

A. Introduction

1. **Title:** Facility Ratings
2. **Number:** FAC-008-2
3. **Purpose:** To ensure that Facility Ratings used in the reliable planning and operation of the Bulk Electric System (BES) are determined based on technically sound principles. A Facility Rating is essential for the determination of System Operating Limits.
4. **Applicability**
 - Transmission Owner.
 - Generator Owner.
5. **Effective Date:** The first day of the first calendar quarter that is twelve months beyond the date approved by applicable regulatory authorities, or in those jurisdictions where regulatory approval is not required, the first day of the first calendar quarter twelve months following BOT adoption.

B. Requirements

- R1. ~~Each~~The Generator Owner shall have a documented methodology for determining the Facility Ratings (~~Facility Ratings Methodology~~) of its solely and jointly owned ~~turbine-generator unit~~ Facility(ies) up to the generator terminals or the low side terminals of the step up transformer, or the high side terminal of the step up transformer (location as specified by the Generator Owner) ~~that identifies how each of the following were considered:~~ [Violation Risk Factor: Medium] [Time Horizon: Long-term Planning]
 - 1.1. The documentation shall contain at least one of the following:
 - 1.1.1. Design or construction information such as design criteria, ratings provided by equipment manufacturers, equipment drawings and/or specifications, engineering analyses, method(s) consistent with industry standards (e.g. ANSI and IEEE), or an established engineering practice having a successful implementation record.
 - ~~1.1.1.2.~~ Operational information such as commissioning test results, performance testing or historical performance records, any of which may be supplemented by engineering analyses.~~Facility commissioning data.~~
 - R2. 1.2. The documentation shall be capable of demonstrating consistency with the principle that the Facility Ratings do not exceed the most limiting applicable Equipment Rating of the individual equipment that comprises that Facility. ~~Either performance history or rating verification supplemented by engineering analysis.~~
 - ~~2.1. Ratings provided by equipment manufacturers or obtained from equipment manufacturer specifications such as nameplate rating.~~
 - ~~R3. Ambient conditions.~~
 - ~~R1.5. Equipment Rating industry standard(s) used in development of this methodology.~~
- R2. Each Generator Owner shall have a documented methodology for determining Facility Ratings (Facility Ratings Methodology) of its solely and jointly owned equipment connected between the generator terminals, or the low voltage side of the step up transformer, or the high voltage side of the transformer (consistent with location specified in R1 by the Generator Owner) and

the point of interconnection with the Transmission Owner that contains all of the following. [Violation Risk Factor: Medium] [Time Horizon: Long-term Planning]

- 2.1. The methodology used to establish the Ratings of the Equipment that comprises the Facility(ies) shall be consistent with at least one of the following:
 - 2.1.1. Ratings provided by equipment manufacturers or obtained from equipment manufacturer specifications such as nameplate rating.
 - 2.1.2. One or more industry standards developed through an open process such as Institute of Electrical and Electronic Engineers (IEEE) or International Council on Large Electric Systems (CIGRE).
 - 2.1.3. A practice that has been verified by testing or engineering analysis.
- 2.2. The underlying assumptions, design criteria, and methods used to determine the Equipment Ratings identified in Requirement R2, Part 2.1 including identification of how each of the following were considered:
 - 2.2.1. Equipment Rating standard(s) used in development of this methodology.
 - 2.2.2. Ratings provided by equipment manufacturers or obtained from equipment manufacturer specifications.
 - 2.2.3. Ambient conditions (for particular or average conditions or as they vary in real-time).
 - 2.2.4. Operating limitations.¹
- 2.3. A statement that a Facility Rating shall respect the most limiting applicable Equipment Rating of the individual equipment that comprises that Facility.
- 2.4. The scope of equipment addressed shall include, but not limited to, conductors, transformers, relay protective devices, terminal equipment, and series and shunt compensation devices.

~~R2.R3.~~ Each~~The~~ Transmission Owner ~~and Generator Owner~~ shall each have a documented methodology for determining Facility Ratings (Facility Ratings Methodology) of its solely and jointly owned Facilities (except for those generating unit Facilities addressed in R1) that contains all of the following: *[Violation Risk Factor: Medium] [Time Horizon: Long-term Planning]*

- ~~R2.1.3.1.~~ _____ The methodology used to establish the Ratings of the Equipment that comprises the Facility shall be consistent with at least one of the following:
 - ~~R2.1.3.1.1.~~ _____ Ratings provided by equipment manufacturers or obtained from equipment manufacturer specifications such as nameplate rating.
 - ~~R2.1.3.1.2.~~ _____ One or more industry standards developed through an open process such as Institute of Electrical and Electronics Engineers (IEEE) or International Council on Large Electric Systems (CIGRE).
- ~~4.1.3.~~ _____ A practice that has been verified by testing or engineering analysis.

¹ Such as temporary de-ratings of impaired equipment in accordance with good utility practice.

~~R2.2.3.1.3.~~

~~R2.2.1.3.2.~~ The underlying assumptions, design criteria, and methods used to determine the Equipment Ratings identified in R2.1 including identification of how each of the following were considered:

~~3.2.1.~~ Equipment Rating standard(s) used in development of this methodology.

~~R2.2.2.3.2.2.~~ Ratings provided by equipment manufacturers or obtained from equipment manufacturer specifications.

~~R2.2.3.3.2.3.~~ Ambient conditions (for particular or average conditions or as they vary in real-time).

~~R2.2.4.3.2.4.~~ Operating limitations.²

~~R2.3.3.3.~~ A statement that a Facility Rating shall respect the most limiting applicable Equipment Rating of the individual equipment that comprises that Facility.

~~4.4.~~ The process by which the Rating of equipment that comprises a Facility is determined.

~~3.4.~~

~~4.2.~~ The scope of equipment addressed shall include, but not be limited to, transmission conductors, transformers, relay protective devices, terminal equipment, and series and shunt compensation devices.

~~3.4.1.~~

~~1.3.3.4.2.~~ The scope of Ratings addressed shall include, as a minimum, both Normal and Emergency Ratings.

~~R3-R4.~~ ~~Each~~The Transmission Owner shall ~~make its Facility Ratings Methodology~~ and ~~each~~ Generator Owner shall each make its ~~documentation for determining its Facility Ratings~~ ~~Facility Ratings Methodology~~ available for inspection and technical review by those Reliability Coordinators, Transmission Operators, Transmission Planners and Planning Coordinators that have responsibility for the area in which the associated Facilities are located, within 21 calendar days of receipt of a request. [*Violation Risk Factor: Lower*] [*Time Horizon: Operations Planning*]

~~2-R5.~~ If a Reliability Coordinator, Transmission Operator, Transmission Planner or Planning Coordinator provides documented comments on its technical review of a Transmission Owner's ~~Facility Ratings Methodology~~ or Generator Owner's ~~documentation for determining its Facility Ratings~~ ~~Facility Ratings Methodology~~, the Transmission Owner or Generator Owner shall provide a response to that commenting entity within 45 calendar days of receipt of those comments. The response shall indicate whether a change will be made to the Facility Ratings Methodology and, if no change will be made to that Facility Ratings Methodology, the reason why. [*Violation Risk Factor: Lower*] [~~Mitigation~~ *Time Horizon: Operations Planning*]

~~3-R6.~~ ~~The~~ ~~Each~~ Transmission Owner and Generator Owner shall ~~each~~ have Facility Ratings for its solely and jointly owned Facilities that are consistent with the associated Facility Ratings Methodology ~~or documentation for determining its Facility Ratings~~. [*Violation Risk Factor: Medium*] [*Time Horizon: Operations Planning, Same-day Operations, Real-time Operations*]

² Such as temporary de-ratings of impaired equipment in accordance with good utility practice.

~~4.R7.~~ ~~The Each~~ Transmission Owner and Generator Owner shall ~~each~~ provide Facility Ratings for its solely and jointly owned Facilities that are existing Facilities, new Facilities, modifications to existing Facilities and re-ratings of existing Facilities to its associated Reliability Coordinator(s), Planning Coordinator(s), Transmission Planner(s), and Transmission Operator(s) as scheduled by such requesting entities. *[Violation Risk Factor: Medium] [Time Horizon: Operations Planning, ~~Same-day Operations, Real-time Operations]~~*

C. Measures

- M1. ~~Each~~The Generator Owner shall have a ~~documented Facility Ratings Methodology~~ that shows how ~~its Facility Ratings were determined as identified in each of the items identified in Requirement 1.1 through Requirement 1.5 were considered.~~
- M2. Each Generator Owner shall have a documented Facility Ratings Methodology that includes all of the items identified in Requirement 2, Parts 2.1 through 2.4.
- M3. ~~Each~~The Transmission Owner ~~and Generator Owner~~ shall each have a documented Facility Ratings Methodology that includes all of the items identified in Requirement 3, ~~Parts 3.1 through 3.4.~~
- M4. ~~The Each~~ Transmission Owner and Generator Owner shall each have evidence, such as a copy of a dated electronic note, or other comparable evidence to show that it made its Facility Ratings Methodology available for inspection within 21 calendar days of a request in accordance with Requirement ~~34.~~
- M5. If the Reliability Coordinator, Transmission Operator, Transmission Planner or Planning Coordinator provides documented comments on its technical review of a Transmission Owner's or Generator Owner's Facility Ratings Methodology, the Transmission Owner or Generator Owner shall have evidence, (such as a copy of a dated electronic or hard copy note, or other comparable evidence from the Transmission Owner or Generator Owner addressed to the commenter that includes the response to the comment,) that it provided a response to that commenting entity in accordance with Requirement ~~45.~~
- M6. ~~The Each~~ Transmission Owner and Generator Owner shall have evidence to show that its Facility Ratings are consistent with ~~its the documentation used to develop its Facility Ratings as specified in Requirement R1 or consistent with its~~ Facility Ratings Methodology ~~as specified in Requirements R2 and R3~~ (Requirement ~~56).~~
- M7. ~~The Each~~ Transmission Owner and Generator Owner shall ~~each~~ have evidence, such as a copy of a dated electronic note, or other comparable evidence to show that it provided its Facility Ratings to its associated Reliability Coordinator(s), Planning Coordinator(s), Transmission Planner(s), and Transmission Operator(s) in accordance with Requirement ~~67.~~

D. Compliance

1. Compliance Monitoring Process
 - 1.1. Compliance Enforcement Authority
Regional Entity
 - 1.2. Compliance Monitoring Period and Reset Timeframe
Not Applicable

1.3. Compliance Monitoring and Enforcement Processes:

- Self-Certifications
- Spot Checking
- Compliance Audits
- Self-Reporting
- Compliance Violation Investigations
- Complaints

1.4. Data Retention

The Generator Owner shall keep its current [documentation](#), ~~in force Facility Rating Methodology~~ (for R1) and any modifications to the ~~methodology~~ [documentation](#) that were in force since last compliance audit period for Measure [M1](#) and Measure [M6](#).

[The Generator Owner shall keep its current, in force Facility Ratings Methodology \(for R2\) and any modifications to the methodology that were in force since last compliance audit period for Measure M2 and Measure M6.](#)

The Transmission Owner ~~and Generator Owner~~ shall keep its current, in force Facility Ratings Methodology (for [R3](#)) and any modifications to the methodology that were in force since the last compliance audit for Measure [M3](#) and Measure [M6](#).

The Transmission Owner and Generator Owner shall keep its current, in force Facility Ratings and any changes to those ratings for three calendar years for Measure [M6](#).

The Generator Owner and Transmission Owner shall each keep evidence for Measure [M4](#), Measure [M5](#), and Measure [M7](#) for three calendar years.

If a Generator Owner or Transmission Owner is found non-compliant, it shall keep information related to the non-compliance until found compliant.

The Compliance Enforcement Authority shall keep the last audit and all subsequent compliance records.

1.5. Additional Compliance Information

None

Violation Severity Levels

R #	Lower VSL	Moderate VSL	High VSL	Severe VSL
R1	<p>The Generator Owner's Facility Ratings Methodology for generating unit Facilities, does not identify how ambient conditions were considered. (R1.4)<u>N/A</u></p>	<p>The Generator Owner's Facility Ratings Methodology for generating unit Facilities, is missing identification of how both of the following were considered: Ratings provided by equipment manufacturers (R1.3) Equipment Rating standard(s) (R1.5)<u>The Generator Owner's Facility Rating documentation did not address either of the following:</u></p> <ul style="list-style-type: none"> <u>Requirement R1, Part 1.1.1</u> <u>Requirement R1, Part 1.1.2.</u> 	<p>The Generator Owner's Facility Ratings Methodology for generating unit Facilities, is missing identification of how both of the following were considered: Facility commissioning data. (R1.1) Performance history or rating verification accompanied by engineering analysis. (R1.2)<u>The Generator Owner's Facility Rating documentation did not address Requirement R1, Part 1.2.</u></p>	<p>The Generator Owner's Facility Ratings Methodology for generating unit Facilities, does not identify how any of the following were considered: Facility commissioning data. (R1.1) Performance history or rating verification accompanied by engineering analysis. (R1.2) Ratings provided by equipment manufacturers. (R1.3) Ambient conditions. (R1.4) Equipment Rating standard(s) (R1.5) <u>The Generator Owner failed to provide documentation for determining its Facility Ratings.</u></p>
R2	<p><u>The Generator Owner failed to include in its Facility Rating Methodology one of the following Parts of Requirement R2:</u></p> <ul style="list-style-type: none"> <u>2.1.1</u> <u>2.1.2</u> <u>2.1.3</u> <u>2.2.1</u> <u>2.2.2</u> <u>2.2.3</u> <u>2.2.4</u> 	<p><u>The Generator Owner failed to include in its Facility Rating Methodology two of the following Parts of Requirement R2:</u></p> <ul style="list-style-type: none"> <u>2.1.1</u> <u>2.1.2</u> <u>2.1.3</u> <u>2.2.1</u> <u>2.2.2</u> <u>2.2.3</u> <u>2.2.4</u> 	<p><u>The Generator Owner's Facility Rating methodology did not address all the components of Requirement R2, Part 2.4.</u></p> <p><u>OR</u></p> <p><u>The Generator Owner failed to include in its Facility Rating Methodology, three of the following Parts of Requirement R2:</u></p>	<p><u>The Generator Owner's Facility Rating Methodology failed to recognize a facility's rating based on the most limiting component rating as required in Requirement R2, Part 2.3</u></p> <p><u>OR</u></p> <p><u>The Generator Owner failed to include in its Facility Rating Methodology four or more of the following Parts of</u></p>

R #	Lower VSL	Moderate VSL	High VSL	Severe VSL
			<ul style="list-style-type: none"> • 2.1.1 • 2.1.2 • 2.1.3 • 2.2.1 • 2.2.2 • 2.2.3 • 2.2.4 	<p>Requirement R2:</p> <ul style="list-style-type: none"> • 2.1.1 • 2.1.2 • 2.1.3 • 2.2.1 • 2.2.2 • 2.2.3 • 2.2.4
<p>R2R3</p>	<p>The Transmission Owner's or Generator Owner's Facility Rating Methodology addresses all of its solely and jointly owned facilities, but is missing one of the following: Does not identify how it considered ratings from equipment manufacturers specifications (R2.2.2) OR The scope of equipment type addressed is missing one of the following: transmission conductors, transformers, relay protective devices, terminal equipment, and series and shunt compensation devices. (R2.4.1) OR The methodology document is missing a statement that a Facility Rating shall respect the most limiting applicable</p>	<p>The Transmission Owner's or Generator Owner's Facility Rating Methodology does not address one of the following sub-requirements: R2.2.1, R2.2.3, R2.2.4. OR The scope of equipment addressed is missing two of the following equipment types: transmission conductors, transformers, relay protective devices, terminal equipment, and series and shunt. (R2.4.1) OR The methodology does not identify whether it is consistent with the methods identified in R2.1.1, R2.1.2, or R2.1.3. The Transmission Owner failed to include in its Facility Rating Methodology two of the following Parts of Requirement</p>	<p>The Transmission Owner's or Generator Owner's Facility Rating Methodology does not address two of the following sub-requirements: R2.2.1, R2.2.3, R2.2.4. OR The scope of equipment addressed is missing more than two of the following equipment types: transmission conductors, transformers, relay protective devices, terminal equipment, and series and shunt compensation devices. (R2.4.1) OR The methodology is missing the process for determining either normal or emergency ratings. (R2.4.2) The Transmission Owner's Facility Rating Methodology</p>	<p>The Transmission Owner or Generator Owner has no Facility Rating Methodology. (R2) The Transmission Owner's Facility Rating Methodology failed to recognize a Facility's rating based on the most limiting component rating as required in Requirement R3, Part 3.3 OR -The Transmission Owner failed to include in its Facility Rating Methodology four or more of the following Parts of Requirement R3:</p> <ul style="list-style-type: none"> • 3.1.1 • 3.1.2

R #	Lower VSL	Moderate VSL	High VSL	Severe VSL
	<p>Equipment Rating of the individual equipment that comprises that Facility. (R2.3)</p> <p>The Transmission Owner failed to include in its Facility Rating Methodology one of the following Parts of Requirement R3:</p> <ul style="list-style-type: none"> • 3.1.1 • 3.1.2 • 3.1.3 • 3.2.1 • 3.2.2 • 3.2.3 • 3.2.4 	<p>R3:</p> <ul style="list-style-type: none"> • 3.1.1 • 3.1.2 • 3.1.3 • 3.2.1 • 3.2.2 • 3.2.3 • 3.2.4 	<p>did not address either of the following Parts of Requirement R3:</p> <ul style="list-style-type: none"> • 3.4.1 • 3.4.2 <p>OR</p> <p>The Transmission Owner failed to include in its Facility Rating Methodology three of the following Parts of Requirement R3:</p> <ul style="list-style-type: none"> • 3.1.1 • 3.1.2 • 3.1.3 • 3.2.1 • 3.2.2 • 3.2.3 • 3.2.4 	<ul style="list-style-type: none"> • 3.1.3 • 3.2.1 • 3.2.2 • 3.2.3 • 3.2.4
R3	<p>The Transmission Owner or Generator Ownerresponsible entity made its Facility Ratings Methodology available to requesting entities for inspection, but within a time period that was greater within more than 21 calendar days but less than or equal to 30-31 calendar days of receipt of after</p>	<p>The Transmission Owner or Generator Owner did not make its methodology available to one of its requesting Transmission Planners or its Planning Coordinators. (R3)</p> <p>OR</p> <p>The Transmission Owner or Generator Ownerresponsible</p>	<p>The Transmission Owner or Generator Owner did not make its methodology available to one of its requesting Reliability Coordinators or its Transmission Operators. (R3)</p> <p>The Transmission Owner or Generator Ownerresponsible entity made its Facility Rating Methodology available for</p>	<p>The Transmission Owner or Generator Ownerresponsible entity received requests, but did not failed to make its Facility Ratings Methodology available to any of the requesting entities for inspection within in more than 60-51 calendar days of a receipt of after a request. (R3)</p>

R #	Lower VSL	Moderate VSL	High VSL	Severe VSL
	<p>a request— (R3)</p>	<p>entity made its <u>Facility Ratings Methodology</u> available for inspection, but within a time period that was greater than <u>within 30 31</u> calendar days but less than or equal to 45-41 <u>calendar days of receipt of a</u> after <u>a</u> request.</p>	<p>inspection, but within a time period that was greater <u>within more</u> than 45-41 <u>calendar</u> days but less than or equal to 60-51 <u>calendar days of receipt of</u> after a request.</p>	
<p><u>R4R5</u></p>	<p>The Transmission Owner or Generator Owner <u>responsible entity</u> provided a complete response to comments on its Facility Ratings Methodology, but the response was provided in more than 45 <u>calendar</u> days but less than or equal to 960 <u>calendar</u> days after the <u>comments were received a</u> request. (R4R5)</p>	<p><u>The responsible entity provided a response in more than 60 calendar days but less than or equal to 70 calendar days after a request.</u></p> <p><u>OR</u></p> <p>The Transmission Owner or Generator Owner <u>responsible entity</u> provided an on-time a response to comments on its Facility Ratings Methodology <u>within 45 calendar days, and</u> but the response <u>indicated that a change will not be made to the Facility Ratings Methodology but did not indicate why no change will be made.</u> was missing one of the following: An indication of whether changes will be made <u>OR</u> If no change will be made, the reason why no change will be</p>	<p>The Transmission Owner or Generator Owner <u>responsible entity</u> provided a response to <u>comments on its Facility Ratings Methodology, but the response was provided in</u> more than 45-70 <u>calendar</u> days but less than ore equal to 980 <u>calendar</u> days after <u>a request.</u> the comments were received, and the response was missing one of the following: An indication of whether changes will be made</p> <p><u>OR</u></p> <p><u>The responsible entity provided a response within 45 calendar days, but the response did not indicate whether a change will be made to the Facility Ratings Methodology. (R5)</u> If no change will be made, the reason why no change will be made. (R4)</p>	<p>The Transmission Owner or Generator Owner <u>responsible entity</u> did not <u>failed to</u> provide any a response <u>as required in more than</u> to comments on its Facility Ratings Methodology <u>within 9080</u> calendar days <u>after the comments were received.</u> (R4R5)</p>

R #	Lower VSL	Moderate VSL	High VSL	Severe VSL
		made. (R4R5)		
R5R 6	The Transmission Owner or Generator Owner responsible entity developed failed to <u>establish</u> Facility Ratings consistent with the associated <u>Facility Ratings Methodology for and at least one rating, but less than 5% or less of its solely owned and jointly owned Facilities.</u> , of the ratings reviewed were inconsistent with the associated Facility Rating Methodology. (R5R6)	The Transmission Owner or Generator Owner responsible entity <u>failed to establish</u> developed Facility Ratings consistent with the associated <u>Facility Ratings Methodology for more than</u> but 5% or more, but less than <u>up to (and including) 10%</u> of its solely owned and jointly owned Facilities. <u>of the ratings reviewed were inconsistent with the associated Facility Rating Methodology.</u> (R5R6)	The Transmission Owner or Generator Owner responsible entity <u>failed to establish</u> developed Facility Ratings consistent with the associated <u>Facility Ratings Methodology for but more than 10% or more, but less than</u> <u>up to (and including) 15%</u> of its solely owned and jointly owned Facilities. <u>of the ratings reviewed were inconsistent with the associated Facility Rating Methodology.</u> (R5R6)	The Transmission Owner or Generator Owner responsible entity <u>failed to establish</u> developed Facility Ratings consistent with the associated <u>Facility Ratings Methodology for but more than 15% of its solely owned and jointly owned Facilities.</u> or more of the ratings reviewed were inconsistent with the associated Facility Rating Methodology. (R5R6)
R6R 7	The Transmission Owner or Generator Owner responsible entity provided all of its Facility Ratings to all of the requesting entities but missed meeting one or more of the schedules by up to, but less than, 15 calendar days. (R6R7)	The Transmission Owner or Generator Owner provided all of its Facility Ratings on schedule to all but one of the requesting entities but the Facility Ratings provided to one of the required entities were incomplete. OR The Transmission Owner or Generator Owner responsible entity provided all of its Facility Ratings to all of the requesting entities but missed meeting one or more of the schedules by <u>more than</u> 15 calendar days or more but less than <u>or equal to</u>	The Transmission Owner or Generator Owner provided some Facility Ratings on schedule to all of the requesting entities but the Facility Ratings provided to the following entities were incomplete: – Planning Coordinators and Transmission Planners, or – Reliability Coordinators and Transmission Operators OR The Transmission Owner or Generator Owner responsible entity provided all of its Facility Ratings to all of the requesting entities but missed meeting one	The Transmission Owner or Generator Owner did not provide any of its Facility Ratings to the following entities: – Planning Coordinators and Transmission Planners, or – Reliability Coordinators and Transmission Operators OR The Transmission Owner or Generator Owner responsible entity provided all of its Facility Ratings to all of the requesting entities but missed meeting one or more of the schedules by <u>more than 35</u> 45 calendar days or

R #	Lower VSL	Moderate VSL	High VSL	Severe VSL
		25 30 calendar days. (R6 R7)	or more of the schedules by more than 25 30 calendar days or more but less than <u>ore equal</u> to 35 45 calendar days. (R6 R7)	more. (R6 R7)