating Policies and Planning Standards into new, NERC Organization Standards. Multiple compliance measures may be defined and developed for each of the eleven proposed Organization Standards. The Organization Standards and related compliance measures should focus on what functions must be performed for reliability, on who is responsible for each compliance measure for each required function and not, on how the compliance measure is achieved. The compliance measure must be measurable or demonstrable to ensure compliance.

There should be a Standard that requires owners of electric facilities to establish ratings of their equipment and provide that information to Reliability and Planning Authorities. That data is essential for those authorities to perform their functions that are necessary for system reliability. However, exact compliance measures on how those ratings should be determined are probably not practical due to numerous types of equipment, design, manufacturers and owner requirements.

Similarly there should be a standard requiring determination of system operating limits and transfer capabilities. However, the standard should focus on who (which function) is responsible and what should be determined, not how the limits should be determined.

Exelon Corporation

This SAR needs to provide measurable requirements for the limits that are being proposed.

FirstEnergy Corp

To insure that a competitive market in the electric industry has the the ability to expand, we need industry wide standards that will create a common ground of definition and application in the detemination of facility ratings, operating limits, and transfer capabilities. Currently, our industry lacks wide area concensus on the definition and application of criteria in these areas. This lack of concensus does not maximize the ability of the transmission system to facilitate a market driven industry. Transfer capabilities between control area to control area, or RTO to RTO, needs to be more clearly defined and standardized. As the footprint of operations expand and cover a larger sector of potential opprtunities, a need for standard equipment ratings become a necessity. A standard that would incorporate a common definition of facility ratings, limits, and transfer capabilities would enhance the operations and usage of the electric grid.

FirstEnergy Solutions

In general, the principles are all right. But defining facility limits is a risk-based decision, which is not easily taken away from the facility owner/investor. If there should be a standard rating methodology, it should include parameters which allow owners to reasonably and consistently adjust the level of risk they are willing to accept, unless system operators are willing to assume the risk and pay damages as necessary. Revenues can be devised which incent facility owners to accept risk (e.g. FGRs for transmission owners).

Hydro One Networks Inc.

The standard should be broad and allow the Regions/RTO/owners the freedom to define equipment ratings and/or limits to meet their requirements.

Illinois Power Company

The SAR indicates that this standard would apply to Generators and Distribution Providers. Today NERC Policy and Standards do not apply to these Functions. For example, NERC has no authority to require its standards to be applied to determine ratings for distribution facilities. And the application of NERC standards to Independent Generators are carried out by transmission owners through interconnection agreements. Is NERC proposing that this will change and they will begin to impose standards directly on distribution providers and generators? What is intended here is simply not clear. There is inadequate detail in the SAR to determine if the scope of the SAR is appropriate and adequate. Is it intended that the standard would be that facility rating, operating limits and transfer capabilities must be established and documented? If so that would be appropriate.

Independent Electricity Market Operator (IMO)

To the extent that standard terminology can be used for equipment, voltage and transfer limits, this would be beneficial and should facilitate the implementation of this standard. This appears to require some of the criteria currently used in the NPCC documents A-2 and A-3 and the IMO supports this.

Manitoba Hydro

The industry need has not been defined for this SAR.

This SAR should define a need for a properly documented and consistently applied rating methodology document. The elements to be included in this document should be flexible enough to address region specific requirements. Transfer Capabilities and Operating Limits requirements are crucial elements to reliability and should be addressed in a separate standard.

MAPP Reliability Council

This SAR should define a need for a properly documented and consistently applied rating methodology document. The elements to be included in this document should be flexible enough to address region specific requirements. The use of the term "etc." in the SAR description leaves the scope of this SAR open-ended. The scope of the SAR should be stated and complete.

Facility ratings and Transfer Capabilities are diverse enough to require separate standards. This is especially true in regions where Transfer capabilities are limited by Transient Stability concerns.

Mirant Americas Energy Marketing

This standard must be careful to recognize engineering driven regional differences.

National Grid USA

The standard should be broad based enough to allow the Regions the freedom to define such ratings and limits to meet their particular Regional requirements.

Ohio Valley Electric Corporation

Not sure if correct entites are listed in the "applies to" area. It has transmission owner but under RTO would it not seem more appropriate to have it apply to the operator or service provided instead of the owner. Surely the RTO would want some continuity across the different systems that they control. Already MISO has raised concerns about the different way ATC is calculated, why would ratings and transfer capabilities also not be a concern?

PG&E

This SAR should be divided into two SAR's:

1. Facility Ratings (to be applicable to Transmission Owner, Distribution Provider and Generator Functions) Function and,
2. Development of Operating Limits and Transfer Capability (to be applicable to Reliability Authority Function) PG&E

Also, if "Transfer Capability" extends into planned systems, then, we will need to add Planning Authority to Item 2.

Powerex

The Purpose of this standard requires the following changes:

1. Purpose, first para, last sentence, revise as follows: If these operating security limits are violated and a disturbance occurs, the system could sustain widespread or unacceptable outages or equipment could incur severe damage.
2. Purpose, second para, third sentence, revise as follows: The total transfer capability (TTC) of a section of the power system is the amount of MW transfer that can be allowed while continuing to operate within equipment and electric system thermal, voltage and stability limits.

I am recommending that the phrase "while continuing to operate within equipment and electric system thermal, voltage and stability limits" be transferred from SAR #1. This is to ensure that the system not only be planned to adhere to these limits, but also be operated to these limits. By including these performance requirements in the planning SAR, there is only an inference that the system must also be operated to certain performance standards (i.e. system operated as planned). However, by including them in the standard for establishing transfer capabilities, it is clear that the system must also be operated to meet these standards. Since planners have to plan a system that can be operated, there is no loss, from a planning point of view, if the performance standards are associated with transfer capabilities. Furthermore, if the performance standards are associated with planning, this permits a disconnect between planning and operations in that allows planners to meet standards that may not be acceptable to operators. Also, much of the "Purpose" statement of this SAR should be moved to "Description".

Progress Energy - Carolina Power & Light Company and Florida Power Corp.

TSP and Transmission Operator should be added to the list of applicable functions.

Public Service Electric & Gas

It is premature to continue development of this SAR until FERC has specified the organization to be responsible for the development of wholesale electric standards.

Reliant Energy HL&P

HL&P is concerned about the co-mingling of these inter-related concepts. Facility ratings are a necessary component of determining transfer capabilities, but facility ratings are also a necessary component of assessing transmission future needs and developing transmission plans. Facility ratings are largely addressed by IEEE and ANSI standards, and there is no value in having a NERC standard that further addresses this topic.

Regarding operating limits and transfer capabilities, HL&P believes there may be value to a NERC standard for those areas not governed by a RTO. Ideally, transfer capabilities would be determined by one central authority modeling, monitoring, and assessing the entire transmission grid. That can be done, and is done, in ERCOT. ERCOT does not use concepts found in the current NERC Standards, such as electronic tagging or Capacity Benefit Margin. All transactions are scheduled through ERCOT, and ERCOT determines transfer capabilities by performing security assessments and monitoring the system in real time. Therefore, for areas such as ERCOT, there is no need for a NERC standard addressing these topics. However, in other areas, a NERC standard addressing transfer capabilities may be useful. For such areas, if a standard is developed, we support ERCOT's comments regarding the appropriate scope and characteristics of such standards.

It is important to note that, unlike some other systems, the ERCOT organization models and monitors the entire network, so there is no possibility of "loop flows" or other external factors that can affect grid reliability.

Reliant Resources

System Operating Limits and Transfer Capabilities - references "...predefined system reliability requirements.." and "...adhere to established limits.." are unclear as to where these come from. The core reliability standard should not reference requirements that are established by another standard or process. The core reliability standard should itself establish these measurable boundary conditions for reliability. If it cannot, then there is no core reliability standard for System Operating Limits and Transfer Capabilities.

SERC

TSP and Transmission Operator should be added to the list of applicable functions.

Southern Company

TSP and Transmission Operator should be added to the list of applicable functions.

Tenaska

The standard should be separated into two pieces: 1) Determine Facility Ratings and 2) Determine Operating Limits and Transfer Capabilities. The reason is that Facility Ratings deal with specific pieces of equipment and Operating Limits/Transfer Capabilities deal with multiple pieces of equipment.

WECC Technical Studies Subcommittee

This SAR should be divided into two SAR's:

1. Facility Ratings (to be applicable to Transmission owner, Distribution provider, and Generator Function) and,
2. Development of Operating limits and transfer capability (Applicable to Reliability Authority Function)

Question: Is transfer capability the same as Path Rating? If so, Planning Authority will also be responsible.

Response to Question - is there a need for a standard? (Determine Facility Ratings, Operating Limits, and Transfer Capabilities)

Company	Yes	No	Comments
Allegheny Energy Supply	1		
Allegheny Power	1		
Ameren Services -Energy Delivery Technical Services	1		
American Electric Power	1		
American Transmission Company	1		
Arizona Public Service	1		
Baltimore Gas & Electric	1		
Bonneville Power Administration - Power Business Line	1		
BPA	1		
Bulk Power Operations Southern Company	1		
California ISO	1		
Calpine	1		
Cinergy	1		
Consumers Energy		1	no trust
Dairyland Power Cooperative	1		
Dayton Power & Light	1		
Dominion Virginia Power	1		
Dominion Virginia Power	1		
Duke Power	1		
Duquesne	1		
Dynegy	1		
East Kentucky Power	1		
ECAR	1		
Elcon	1		
Entergy Services	1		
ERCOT	1		
Exelon Corporation		1	"what"
FirstEnergy Corp	1		
FirstEnergy Solutions	1		
Hoosier Energy REC, Inc.			
Hydro One Networks Inc.	1		
Illinois Power Company	1		
Independent Electricity Market Operator (IMO)	1		
Indianapolis Power & Light		1	Ferc
Interconnected Operations Services Subcommittee, NERC	1		
ISO New England	1		
LG&E	1		
MAAC	1		
Manitoba Hydro	1		
MAPP Reliability Council	1		
Michigan Electric Coordinated Systems (MECS)	1		
Mirant	1		
National Grid	1		
NIPS (Northern Indiana Public Service Co.)	1		
NorthWestern Energy	1		
Nova Scotia Power Inc.	1		
Ohio Valley Electric Corporation	1		
Pacific Gas and Electric Company	1		
Powerex	1		
Progress Energy - Carolina Power & Light Company and Florida Power Corp.	1		
Public Service Electric & Gas		1	Mkt ops
Reliant Energy HL&P	1		
Reliant Resources	1		
Salt River Project	1		
SERC (Contact = Nancy Fallon)	1		
Southeastern Power Administration	1		
Southern Company	1		
Southern Company	1		
Tenaska			unclear
TXU Energy	1		
Vectren	1		
WECC Remedial Action Scheme Reliability Task Force	1		
WECC Technical Studies Subcommittee	1		
Westar Energy	1		
Totals	58	4	