

Standard Development Timeline

This section is maintained by the drafting team during the development of the standard and will be removed when the standard becomes effective.

Development Steps Completed

1. SAR posted for comment (~~Dates of posting~~: December 18, 2013-January 17, 2014)
2. SC authorized moving the SAR forward to standard development (~~SC meeting date when authorized~~: March 31, 2013)
3. 45-day Formal Comment Period with Parallel Initial Ballot (April 1-May 15, 2014)

Description of Current Draft

~~(Describe the type of action associated with this posting such as 30-day informal comment period, 30-day formal comment period, 45-day formal comment period with parallel initial ballot, 30-day formal comment period with parallel successive ballot, recirculation ballot)~~

Anticipated Actions	Anticipated Date
30-day Formal Comment Period	
45-day Formal Comment Period with Parallel Initial Ballot <u>Final Ballot</u>	<u>June 2014</u>
30-day Formal Comment Period with Parallel Successive Ballot	
Recirculation ballot	
BOT a <u>A</u> doption	<u>August 2014</u>

Effective Dates

~~In those jurisdictions where regulatory approval is required, all requirements applied to the Transmission Owner become effective upon regulatory approval. In those jurisdictions where no regulatory approval is required, all requirements applied to the Transmission Owner and Regional Entity become effective upon Board of Trustees' adoption.~~

~~In those jurisdictions where regulatory approval is required, all requirements applied to the Generator Owner become effective on the~~The first calendar day of the first calendar quarter ~~that is~~ one year after the date ~~of the order approving the~~that this standard ~~from~~is approved by an applicable regulatory authorities. ~~In those jurisdictions where no regulatory approval governmental authority or as otherwise provided for in a jurisdiction where approval by an applicable governmental authority is required for a standard to go into effect. Where approval by an applicable governmental authority is not required, all requirements applied to the Generator Owner standard shall~~ become effective on the first calendar day of the first calendar quarter ~~that is~~ one year after ~~the date this standard is adopted by the NERC Board of Trustees'~~ ~~adoption~~Trustees or as otherwise provided for in that jurisdiction.

Version History

Version	Date	Action	Change Tracking
0	April 1, 2005	Effective Date	New
1		Added requirements for Generator Owner and brought overall standard format up to date.	Revision under Project 2010-07
1	February 9, 2012	Adopted by the Board of Trustees	
1	September 19, 2013	A FERC order was issued on September 19, 2013, approving FAC-001-1. This standard beco <u>a</u> mes enforceable on November 25, 2013 for Transmission Owners. For Generator Owners, the standard becomes enforceable on January 1, 2015.	
<u>2</u>		<u>Revisions to implement the recommendations of the FAC Five-Year Review Team.</u>	<u>Revision under Project 2010-02</u>

Definitions of Terms Used in Standard

This section includes all newly defined or revised terms used in the proposed standard. Terms already defined in the Reliability Standards Glossary of Terms are not repeated here. New or revised definitions listed below become approved when the proposed standard is approved. When the standard becomes effective, these defined terms will be removed from the individual standard and added to the Glossary.

~~Term: definition~~None.

When this standard has received ballot approval, the text boxes will be moved to the Application Guidelines Section of the Standard.

A. Introduction

1. **Title:** Facility ~~C~~Interconnection Requirements
2. **Number:** FAC-001-12
3. **Purpose:** To avoid adverse impacts on the reliability of the Bulk Electric System, Transmission Owners and applicable Generator Owners must establish document and make Facility connection and performance interconnection requirements. available so that entities seeking to interconnect will have the necessary information.
4. **Applicability:**
 - 4.1. **Functional Entities:**
 - 4.1.1 Transmission Owner
 - 4.1.2 Applicable Generator Owner
 - 4.1.2.1 Generator Owner with an a fully executed Agreement to evaluate conduct a study on the reliability impact of interconnecting a third party Facility to the Generator Owner's existing Facility that is used to interconnect to the interconnected-Transmission systems.

~~5. Background:~~

Text

B. Requirements and Measures

~~R1. The Transmission Owner shall document, maintain, and publish Facility connection requirements to ensure compliance with NERC Reliability Standards and applicable Regional Entity, subregional, Power Pool, and individual Transmission Owner planning criteria and Facility connection requirements. The Transmission Owner's Facility connection requirements shall address connection requirements for: [Violation Risk Factor: Medium] [Time Horizon:]~~

Rationale for R1:

- ~~1.1. Generation Facilities,~~
- ~~1.2. Transmission Facilities,~~
- ~~1.3. End-user Facilities~~

~~M1. The Transmission Owner shall make available (to its Compliance Enforcement Authority) evidence that it met all the requirements stated in Requirement R1.~~

~~5.1.1.14.1.2.2~~ Each applicable Generator Owner shall, within 45 days of having an executed Agreement to evaluate the reliability impact of interconnecting a third party Facility to the Generator Owner's existing Facility that is used to interconnect to the interconnected Transmission systems (under FAC-002-1), document and publish its Facility connection requirements to ensure compliance with NERC Reliability Standards and applicable Regional Entity, subregional, Power Pool, and individual Transmission Owner planning criteria and Facility connection requirements. *[Violation Risk Factor: Medium] [Time Horizon:]*

Rationale for R2:

~~5.~~ Text Each Generator Owner that has an executed Agreement to evaluate **Background:**

B. Requirements and Measures

R1. Each Transmission Owner shall document Facility interconnection requirements, update them as needed, and make them available upon request. Each Transmission Owner's Facility interconnection requirements shall address interconnection requirements for: *[Violation Risk Factor: Lower] [Time Horizon: Long-term Planning]*

1.1. generation Facilities;

1.2. transmission Facilities; and

1.3. end-user Facilities.

M1. Each Transmission Owner shall have evidence (such as dated, documented Facility interconnection requirements) that it met all requirements in Requirement R1.

R2. Each applicable Generator Owner shall document Facility interconnection requirements and make them available upon request within 45 calendar days of full execution of an Agreement to conduct a study on the reliability impact of interconnecting a third party Facility to the Generator Owner's existing Facility that is used to interconnect to the ~~interconnected Transmission systems shall make available~~ (to its Compliance Enforcement Authority) evidence that it met all requirements stated in Requirement R2. Transmission system. *[Violation Risk Factor: Lower] [Time Horizon: Long-term Planning]*

~~M2.~~ Each ~~Transmission Owner and each~~ applicable Generator Owner (~~in accordance with Requirement R2~~) shall have evidence (such as dated, documented Facility interconnection requirements) that it met all requirements in Requirement R2.

Rationale for R3:

R3. Each Transmission Owner shall address the following items in its Facility interconnection requirements: [*Violation Risk Factor: ~~Medium~~Lower*] [*Time Horizon: Long-Term Planning*]

~~3.1.~~ Provide a written summary of its plans to achieve the required system performance as described in Requirements R1 or R2 throughout the planning horizon:

~~3.1.1.~~ Procedures for coordinated joint studies of new Facilities and their impacts on the interconnected Transmission systems.

~~3.1.2.~~ Procedures for notification of new or or materially modified Facilities to others (those responsible for the reliability of the interconnected Transmission systems) as soon as feasible.

~~3.1.3.~~ Voltage level and MW and MVAR capacity or demand at point of connection.

~~3.1.4.~~ Breaker duty and surge protection.

~~3.1.5.~~ System protection and coordination.

~~3.1.6.~~ Metering and telecommunications.

~~3.1.7.~~ Grounding and safety issues.

~~3.1.8.~~ Insulation and insulation coordination.

~~3.1.9.~~ Voltage, Reactive Power, and power factor control.

~~3.1.10.~~ Power quality impacts.

~~3.1.11.~~ Equipment Ratings.

~~3.1.12.~~ Synchronizing of Facilities.

~~3.1.13.~~ Maintenance coordination.

~~3.1.14.~~ Operational issues (abnormal frequency and voltages).

~~3.2.3.1.~~ Inspection requirements for existing or new Facilities interconnections and their impacts on affected system(s).

~~3.2.1.~~ Communications and procedures during normal and emergency operating conditions.

3.2. Procedures for notifying those responsible for the reliability of affected system(s) of new or materially modified existing interconnections.

~~M2.~~ Each Transmission Owner ~~and each applicable Generator Owner (in accordance with Requirement R2)~~ shall make available (to its Compliance Enforcement Authority) evidence that it met all requirements stated in Requirement R3.

~~R4.~~ The Transmission Owner shall ~~maintain and update its~~ have evidence (such as dated, documented Facility interconnection requirements ~~as required.~~ The Transmission Owner shall make documentation of these requirements available to the users of the transmission system, the Regional Entity, and ERO on request (five business days). *[Violation Risk Factor: Medium] [Time Horizon:]*

Rationale for R4:

~~M3.~~ The Transmission Owner shall make available (to its Compliance Enforcement Authority) evidence addressing the procedures that it met all ~~the~~ requirements in Requirement R3.

R4. Each applicable Generator Owner shall address the following items in its Facility interconnection requirements ~~stated:~~ *[Violation Risk Factor: Lower] [Time Horizon: Long-Term Planning]*

4.1. Procedures for coordinated studies of new interconnections and their impacts on affected system(s).

4.2. Procedures for notifying those responsible for the reliability of affected system(s) of new interconnections.

~~M3;~~M4. Each applicable Generator Owner shall have evidence (such as dated, documented Facility interconnection requirements addressing the procedures) that it met all requirements in Requirement R4.

C. Compliance

1. Compliance Monitoring Process

1.1. Compliance Enforcement Authority

As defined in the NERC Rules of Procedure, “Compliance Enforcement Authority” (CEA) means NERC or the Regional Entity in their respective roles of monitoring and enforcing compliance with the NERC Reliability Standards.

1.2. Evidence Retention

The following evidence retention periods 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 CEA may ask an entity to provide other evidence to show that it was compliant for the full time period since the last audit.

The ~~Reliability Coordinator and~~ Transmission ~~Operator~~ Owner and applicable Generator Owner shall keep data or evidence to show compliance as identified below unless directed by its CEA to retain specific evidence for a longer period of time as part of an investigation:

The responsible entities shall retain documentation as evidence for three years.

If a responsible entity is found non-compliant, it shall keep information related to the non-compliance until mitigation is complete and approved or for the time specified above, whichever is longer.

The CEA shall keep the last audit records and all requested and submitted subsequent audit records.

1.3. Compliance Monitoring and Assessment Processes:

Compliance Audit

Self-Certification

Spot Check

Compliance Investigation

Self-Reporting

Complaint

1.4. Additional Compliance Information

None

Table of Compliance Elements

R #	Time Horizon	VRF	Violation Severity Levels			
			Lower VSL	Moderate VSL	High VSL	Severe VSL
R1	<u>Long-term Planning</u>	Medium <u>Lower</u>	Not Applicable. <u>N/A</u>	<p>The Transmission Owner failed to do one of the following:</p> <p>Document or maintain or publish<u>documented</u> Facility interconnection requirements as specified in the Requirement and updated them as needed, but failed to make them available upon request.</p> <p>OR</p> <p>Failed<u>The Transmission Owner documented</u> Facility interconnection requirements and made them available upon request, but failed<u>to include</u> update them as needed.</p>	<p>The Transmission Owner <u>documented</u> Facility interconnection requirements, but failed to do one<u>update</u> them as needed and <u>failed to make them available upon request.</u></p> <p>OR</p> <p><u>The Transmission Owner documented</u> Facility interconnection requirements, updated them as needed, and made them available upon request, but failed to address interconnection requirements for two of the following:</p> <p>Failed to include (2) of the<u>components</u> Facilities</p>	<p>The Transmission Owner did not develop<u>document</u> Facility interconnection requirements.</p>

				<p><u>OR</u></p> <p><u>The Transmission Owner documented Facility interconnection requirements, updated them as needed, and made them available upon request, but failed to address interconnection requirements for one (1) of the componentsFacilities as specified in R1, Parts 1.1, R1.2, or R1.3.</u></p>	<p>as specified in R1, Parts 1, R1.1, 1.2, or R1.3</p> <p><u>OR</u></p> <p>Failed to document or maintain or publish its Facility connection requirements as specified in the Requirement and failed to include one (1) of the components as specified in R1.1, R1.2 or R1.3.</p>	
R2	<u>Long-term Planning</u>	Medium <u>Lower</u>	<p>The <u>applicable</u> Generator Owner failed to document and publish Facility <u>interconnection requirements and make them available upon request</u> until more than 45 calendar days but less than or equal to 60 calendar days after <u>havingfull execution of</u> an Agreement to</p>	<p>The <u>applicable</u> Generator Owner failed to document and publish Facility <u>interconnection requirements and make them available upon request</u> until more than 60 calendar days but less than or equal to 70 calendar days after <u>havingfull execution of</u> an Agreement to <u>evaluateconduct a</u></p>	<p>The <u>applicable</u> Generator Owner failed to document and publish Facility <u>interconnection requirements and make them available upon request</u> until more than 70 calendar days but less than or equal to 80 calendar days after <u>havingfull execution of</u> an Agreement to <u>evaluateconduct a</u></p>	<p>The <u>applicable</u> Generator Owner failed to document and publish Facility <u>interconnection requirements and make them available upon request</u> until more than 80 <u>calendar days after havingfull execution of</u> an Agreement to <u>evaluateconduct a study on</u> the reliability impact of</p>

			evaluate conduct a <u>study on</u> the reliability impact of interconnecting a third party Facility to the Generator Owner's existing Facility that is used to interconnect to the interconnected Transmission systems.	<u>study on</u> the reliability impact of interconnecting a third party Facility to the Generator Owner's existing Facility that is used to interconnect to the interconnected Transmission systems.	<u>study on</u> the reliability impact of interconnecting a third party Facility to the Generator Owner's existing Facility that is used to interconnect to the interconnected Transmission systems.	interconnecting a third party Facility to the Generator Owner's existing Facility that is used to interconnect to the interconnected Transmission systems.
R3	<u>Long-term Planning</u>	Medium <u>Lower</u>	The responsible entity's Facility connection requirements failed to address one of the parts listed in Requirement R3, parts 3.1.1 through 3.1.16. <u>N/A</u>	The responsible entity's Facility connection requirements failed to address two of the parts listed in Requirement R3, parts 3.1.1 through 3.1.16. <u>N/A</u>	The responsible entity's <u>Transmission Owner</u> addressed either R3, Part 3.1 or Part 3.2 in its Facility interconnection requirements failed to , but did not address three of the parts listed in Requirement R3, parts 3.1.1 through 3.1.16 <u>both</u> .	The responsible entity's <u>Transmission Owner</u> addressed <u>neither</u> R3, Part 3.1 nor Part 3.2 in its Facility interconnection requirements failed to address four or more of the parts listed in Requirement R3, parts 3.1.1 through 3.1.16: :

<p>R4</p>	<p><u>Long-term Planning</u></p>	<p>Medium<u>Lower</u></p>	<p>The responsible entity made the requirements available more than five business days but less than or equal to 10 business days after a request.<u>N/A</u></p>	<p>The responsible entity made the requirements available more than 10 business days but less than or equal to 20 business days after a request.<u>N/A</u></p>	<p>The responsible entity made the requirements available more than 20 business days less than or equal to 30 business days after a request.<u>The applicable Generator Owner addressed either R4, Part 4.1 or Part 4.2 in its Facility interconnection requirements, but did not address both.</u></p>	<p>The responsible entity made the requirements available more than 30 business days after a request.<u>The applicable Generator Owner addressed neither R4, Part 4.1 nor Part 4.2 in its Facility interconnection requirements.</u></p>
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D. Regional Variances

None.

E. Interpretations

None.

F. Associated Documents

None.

Guidelines and Technical Basis

Requirement R1:

Requirement R2:

Entities should have documentation to support the technical rationale for determining whether an existing interconnection was “materially modified.” Recognizing that what constitutes a “material modification” will vary from entity to entity, the intent is for this determination to be based on engineering judgment.

Requirement R3:

Originally the Parts of R3, with the exception of the first two bullets, which were added by the Project 2010-02 drafting team, this list has been moved to the Guidelines and Technical Basis section to provide entities with the flexibility to determine the Facility interconnection requirements that are technically appropriate for their respective Facilities. Including them as Parts of R3 was deemed too prescriptive, as frequently some items in the list do not apply to all applicable entities – and some applicable entities will have requirements that are not included in this list.

Each Transmission Owner and applicable Generator Owner should consider the following items in the development of Facility interconnection requirements:

- Procedures for requesting a new Facility interconnection or material modification to an existing interconnection
- Data required to properly study the interconnection
- Voltage level and MW and MVAR capacity or demand at the point of interconnection
- Breaker duty and surge protection
- System protection and coordination
- Metering and telecommunications
- Grounding and safety issues
- Insulation and insulation coordination
- Voltage, Reactive Power (including specifications for minimum static and dynamic reactive power requirements), and power factor control

- Power quality impacts
- Equipment ratings
- Synchronizing of Facilities
- Maintenance coordination
- Operational issues (abnormal frequency and voltages)
- Inspection requirements for new or materially modified existing interconnections
- Communications and procedures during normal and emergency operating conditions