

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.

Description of Current Draft

This is the first draft of the proposed standard.

Completed Actions	Date
Standards Committee approved Standard Authorization Request (SAR) for posting	October 19, 2016
SAR posted for comment	October 20 - November 21, 2016
<u>45-day formal comment period with ballot</u>	<u>January 19 - March 6, 2017</u>

Anticipated Actions	Date
45-day formal comment period with ballot	May 2017
NERC Board (Board) adoption	August 2017

New or Modified Term(s) Used in NERC Reliability Standards

This section includes all new or modified terms used in the proposed standard that will be included in the *Glossary of Terms Used in NERC Reliability Standards* upon applicable regulatory approval. Terms used in the proposed standard that are already defined and are not being modified can be found in the *Glossary of Terms Used in NERC Reliability Standards*. The new or revised terms listed below will be presented for approval with the proposed standard. Upon Board adoption, this section will be removed.

Term(s): None

Upon Board adoption, the rationale boxes will be moved to the Supplemental Material Section.

A. Introduction

1. **Title:** Cyber Security - Supply Chain Risk Management
2. **Number:** CIP-013-1
3. **Purpose:** To mitigate cyber security risks to the reliable operation of the Bulk Electric System (BES) by implementing security controls for supply chain risk management of BES Cyber Systems.
4. **Applicability:**
 - 4.1. **Functional Entities:** For the purpose of the requirements contained herein, the following list of functional entities will be collectively referred to as “Responsible Entities.” For requirements in this standard where a specific functional entity or subset of functional entities are the applicable entity or entities, the functional entity or entities are specified explicitly.
 - 4.1.1. Balancing Authority
 - 4.1.2. Distribution Provider that owns one or more of the following Facilities, systems, and equipment for the protection or restoration of the BES:
 - 4.1.2.1. Each underfrequency Load shedding (UFLS) or undervoltage Load shedding (UVLS) system that:
 - 4.1.2.1.1. Is part of a Load shedding program that is subject to one or more requirements in a NERC or Regional Reliability Standard; and
 - 4.1.2.1.2. Performs automatic Load shedding under a common control system owned by the Responsible Entity, without human operator initiation, of 300 MW or more.
 - 4.1.2.2. Each Remedial Action Scheme (RAS) where the RAS is subject to one or more requirements in a NERC or Regional Reliability Standard.
 - 4.1.2.3. Each Protection System (excluding UFLS and UVLS) that applies to Transmission where the Protection System is subject to one or more requirements in a NERC or Regional Reliability Standard.
 - 4.1.3. Generator Operator
 - 4.1.4. Generator Owner
 - 4.1.5. Reliability Coordinator
 - 4.1.6. Transmission Operator
 - 4.1.7. Transmission Owner

4.2. Facilities: For the purpose of the requirements contained herein, the following Facilities, systems, and equipment owned by each Responsible Entity in 4.1 above are those to which these requirements are applicable. For requirements in this standard where a specific type of Facilities, system, or equipment or subset of Facilities, systems, and equipment are applicable, these are specified explicitly.

4.2.1. Distribution Provider: One or more of the following Facilities, systems and equipment owned by the Distribution Provider for the protection or restoration of the BES:

4.2.1.1. Each UFLS or UVLS System that:

4.2.1.1.1. Is part of a Load shedding program that is subject to one or more requirements in a NERC or Regional Reliability Standard; and

4.2.1.1.2. Performs automatic Load shedding under a common control system owned by the Responsible Entity, without human operator initiation, of 300 MW or more.

4.2.1.2. Each RAS where the RAS is subject to one or more requirements in a NERC or Regional Reliability Standard.

4.2.1.3. Each Protection System (excluding UFLS and UVLS) that applies to Transmission where the Protection System is subject to one or more requirements in a NERC or Regional Reliability Standard.

4.2.1.4. Each Cranking Path and group of Elements meeting the initial switching requirements from a Blackstart Resource up to and including the first interconnection point of the starting station service of the next generation unit(s) to be started.

4.2.2. Responsible Entities listed in 4.1 other than Distribution Providers

4.2.2.1. All BES Facilities.

4.2.3. Exemptions: The following are exempt from Standard CIP-013-1:

4.2.3.1. Cyber Assets at Facilities regulated by the Canadian Nuclear Safety Commission.

4.2.3.2. Cyber Assets associated with communication networks and data communication links between discrete Electronic Security Perimeters (ESPs).

4.2.3.3. The systems, structures, and components that are regulated by the Nuclear Regulatory Commission under a cyber security plan pursuant to 10 C.F.R. Section 73.54.

4.2.3.4. For Distribution Providers, the systems and equipment that are not included in section 4.2.1 above.

4.2.3.5. Responsible Entities that identify that they have no BES Cyber Systems categorized as high impact or medium impact according to the identification and categorization process required by CIP-002-5, or any subsequent version of that Reliability Standard.

5. **Effective Date:** See Implementation Plan for Project 2016-03.

B. Requirements and Measures

Rationale for Requirement R1:

The proposed Requirement addresses Order No. 829 directives for entities to implement a plan(s) that includes processes for mitigating cyber security risks in the supply chain. The plan(s) is required to address the following four objectives (Order No. 829 at P. 45):

- (1) Software integrity and authenticity;
- (2) Vendor remote access;
- (3) Information system planning; and
- (4) Vendor risk management and procurement controls.

The cyber security risk management plan(s) specified in Requirement R1 apply to high and medium impact BES Cyber Systems.

Implementation of the cyber security risk management plan(s) does not require the Responsible Entity to renegotiate or abrogate existing contracts (including amendments to master agreements and purchase orders), consistent with Order No. 829 (P. 36).

Requirement R1 Part 1.1 addresses the directive in Order No. 829 for identification and documentation of cyber security risks in the planning and development processes related to the procurement of BES Cyber Systems (P. 56). The security objective is to ensure entities consider cyber security risks to the BES from vendor products or services resulting from: (i) procuring and installing vendor equipment and software; and (ii) transitions from one vendor(s) to another vendor(s); and options for mitigating these risks when planning for BES Cyber Systems.

Requirement R1 Part 1.2 addresses the directive in Order No. 829 for procurement controls to address the provision and verification of security concepts in future contracts for BES Cyber Systems (P. 59). The objective of Part 1.2 is for entities to include these topics in their plans so that procurement and contract negotiation processes address the applicable risks. Implementation of elements contained in the entity's plan related to Part 1.2 may be accomplished through the entity's procurement and contract negotiation

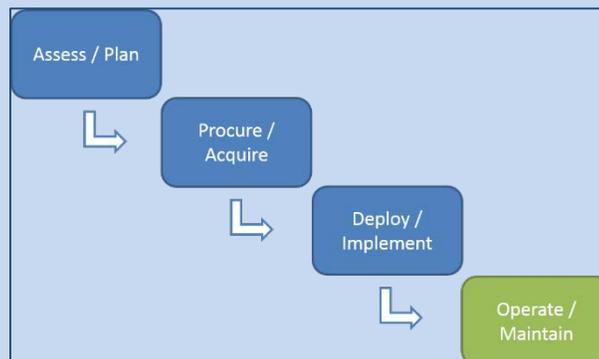
processes. For example, entities can implement the plan by including applicable procurement items from their plan in Requests for Proposals (RFPs) and in negotiations with vendors. Obtaining specific controls in the negotiated contract may not be feasible and is not considered failure to implement an entity's plan. Although the expectation is that Responsible Entities would enforce the security-related provisions in the contract based on the terms and conditions of that contract, such contract enforcement and vendor performance or adherence to the negotiated contract is not subject to this Reliability Standard.

The objective of verifying software integrity and authenticity (Part 1.2.5) is to help ensure that software installed on BES Cyber Systems is not modified prior to installation without the awareness of the software supplier and is not counterfeit. Part 1.2.5 is not an operational requirement for entities to perform such verification; instead, it requires entities to address the software integrity and authenticity issue in its contracting process to provide the entity the means by which to perform such verification under CIP-010-3.

The term *vendor(s)* as used in the standard is limited to those persons, companies, or other organizations with whom the Responsible Entity, or its affiliates, contract with to supply BES Cyber Systems and related services. It does not include other NERC registered entities providing reliability services (e.g., Balancing Authority or Reliability Coordinator services pursuant to NERC Reliability Standards). A *vendor*, as used in the standard, may include: (i) developers or manufacturers of information systems, system components, or information system services; (ii) product resellers; or (iii) system integrators.

Collectively, the provisions of CIP-013-1 address an entity's controls for managing cyber security risks to BES Cyber Systems during the planning, acquisition, and deployment phases of the system life cycle, as shown below.

Notional BES Cyber System Life Cycle



R1. Each Responsible Entity shall ~~implement~~ develop one or more documented supply chain cyber security risk management plan(s) for high and medium impact BES Cyber Systems. ~~that address controls for mitigating cyber security risks to BES Cyber Systems and, if applicable, associated Electronic Access Control or Monitoring Systems, Physical Access Control Systems, and Protected Cyber Assets.~~ The plan(s) shall address ~~include~~:
[Violation Risk Factor: Medium] [Time Horizon: Operations Planning]

~~1.1. The use of controls in BES Cyber System planning and development to:~~

~~1.1.1. Identify and assess risk(s) during the procurement and deployment of vendor products and services; and~~

~~1.1.2. Evaluate methods to address identified risk(s).~~

1.1. One or more process(es) used in planning for the procurement of BES Cyber Systems to identify and assess cyber security risk(s) to the Bulk Electric System from vendor products or services resulting from: (i) procuring and installing vendor equipment and software; and (ii) transitions from one vendor(s) to another vendor(s).

~~1.2.~~

~~The use of controls in procuring vendor product(s) or service(s) that address the following items, to the extent each item applies to the Responsible Entity's BES Cyber Systems and, if applicable, associated Electronic Access Control or Monitoring Systems, Physical Access Control Systems, and Protected Cyber Assets:~~ ~~The use of~~

1.2. One or more process(es) used in procuring BES Cyber Systems that address the following, as applicable:

1.2.1. Process(es) for notification of vendor security events; Notification by the vendor of vendor-identified incidents related to the products or services provided to the Responsible Entity that pose cyber security risk to the Responsible Entity;

~~1.2.1.~~ 1.2.2. Coordination of responses to vendor-identified incidents related to the products or services provided to the Responsible Entity that pose cyber security risk to the Responsible Entity;

~~1.2.2.~~ 1.2.3. Process(es) for notification when vendor employee remote or onsite access should no longer be granted; Notification by vendors when remote or onsite access should no longer be granted to vendor representatives;

~~1.2.3.~~ 1.2.4. Process(es) for disclosure of known vulnerabilities; Disclosure by vendors of known vulnerabilities;

~~1.2.4. Coordination of response to vendor-related cyber security incidents;~~

1.2.5. Process(es) for verifying software integrity and authenticity of all software and patches that are intended for use; Verification of software

integrity and authenticity of all software and patches provided by the vendor for use in the BES Cyber System; and

~~1.2.6. Coordination of remote access controls for (i) vendor-initiated Interactive Remote Access and (ii) system-to-system remote access with a vendor(s); and Coordination of controls for (i) vendor-initiated Interactive Remote Access, and (ii) system-to-system remote access with a vendor(s).~~

~~1.2.6.1.2.7.~~

~~Other process(es) to address risk(s) as determined in Part 1.1.2, if applicable.~~

M1. Evidence shall include ~~(i) one or more documented supply chain cyber security risk management plan(s) that address controls for mitigating cyber security risks as specified in the Requirement; and (ii) documentation to demonstrate implementation of the supply chain cyber security risk management plan(s), which could include, but is not limited to, written agreements in electronic or hard copy format, correspondence, policy documents, or working documents that demonstrate implementation of the cyber security risk management plan(s).~~

R2. Each Responsible Entity shall implement its supply chain cyber security risk management plan(s) specified in Requirement R1 [Violation Risk Factor: Medium] [Time Horizon: Operations Planning].

Note: Implementation of the plan does not require the Responsible Entity to renegotiate or abrogate existing contracts (including amendments to master agreements and purchase orders). Additionally, the following issues are beyond the scope of Requirement R2: (1) the actual terms and conditions of a procurement contract; and (2) vendor performance and adherence to a contract.

M1-M2. Evidence shall include documentation to demonstrate implementation of the supply chain cyber security risk management plan(s), which could include, but is not limited to, correspondence, policy documents, or working documents that demonstrate use of the supply chain cyber security risk management plan.

Rationale for Requirement ~~R2~~R3:

The proposed requirement addresses Order No. 829 directives for entities to periodically reassess selected supply chain cyber security risk management controls (P. 46).

~~Order No. 829 also directs that the pEntities perform periodic assessment "ensure that the required to keep plans remains up-to-date and, addressing current and emerging supply chain-related concerns and vulnerabilities." (P. 47).~~ Examples of sources of information that the entity could considers include guidance or information issued by:

- NERC or the E-ISAC
- ICS-CERT
- Canadian Cyber Incident Response Centre (CCIRC)

~~R2-R3.~~ Each Responsible Entity shall review and obtain CIP Senior Manager or delegate approval ~~update, as necessary, of~~ its supply chain cyber security risk management plan(s) specified in Requirement R1 at least once every 15 calendar months, ~~which shall include:~~ *[Violation Risk Factor: Medium] [Time Horizon: Operations Planning]*

~~2.1.~~ Evaluation of revisions, if any, to address applicable new supply chain security risks and mitigation measures; and

~~2.2.~~ Obtaining CIP Senior Manager or delegate approval.

~~M2-M3.~~ Evidence shall include the dated supply chain cyber security risk management plan(s) approved by the CIP Senior Manager or delegate(s) and additional evidence to demonstrate review of the supply chain cyber security risk management plan(s) ~~and evaluation of revisions), if any, to address applicable new supply chain security risks and mitigation measures as specified in the Requirement.~~ Evidence may include, but is not limited to, policy documents, revision history, records of review, or workflow evidence from a document management system that indicate review of supply chain risk management plan(s) at least once every 15 calendar months; and documented approval by the CIP Senior Manager or delegate.

~~R3.~~ Each Responsible Entity shall implement one or more documented process(es) for verifying the integrity and authenticity of the following software and firmware before being placed in operation on high and medium impact BES Cyber Systems: *[Violation Risk Factor: Medium] [Time Horizon: Operations Planning]*

~~3.1.~~ Operating System(s);

~~3.2.~~ Firmware;

~~3.3.~~ Commercially available or open source application software; and

~~3.4.~~ Patches, updates, and upgrades to 3.1 through 3.3.

~~M3.~~ Evidence shall include (i) a documented process(es) for verifying the integrity and authenticity of software and firmware before being placed in operation on high and medium impact BES Cyber Systems as specified in the Requirement; and (ii) evidence to show that the process was implemented. This evidence may include, but is not limited to, documentation that the entity performed the actions contained in the process to verify the integrity and authenticity of software and firmware and any patches, updates, and upgrades to software and firmware prior to installation on high and medium impact BES Cyber Systems.

~~R4.~~ Each Responsible Entity shall implement one or more documented process(es) for controlling vendor remote access to high and medium impact BES Cyber Systems. The process(es) shall provide the following for (i) vendor initiated Interactive Remote Access and (ii) system to system remote access with a vendor(s): *[Violation Risk Factor: Medium] [Time Horizon: Operations Planning]*

~~4.1.~~ Authorization of remote access by the Responsible Entity;

~~4.2.~~ Logging and monitoring of remote access sessions to detect unauthorized activity; and

~~4.3.~~ Disabling or otherwise responding to unauthorized activity during remote access sessions.

~~M4.~~ Evidence shall include (i) a documented process(es) for controlling vendor remote access as specified in the Requirement; and (ii) evidence to show that the process was implemented. This evidence may include, but is not limited to, documentation of authorization of vendor remote access; hard copy or electronic logs of vendor-initiated Interactive Remote Access and system to system remote access sessions; hard copy or electronic listing of alert capabilities applicable to vendor remote access of the BES Cyber System; or records of response to unauthorized vendor remote access.

~~R5.~~ Each Responsible Entity with at least one asset identified in CIP-002 containing low impact BES Cyber Systems shall have one or more documented cyber security policies, which shall be reviewed and approved by the CIP Senior Manager or delegate at least once every 15 calendar months, that address the following topics for its low impact BES Cyber Systems: *[Violation Risk Factor: Lower] [Time Horizon: Operations Planning]*

~~5.1.~~ Integrity and authenticity of software and firmware and any patches, updates, and upgrades to software and firmware; and

~~5.2.~~ Controlling vendor initiated remote access, including system to system remote access with vendor(s).

~~M5.~~ Evidence may include, but is not limited to, policy documents; revision history, records of review, or workflow evidence from a document management system that indicate review of each cyber security policy at least once every 15 calendar months; and documented approval by the CIP Senior Manager or delegate for each cyber security policy.

C. Compliance

1. Compliance Monitoring Process

1.1. Compliance Enforcement Authority:

“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.

1.2. Evidence Retention:

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 Responsible Entity shall keep data or evidence to show compliance as identified below unless directed by its Compliance Enforcement Authority to retain specific evidence for a longer period of time as part of an investigation.

- Each Responsible Entity shall retain evidence of each requirement in this standard for three calendar 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 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

R #	Violation Severity Levels			
	Lower VSL	Moderate VSL	High VSL	Severe VSL
R1.	<p><u>The Responsible Entity developed one or more documented supply chain cyber security risk management plan(s) which include the use of processes in planning for procurement of BES Cyber Systems to identify and assess cyber security risk(s) to the BES as specified in Part 1.1, and include the use of process(es) for procuring BES Cyber systems as specified in Part 1.2, but the plans do not include one of the elements in Part 1.2.1 through Part 1.2.6.N/A</u></p>	<p><u>The Responsible Entity developed one or more documented supply chain cyber security risk management plan(s) which include the use of processes in planning for procurement of BES Cyber Systems to identify and assess cyber security risk(s) to the BES as specified in Part 1.1, and include the use of process(es) for procuring BES Cyber systems as specified in Part 1.2, but the plans do not include two or more of the elements in Part 1.2.1 through Part 1.2.6.N/A</u></p>	<p><u>The Responsible Entity developed one or more documented supply chain cyber security risk management plan(s), but the plan(s) did not include the use of processes in planning for procurement of BES Cyber Systems to identify and assess cyber security risk(s) to the BES as specified in Part 1.1, or the plan(s) did not include the use of process(es) for procuring BES Cyber systems as specified in Part 1.2.</u></p>	<p><u>The Responsible Entity developed one or more documented supply chain cyber security risk management plan(s), but the plan(s) did not include the use of processes in planning for procurement of BES Cyber Systems to identify and assess cyber security risk(s) to the BES as specified in Part 1.1, and the plan(s) did not include the use of process(es) for procuring BES Cyber systems as specified in Part 1.2.</u></p> <p>OR</p> <p><u>The Responsible Entity did not develop The Responsible Entity did not implement one or more documented supply chain cyber security risk management plan(s) as specified in the Requirement.</u></p>

<p>R2.</p>	<p><u>N/A</u> The Responsible Entity reviewed and updated, as necessary, its supply chain cyber security risk management plan(s) and obtained CIP Senior Manager or delegate approval but did so more than 15 calendar months but less than or equal to 16 calendar months since the previous review as specified in the Requirement.</p>	<p><u>N/A</u> The Responsible Entity reviewed and updated, as necessary, its supply chain cyber security risk management plan(s) and obtained CIP Senior Manager or delegate approval but did so more than 16 calendar months but less than or equal to 17 calendar months since the previous review as specified in the Requirement.</p>	<p><u>N/A</u> The Responsible Entity reviewed and updated, as necessary, its supply chain cyber security risk management plan(s) and obtained CIP Senior Manager or delegate approval but did so more than 17 calendar months but less than or equal to 18 calendar months since the previous review as specified in the Requirement.</p>	<p>The Responsible Entity did not implement its supply chain cyber security risk management plan(s) as specified in the requirement. The Responsible Entity did not review and update, as necessary, its supply chain cyber security risk management plan(s) and obtain CIP Senior Manager or delegate approval within 18 calendar months of the previous review as specified in the Requirement.</p>
<p>R3.</p>	<p>The Responsible Entity reviewed and obtained CIP Senior Manager or delegate approval of its supply chain cyber security risk management plan(s) but did so more than 15 calendar months but less than or equal to 16 calendar months since the previous review as specified in the Requirement. <u>N/A</u></p>	<p>The Responsible Entity reviewed and obtained CIP Senior Manager or delegate approval of its supply chain cyber security risk management plan(s) but did so more than 16 calendar months but less than or equal to 17 calendar months since the previous review as specified in the Requirement. <u>N/A</u></p>	<p>The Responsible Entity reviewed and obtained CIP Senior Manager or delegate approval of its supply chain cyber security risk management plan(s) but did so more than 17 calendar months but less than or equal to 18 calendar months since the previous review as specified in the Requirement. <u>N/A</u></p>	<p>The Responsible Entity did not review and obtain CIP Senior Manager or delegate approval of its supply chain cyber security risk management plan(s) within 18 calendar months of the previous review as specified in the Requirement. The Responsible Entity did not implement one or more documented process(es) for verifying the integrity and authenticity of software and</p>

				firmware before being placed in operation on high and medium impact BES Cyber Systems as specified in the Requirement.
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D. Regional Variances

None.

E. Associated Documents

Link to the Implementation Plan and other important associated documents.

Version History

Version	Date	Action	Change Tracking
1	TBD	Respond to FERC Order No. 829.	NA

Standard Attachments

None

Guidelines and Technical Basis

Rationale

During development of this standard, text boxes were embedded within the standard to explain the rationale for various parts of the standard. Upon BOT adoption, the text from the rationale text boxes was moved to this section.