

Standard Development Timeline

This section is maintained by the drafting team during the development of the standard and will be removed when the standard is adopted by the Board of Trustees.

Description of Current Draft

<u>Completed Actions</u>	<u>Date</u>
<u>Standards Committee approved Standard Authorization Request (SAR) for posting</u>	<u>08/19/15</u>
<u>SAR posted for comment</u>	<u>08/20/15 – 09/21/15</u>
<u>Draft Reliability Standard posted for Informal Comment Period</u>	<u>07/14/16 – 08/12/16</u>

<u>Anticipated Actions</u>	<u>Date</u>
<u>45-day formal comment period with initial ballot</u>	<u>September 2017 – November 2017</u>
<u>45-day formal comment period with additional ballot</u>	<u>January 2018 – February 2018</u>
<u>10-day final ballot</u>	<u>February 2018</u>
<u>NERC Board adoption</u>	<u>May 2018</u>

A. Introduction

1. **Title:** System Operating Limits Methodology for the Operations Horizon
2. **Number:** FAC-011-~~34~~
3. **Purpose:** -To ensure that System Operating Limits (SOLs) used in the reliable operation of the Bulk Electric System (BES) are determined based on an established methodology or methodologies.
4. **Applicability:**
 - 4.1. Functional Entities:**
 - 4.1.1.** Reliability Coordinator
5. **Effective Date:**— See Implementation Plan for ~~the Revised Definition of “Remedial Action Scheme”~~.Project 2015-09.

B. Requirements and Measures

- R1.** ~~The~~Each Reliability Coordinator shall have a ~~documented~~ methodology for ~~use in developing~~establishing SOLs (i.e., SOL Methodology) within its Reliability Coordinator Area. ~~This~~[Violation Risk Factor: Medium] [Time Horizon: Operations Planning]
- M1.** Acceptable evidence may include, but is not limited to, dated electronic or hard copy documentation of its SOL Methodology.
- R1,R2.** ~~Each Reliability Coordinator shall:~~— include in its SOL Methodology the method for Transmission Operators to determine the applicable owner-provided Facility Ratings to be used in operations. The method shall address the use of common Facility Ratings between the Reliability Coordinator and the Transmission Operators in its Reliability Coordinator Area. [Violation Risk Factor: Medium] [Time Horizon: Operations Planning]
 - ~~1.1.~~ ~~— Be applicable for developing SOLs used in the operations horizon.~~
 - ~~1.2.~~ ~~— State that SOLs shall not exceed associated Facility Ratings.~~
- M2.** ~~Include a description of how to identify the subset of SOLs that qualify~~Acceptable evidence may include, but is not limited to, dated electronic or hard copy documentation of its SOL Methodology that addresses the items listed in Requirement R2.
- R3.** Each Reliability Coordinator shall include in its SOL Methodology the method for Transmission Operators to determine the System Voltage Limits to be used in operations. The method shall: [Violation Risk Factor: Medium] [Time Horizon: Operations Planning]
 - 1.3.** ~~—~~Require that BES buses/stations have an associated System Voltage Limit except for the BES buses/stations that may be excluded as IROLs.

- 3.1. ~~The specified in the Reliability Coordinator’s SOL Methodology shall include a requirement that SOLs provide BES;~~
 - 3.2. ~~Require that System Voltage Limits respect the Facility voltage Ratings;~~
 - 3.3. ~~Require that System Voltage Limits are higher than in-service under voltage load shedding (UVLS) relay settings;~~
 - 3.4. ~~Identify the lowest allowable System Voltage Limit;~~
 - 3.5. ~~Address the use of common System Voltage Limits between the Reliability Coordinator and the Transmission Operators in its Reliability Coordinator Area;~~
 - 3.6. ~~Address coordination of System Voltage Limits between adjacent Transmission Operators in its Reliability Coordinator Area; and~~
 - 3.7. ~~Address coordination of System Voltage Limits between adjacent Reliability Coordinator Areas within an Interconnection.~~
- M3. ~~Acceptable evidence may include, but is not limited to, dated electronic or hard copy documentation of its SOL Methodology that addresses the items listed in Requirement R3.~~
- R4. ~~Each Reliability Coordinator shall include in its SOL Methodology the method for determining the stability limits to be used in operations. The method shall: *[Violation Risk Factor: Medium] [Time Horizon: Operations Planning]*~~
- 1.4.4.1. ~~Specify stability performance consistent with criteria, including any margins applied. The criteria shall include the following:~~
 - 4.1.1. ~~In the pre-contingency steady-state, the BES shall demonstrate voltage stability;~~
 - 4.1.2. ~~transient, dynamic and voltage response;~~
 - 4.1.3. ~~angular stability; all Facilities shall be within their Facility Ratings and within their thermal, voltage and~~
 - 4.1.4. ~~System damping.~~
 - 4.2. ~~Require that stability limits. In are established to meet the determination of SOLs; criteria specified in Part 4.1 for the BES condition used shall reflect current or expected system Contingencies identified in Requirement R5.~~
 - 4.3. ~~Describe how the Reliability Coordinator establishes stability limits when there is an impact to more than one Transmission Operator in its Reliability Coordinator Area.~~
 - 1.5.4.4. ~~Describe how instability risks are identified, considering levels of transfers, Load and generation dispatch, and System conditions and shall reflect including any changes to system System topology such as Facility outages;~~

- ~~1.6.~~ Following the single Contingencies⁺ identified in Requirement 2.2.1 through Requirement 2.2.3, the system shall demonstrate transient, dynamic and voltage stability; all Facilities shall be operating within their Facility Ratings and within their thermal, voltage and stability limits; and Cascading or uncontrolled separation shall not occur.
- ~~4.5.~~ Single line to Describe the level of detail that is required for the study model(s); including the extent of the Reliability Coordinator Area, as well as the critical modeling details from other Reliability Coordinator Areas, necessary to determine different types of stability limits.
- ~~4.6.~~ Describe the allowed uses of Remedial Action Schemes and other automatic post-Contingency mitigation actions; the planned use of underfrequency load shedding (UFLS) is not allowed in the establishment of stability limits.
- ~~M4.~~ Acceptable evidence may include, but is not limited to, dated electronic or hard copy documentation of its SOL Methodology that addresses the items listed in Requirement R4.
- ~~R5.~~ Each Reliability Coordinator shall include in its SOL Methodology the method for identifying the single Contingencies and multiple Contingencies for use in determining stability limits and performing Operational Planning Analysis (OPAs) and Real-time Assessments (RTAs). The method shall include: [Violation Risk Factor: Medium] [Time Horizon: Operations Planning]
- ~~5.1.~~ The following list of single Contingency events for use in determining stability limits and performing OPAs and RTAs:
- ~~5.1.1.~~ Loss of any of the following either by single phase to ground or ~~3~~ three phase Fault (whichever is more severe); with Normal Clearing, on any Faulted normal clearing, or without a Fault:
- ~~•~~ generator, line;
 - ~~•~~ transmission circuit;
 - ~~•~~ transformer, or;
 - ~~•~~ shunt device; or
- ~~1.6.1.~~ Loss of any generator, line, transformer, or shunt device without a Fault.
- ~~•~~ Singlesingle pole block, with Normal Clearing, in a monopolar or bipolar high voltage direct current system.
- ~~1.7.~~ In determining the system's response to a Any additional types of single Contingency, the following shall be acceptable:

⁺The Contingencies identified in FAC 011 R2.2.1 through R2.2.3 are the minimum contingencies that must be studied but are not necessarily the only Contingencies that should be studied.

- ~~1.7.1.~~ Planned or controlled interruption of electric supply to radial customers or some local network customers connected to or supplied by the Faulted Facility or by the affected area.
- ~~1.7.2.~~ Interruption of other network customers, (a) only if the system has already been adjusted, or is being adjusted, following at least one prior outage, or (b) if the real-time operating conditions are more adverse than anticipated in the corresponding studies
- ~~1.7.3.~~ System reconfiguration through manual or automatic control or protection actions.
- ~~1.8.~~ To prepare for the next Contingency, system adjustments may be made, including changes to generation, uses of the transmission system, and the transmission system topology.
- ~~R2.~~ The Reliability Coordinator's methodology for determining SOLs, shall include, as a minimum, a description of the following, along with any reliability margins applied for each:
 - ~~2.1.~~ Study model (must include at least the entire Reliability Coordinator Area as well as the critical modeling details from other Reliability Coordinator Areas that would impact the Facility or Facilities under study.)
 - ~~2.2.~~ Selection of applicable Contingencies
 - ~~5.2.~~ A process for determining which of the events identified for use in determining stability limits associated with the list, or for use in performing OPAs and RTAs.
 - ~~5.3.~~ Any types of multiple contingencies (Contingency events identified for use in determining stability limits, or for use in performing OPAs and RTAs.
 - ~~2.3.5.4.~~ The method for considering the Contingency events provided by the Planning Authority Coordinator in accordance with FAC-014015-1, Requirement 6) are applicable for use in the operating horizon given the actual or expected system conditions. R6 to identify the Contingencies for use in determining stability limits.
 - ~~2.3.1.~~ This process shall address the need to modify these limits, to modify the list of limits, and to modify the list of associated multiple contingencies.
 - ~~2.4.~~ Level of detail of system models used to determine SOLs.
 - ~~2.5.~~ Allowed uses of Remedial Action Schemes.
 - ~~2.6.~~ Anticipated transmission system configuration, generation dispatch and Load level
- ~~M5.~~ Acceptable evidence may include, but is not limited to, dated electronic or hard copy documentation of its SOL Methodology that addresses the items listed in Requirement R5.

- R6.** Each Reliability Coordinator shall include in its SOL Methodology: [Violation Risk Factor: High] [Time Horizon: Operations Planning]
- 6.1.** A description of how to identify the subset of SOLs that qualify as Interconnection Reliability Operating Limits (IROLs).
- 2.7.6.2.** Criteria for determining when violating a SOL qualifies as an ~~Interconnection Reliability Operating Limit~~ (IROL) and criteria for developing any associated IROL T_v.
- M6.** The Acceptable evidence may include, but is not limited to, dated electronic or hard copy documentation of its SOL Methodology that addresses the items listed in Requirement R6.
- R7.** Each Reliability Coordinator shall include in its SOL Methodology the method for Transmission Operators to communicate SOLs it established to its Reliability Coordinator(s). The method shall address the periodicity of SOL communication. [Violation Risk Factor: Medium] [Time Horizon: Operations Planning]
- M7.** Acceptable evidence may include, but is not limited to, dated electronic or hard copy documentation of its SOL Methodology that addresses the items listed in Requirement R7.
- ~~R3~~R8.** Each Reliability Coordinator shall ~~issue~~provide its SOL Methodology and any changes to ~~that methodology;~~the SOL Methodology prior to the effective date of the SOL Methodology, to the effectiveness of the Methodology or of a change to the Methodology, to all of the following: [Violation Risk Factor: Lower] [Time Horizon: Operations Planning]
- ~~3.1.8.1.~~** Each adjacent Reliability Coordinator ~~within an Interconnection,~~ and each Reliability Coordinator that ~~indicated~~requests and indicates it has a reliability-related need ~~for the methodology;~~
- 8.2.** Each Planning ~~Authority~~Coordinator and Transmission Planner that ~~models~~is responsible for planning any portion of the Reliability ~~Coordinator's~~Coordinator Area;
- ~~3.2.8.3.~~** Each Transmission Operator ~~within its~~ Reliability Coordinator Area.
- ~~3.3.~~** Each Transmission Operator ~~Acceptable evidence~~ that ~~operates in~~ the Reliability Coordinator ~~Area.~~

G. Measures

- ~~M1.~~** The Reliability Coordinator's SOL Methodology shall address all of the items listed in Requirement 1 through Requirement 3.
- ~~M2-M8.~~** The Reliability Coordinator shall have evidence it ~~issued~~provided its SOL Methodology, and any changes to that methodology, including the date they were issued, in accordance to the entities identified in Requirement R8 may include, but is

not limited to, dated electronic or hard copy documentation such as emails with Requirement 4. receipts, registered mail receipts, or postings to a secure web site with accompanying notification(s).

D.C. Compliance

1. Compliance Monitoring Process

1.1. Compliance ~~Monitoring Responsibility~~ Enforcement Authority:

~~Regional Reliability Organization~~

1.2. ~~Compliance Monitoring Period and Reset Time Frame~~

~~Each Reliability Coordinator shall self-certify its compliance to the Compliance Monitor at least once every three years. New Reliability Authorities shall demonstrate compliance through an on-site audit conducted by the Compliance Monitor within the first year that it commences operation. The Compliance Monitor shall also conduct an on-site audit once every nine years and an investigation upon complaint to assess performance.~~

~~The Performance Reset Period shall be twelve months from the last non-compliance.~~

~~**Data**“Compliance Enforcement Authority” means NERC or the Regional Entity, or any entity as otherwise designated by an Applicable Governmental Authority, in their respective roles of monitoring and/or enforcing compliance with mandatory and enforceable Reliability Standards in their respective jurisdictions.~~

1.3.1.2. Evidence Retention:

~~The Reliability Coordinator shall keep all superseded portions to its SOL Methodology for 12 months beyond the date of the change in that methodology. In addition, entities found non-compliant shall keep information related to the non-compliance until found compliant~~

~~The Compliance Monitor shall keep the last audit and all subsequent compliance records.~~

1.4. Additional Compliance Information

~~The Reliability Coordinator shall make the following available for inspection during an on-site audit~~The following evidence retention period(s) identify the period of time an entity is required to retain specific evidence to demonstrate compliance. For instances where the evidence retention period specified below is shorter than the time since the last audit, the Compliance Enforcement Authority may ask an entity to provide other evidence to show that it was compliant for the full-time period since the last audit.

The applicable entity shall keep data or evidence to show compliance as identified below unless directed by theits Compliance Monitor or within 15

~~business days~~ Enforcement Authority to retain specific evidence for a longer period of a request time as part of an investigation upon complaint.

~~1.4.1~~ SOL Methodology.

~~1.4.2~~ Superseded portions The Reliability Coordinator shall keep data or evidence of its SOL Methodology that had been made within the past 12 months.

~~1.4.3~~ Evidence that the SOL Methodology and any changes to the methodology that occurred within the past 12 months were issued to all required entities.

~~2. Levels of Non-Compliance for Western Interconnection: (To be replaced with VSLs once developed and approved by WECC)~~

~~2.1. Level 1:~~ There shall be a level one non-compliance if either of the following conditions exists:

~~2.1.1~~ The SOL Methodology did not include a statement indicating that Facility Ratings shall not be exceeded.

- ~~• Level 2:~~ The SOL Methodology did not include a requirement to address all of the elements in R3.1, R3.2, R3.4 with Requirements R1 through R3.7 and E1R8 for the current year plus the previous 12 calendar months.

~~2.2. Level 3:~~ There shall be a level three non-compliance if any of the following conditions exists:

~~2.2.1~~ The SOL Methodology did not include a statement indicating that Facility Ratings shall not be exceeded and the methodology did not include evaluation of system response to one of the three types of single Contingencies identified in R2.2.

~~2.2.2~~ The SOL Methodology did not include a statement indicating that Facility Ratings shall not be exceeded and the methodology did not include evaluation of system response to two of the seven types of multiple Contingencies identified in E1.1.

~~2.2.3~~ The System Operating Limits Methodology did not include a statement indicating that Facility Ratings shall not be exceeded and the methodology did not address two of the six required topics in R3.1, R3.2, R3.4 through R3.7.

~~2.3. Level 4:~~ The SOL Methodology was not issued to all required entities in accordance with R4.

1.3. Compliance Monitoring and Enforcement Program

As defined in the NERC Rules of Procedure, “Compliance Monitoring and Enforcement Program” refers to the identification of the processes that will be used to evaluate data or information for the purpose of assessing performance or outcomes with the associated Reliability Standard.

Violation Severity Levels:

<u>R.#</u>	<u>Violation Severity Levels</u>			
	<u>Lower VSL</u>	<u>Moderate VSL</u>	<u>High VSL</u>	<u>Severe VSL</u>
<u>R1.</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>The Reliability Coordinator did not have a SOL Methodology for establishing SOLs within its Reliability Coordinator Area.</u>
<u>R1R2.</u>	<u>Not applicable. N/A</u>	<u>The Reliability Coordinator has a documented SOL Methodology for use in developing SOLs within its Reliability Coordinator Area, but it does not address R1.2N/A</u>	<u>The Reliability Coordinator has a documented included in its SOL Methodology the method for Transmission Operators to determine the applicable owner-provided Facility Ratings to be used in operations, but the method did not address the use in developing SOLs within of common Facility Ratings between the Reliability Coordinator and the Transmission Operators in its Reliability Coordinator Area, but it does not address R1.3.</u>	<u>The Reliability Coordinator has a documented did not include in its SOL Methodology the method for use in developing SOLs within its Reliability Coordinator Area, but it does not address R1.4Transmission Operators to determine the applicable owner-provided Facility Ratings to be used.</u> <u>OR</u> <u>The Reliability Coordinator has no documented SOL Methodology for use in developing SOLs within its Reliability Coordinator Area operations.</u>

<p><u>R2R3.</u></p>	<p>The Reliability Coordinator's <u>failed to incorporate one of the Parts of Requirement R3 into its SOL Methodology</u> requires that SOLs are set to meet BES performance following single contingencies, but does not require that SOLs are set to meet BES performance in the pre-contingency state. (R2.1) <u>.</u></p>	<p><u>Not applicable.</u>The Reliability Coordinator failed to incorporate two of the Parts of Requirement R3 into its SOL Methodology.</p>	<p>The Reliability Coordinator's <u>failed to incorporate three of the Parts of Requirement R3 into its SOL Methodology</u> requires that SOLs are set to meet BES performance in the pre-contingency state, but does not require that SOLs are set to meet BES performance following single contingencies. (R2.2—R2.4) <u>.</u></p>	<p>The Reliability Coordinator's SOL Methodology does not require that SOLs are set to meet BES performance in the pre-contingency state and does not require that SOLs are set to meet BES performance following single contingencies. (R2.1 through R2.4)The Reliability Coordinator <u>failed to incorporate four or more of the Parts of Requirement R3 into its SOL Methodology.</u></p>
<p><u>R3</u> <u>R4.</u></p>	<p>The Reliability Coordinator's <u>Coordinator failed to incorporate one of the Parts of Requirement R4 into its SOL Methodology</u> includes a description for all but one of the following: R3.1 through R3.7.</p>	<p>The Reliability Coordinator's <u>Coordinator failed to incorporate two of the Parts of Requirement R4 into its SOL Methodology</u> includes a description for all but two of the following: R3.1 through R3.7.</p>	<p>The Reliability Coordinator's <u>Coordinator failed to incorporate three of the Parts of Requirement R4 into its SOL Methodology</u> includes a description for all but three of the following: R3.1 through R3.7.</p>	<p>The Reliability Coordinator's SOL Methodology is missing a description of <u>Coordinator failed to incorporate four or more of the following: R3.1 through R3.7</u>Parts of Requirement R4 into its SOL Methodology.</p>
<p><u>R5.</u></p>	<p><u>N/A</u></p>	<p>The Reliability Coordinator <u>failed to incorporate one of the Parts 5.2, 5.3 or 5.4 of Requirement R5 into its SOL Methodology.</u></p>	<p>The Reliability Coordinator <u>failed to incorporate two of the Parts 5.2, 5.3, or 5.4 of Requirement R5 into its SOL Methodology.</u></p>	<p>The Reliability Coordinator <u>failed to incorporate Part 5.1 of Requirement R5 into its SOL Methodology.</u> <u>OR</u> The Reliability Coordinator <u>failed to incorporate Parts 5.2, 5.3, and 5.4 of</u></p>

				<u>Requirement R5 into its SOL Methodology.</u>
<u>R3.6R6.</u>	N/A	N/A	<p><u>N/AThe Reliability Coordinator failed to include Part 6.1 (a description of how to identify the subset of SOLs that qualify as IROLs) in its SOL Methodology.</u></p> <p><u>OR</u></p> <p><u>The Reliability Coordinator failed to include Part 6.2 (a criteria for determining when violating a SOL qualifies as an IROL in its SOL Methodology.</u></p> <p><u>OR</u></p> <p><u>The Reliability Coordinator failed to include Part 6.2 (criteria for developing any associated IROL T_v) in its SOL Methodology.</u></p>	<u>N/AThe Reliability Coordinator failed to include Parts 6.1 and 6.2 in its SOL Methodology.</u>
<u>R7.</u>	<u>N/A</u>	<u>N/A</u>	<u>The Reliability Coordinator did not include in its SOL Methodology the periodicity of SOL communications for Transmission Operators to communicate SOLs the</u>	<u>The Reliability Coordinator did not include in its SOL Methodology the method for Transmission Operators to communicate SOLs it established or the</u>

			<u>Transmission Operator established.</u>	<u>periodicity of SOL communication.</u>
<u>R4R8.</u>	<p>The Reliability Coordinator failed to issue<u>provided</u> its new or revised SOL Methodology and/or one or more changes to that methodology to one of the required entities specified to a <u>requesting Reliability Coordinator</u> in R4.1, R4.2, and R4.3.</p> <p>OR</p> <p>For a change in methodology, the changed methodology was provided to one or more of the required entities before the effectiveness of the change, accordance with Part 8.4 but was provided to all the required entities no more late by less than or equal to 10 calendar days after the effectiveness of the change.</p>	<p>The Reliability Coordinator failed to issue<u>provided</u> its new or revised SOL Methodology and/or one or more changes to that methodology to two of the required entities specified to a <u>requesting Reliability Coordinator</u> in R4.1, R4.2, and R4.3.</p> <p>OR</p> <p>For a change in methodology, the changed methodology accordance with Part 8.4, but was provided to one or more of the required entities late by more than 10 calendar days after the effectiveness of the change, but but less than or equal to 20 calendar days after the effectiveness of the change.</p>	<p>The Reliability Coordinator failed to issue<u>provide</u> its new or revised SOL Methodology and/or to one or more changes to that methodology to three of the required entities<u>parties</u> specified in R4<u>Parts 8.1, R4.2, and R4 through 8.3.</u></p> <p>OR</p> <p>For a change in methodology, the changed methodology was provided to one or more of required entities<u>its new or revised SOL Methodology to a requesting Reliability Coordinator in accordance with Part 8.4, but was late by more than 20 calendar days after the effectiveness of the change, but but less than or equal to 30 to 30 calendar days after the effectiveness of the change.</u></p>	<p>The Reliability Coordinator failed to issue<u>provide</u> its new or revised SOL Methodology and/or one or more changes to that methodology to four<u>two</u> or more of the required entities<u>parties</u> specified in R4<u>Parts 8.1, R4.2, and R4 through 8.3.</u></p> <p>OR</p> <p>For a change in methodology, the changed methodology was provided<u>The Reliability Coordinator failed to provide its new or revised SOL Methodology to one or more of the required entities more than 30 parties specified in Parts 8.1 through 8.3 prior to the effective date of the SOL Methodology.</u></p> <p>OR</p> <p><u>The Reliability Coordinator provided its new or revised SOL Methodology to a</u></p>

				<p><u>requesting Reliability Coordinator in accordance with Part 8.4, but was late by more than 30</u> calendar days-after the effectiveness of the change.</p> <p><u>OR</u></p> <p><u>The Reliability Coordinator failed to provide its new or revised SOL Methodology to a requesting Reliability Coordinator in accordance with Part 8.4.</u></p>
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E.D. Regional Differences

~~3.~~ The following Intereconnection-wide Regional Difference shall be applicable in the Western Intereconnection:

~~3.1.~~ As governed by the requirements of R3.3, starting with all Facilities in service, shall require the evaluation of the following multiple Facility Contingencies when establishing SOLs:

~~3.1.1~~ Simultaneous permanent phase to ground Faults on different phases of each of two adjacent transmission circuits on a multiple circuit tower, with Normal Clearing. If multiple circuit towers are used only for station entrance and exit purposes, and if they do not exceed five towers at each station, then this condition is an acceptable risk and therefore can be excluded.

~~3.1.2~~ A permanent phase to ground Fault on any generator, transmission circuit, transformer, or bus section with Delayed Fault Clearing except for bus sectionalizing breakers or bus tie breakers addressed in E1.1.7

~~3.1.3~~ Simultaneous permanent loss of both poles of a direct current bipolar Facility without an alternating current Fault.

~~3.1.4~~ The failure of a circuit breaker associated with a Remedial Action Scheme to operate when required following: the loss of any element without a Fault; or a permanent phase to ground Fault, with Normal Clearing, on any transmission circuit, transformer or bus section.

~~3.1.5~~ A non-three phase Fault with Normal Clearing on common mode Contingency of two adjacent circuits on separate towers unless the event frequency is determined to be less than one in thirty years.

~~3.1.6~~ A common mode outage of two generating units connected to the same switchyard, not otherwise addressed by FAC 011.

~~3.1.7~~ The loss of multiple bus sections as a result of failure or delayed clearing of a bus tie or bus sectionalizing breaker to clear a permanent Phase to Ground Fault.

~~3.2.~~ SOLs shall be established such that for multiple Facility Contingencies in E1.1.1 through E1.1.5 operation within the SOL shall provide system performance consistent with the following:

~~3.2.1~~ All Facilities are operating within their applicable Post-Contingency thermal, frequency and voltage limits.

~~3.2.2~~ Cascading does not occur.

~~3.2.3~~ Uncontrolled separation of the system does not occur.

~~3.2.4~~ The system demonstrates transient, dynamic and voltage stability.

~~3.2.5~~ Depending on system design and expected system impacts, the controlled interruption of electric supply to customers (load shedding), the planned removal from service of certain generators, and/or the curtailment of contracted firm (non-recallable reserved) electric power transfers may be necessary to maintain the overall security of the interconnected transmission systems.

~~3.2.6~~ Interruption of firm transfer, Load or system reconfiguration is permitted through manual or automatic control or protection actions.

~~3.2.7~~ To prepare for the next Contingency, system adjustments are permitted, including changes to generation, Load and the transmission system topology when determining limits.

~~3.3.~~ SOLs shall be established such that for multiple Facility Contingencies in E1.1.6 through E1.1.7 operation within the SOL shall provide system performance consistent with the following with respect to impacts on other systems:

~~3.3.1~~ Cascading does not occur.

~~3.4.~~ The Western Interconnection may make changes (performance category adjustments) to the Contingencies required to be studied and/or the required responses to Contingencies for specific facilities based on actual system performance and robust design. Such changes will apply in determining SOLs.

None.

E. Associated Documents

Implementation Plan

Version History

Version	Date	Action	Change Tracking
1	November 1, 2006	Adopted by Board of Trustees	New
2		<p>Changed the effective date to October 1, 2008</p> <p>Changed “Cascading Outage” to “Cascading”</p> <p>Replaced Levels of Non-compliance with Violation Severity Levels</p> <p>Corrected footnote 1 to reference FAC-011 rather than FAC-010</p>	Revised
2	June 24, 2008	Adopted by Board of Trustees: FERC Order 705	Revised
2	January 22, 2010	Updated effective date and footer to April 29, 2009 based on the March 20, 2009 FERC Order	Update
2	February 7, 2013	R5 and associated elements approved by NERC Board of Trustees for retirement as part of the Paragraph 81 project (Project 2013-02) pending applicable regulatory approval.	
2	November 21, 2013	R5 and associated elements approved by FERC for retirement as part of the Paragraph 81 project (Project 2013-02)	
2	February 24, 2014	Updated VSLs based on June 24, 2013 approval.	
3	November 13, 2014	Adopted by the NERC Board of Trustees	Replaced references to Special Protection System and SPS with Remedial Action Scheme and RAS
<u>34</u>	November 19, 2015	FERC Order issued approving FAC 011-3. Docket No. RM15-13-000. Project 2015-09 – Adopt revisions to standard.	<u>Revisions</u>