
**UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION**

**North American Electric Reliability
Corporation**))

Docket No. _____

**PETITION OF THE
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION
FOR APPROVAL OF PROPOSED RELIABILITY STANDARD CIP-003-7**

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Pursuant to Section 215(d)(1) of the Federal Power Act (“FPA”),¹ Section 39.5 of the regulations of the Federal Energy Regulatory Commission (“FERC” or “Commission”),² and Order No. 822,³ the North American Electric Reliability Corporation (“NERC”)⁴ hereby submits for Commission approval proposed Reliability Standard CIP-003-7 – Cyber Security – Security Management Controls. The modifications in the proposed Reliability Standard address Commission directives from Order No. 822 regarding: (1) electronic access control requirements for low impact BES Cyber Systems; and (2) protection for transient electronic devices (e.g., thumb drives, laptop computers, and other portable devices frequently connected and disconnected from systems) used for low impact BES Cyber Systems.⁵ NERC requests that the Commission approve proposed Reliability Standard CIP-003-7, provided in Exhibit A hereto, as just, reasonable, not unduly discriminatory, or preferential, and in the public interest.

¹ 16 U.S.C. § 824o (2012).

² 18 C.F.R. § 39.5 (2016).

³ Order No. 822, *Revised Critical Infrastructure Protection Reliability Standards*, 154 FERC ¶ 61,037, 81 Fed. Reg. 4177 (2016).

⁴ The Commission certified NERC as the electric reliability organization (“ERO”) in accordance with Section 215 of the FPA on July 20, 2006. *N. Am. Elec. Reliability Corp.*, 116 FERC ¶ 61,062 (2006).

⁵ Order No. 822 at PP 32, 73. Unless otherwise designated, all capitalized terms used herein shall have the meaning set forth in the *Glossary of Terms Used in NERC Reliability Standards* (“NERC Glossary”), available at http://www.nerc.com/files/Glossary_of_Terms.pdf.

NERC also requests approval of:

- revised definitions to be incorporated into the NERC Glossary for the following terms: (1) Removable Media; and (2) Transient Cyber Asset (Exhibit B);
- the associated Implementation Plan (Exhibit C);
- the associated Violation Risk Factors (“VRFs”) and Violation Severity Levels (“VSLs”) (Exhibit F); and
- the retirement of Commission-approved Reliability Standard CIP-003-6 and the NERC Glossary definitions of Low Impact External Routable Connectivity (“LERC”) and Low Impact BES Cyber System Electronic Access Point (“LEAP”).

As required by Section 39.5(a) of the Commission’s regulations,⁶ this Petition presents the technical basis and purpose of the proposed Reliability Standard, a summary of the development history (Exhibit G), and a demonstration that the proposed Reliability Standard meets the criteria identified by the Commission in Order No. 672⁷ (Exhibit D). The NERC Board of Trustees (“Board”) adopted proposed Reliability Standard CIP-003-7 on February 9, 2017.

I. EXECUTIVE SUMMARY

The purpose of NERC’s cybersecurity Critical Infrastructure Protection (“CIP”) Reliability Standards is to mitigate cybersecurity risks to Bulk Electric System (“BES”) Facilities, systems, and equipment, which, if destroyed, degraded, or otherwise rendered unavailable as a result of a cyber-attack would affect the reliable operation of the BES. The CIP Reliability Standards apply a risk-based construct, requiring Responsible Entities⁸ to identify and categorize BES Cyber Systems as high, medium, or low impact, and then protect those BES Cyber Systems

⁶ 18 C.F.R. § 39.5(a).

⁷ *Rules Concerning Certification of the Electric Reliability Organization; and Procedures for the Establishment, Approval, and Enforcement of Electric Reliability Standards*, Order No. 672, FERC Stats. & Regs. ¶ 31,204, at P 262, 321-37, *order on reh’g*, Order No. 672-A, FERC Stats. & Regs. ¶ 31,212 (2006).

⁸ As used in the CIP Reliability Standards, a Responsible Entity refers to the registered entity responsible for the implementation of and compliance with a particular requirement.

commensurate with the risks they present to the reliable operation of the BES.⁹ Reliability Standard CIP-003-6, which was approved in Order No. 822, contains all the requirements applicable to low impact BES Cyber Systems, covering the following four subject matter areas: (1) cyber security awareness; (2) physical security controls; (3) electronic access controls; and (4) Cyber Security Incident response.

The modifications in proposed Reliability Standard CIP-003-7 improve upon the existing protections applicable to low impact BES Cyber Systems, consistent with the Commission's directives in Order No. 822,¹⁰ by: (1) clarifying the electronic access control requirements applicable to low impact BES Cyber Systems; (2) adding requirements related to the protection of transient electronic devices used for low impact BES Cyber Systems; and (3) requiring Responsible Entities to have a documented cyber security policy related to declaring and responding to CIP Exceptional Circumstances for low impact BES Cyber Systems. The following is a brief overview of the modifications in the proposed Reliability Standard:

Electronic Access Controls for Low Impact BES Cyber Systems – To reduce risks associated with uncontrolled communications to low impact BES Cyber Systems, Commission-approved Reliability Standard CIP-003-6 requires Responsible Entities to implement electronic access controls to permit only necessary inbound and outbound access to low impact BES Cyber Systems for certain communications using routable protocol.¹¹ Specifically, Section 3.1 of Attachment 1 to CIP-003-6 provides that where there is Low Impact External Routable Connectivity (or LERC), Responsible Entities must “implement a [Low Impact BES Cyber System

⁹ Order No. 791, *Version 5 Critical Infrastructure Protection Reliability Standards*, 145 FERC ¶ 61,160, 78 Fed. Reg. 72,755 (2013), *order on clarification and reh'g*, Order No. 791-A, 146 FERC ¶ 61,188 (2014).

¹⁰ Order No. 822 at PP 32, 73.

¹¹ See CIP-003-6, Requirement R2, Attachment 1, Section 3. Under Section 3 of Attachment 1, Responsible Entities must also authenticate all Dial-up Connectivity that provides access to low impact BES Cyber System(s).

Electronic Access Point (or a LEAP)] to permit only necessary inbound and outbound bi-directional routable protocol access.”

The *NERC Glossary* term LERC defines the circumstances under which Responsible Entities must implement electronic access controls, or a LEAP, for low impact BES Cyber Systems.¹² As explained in the Guidelines and Technical Basis section appended to CIP-003-6 and NERC’s pleadings in Docket No. RM15-14-000, the LERC definition uses the term “direct” in the phrases “direct user-initiated interactive access” and “direct device-to-device connection” to distinguish between the scenarios where an external user or device could electronically access the low impact BES Cyber System without a security break (i.e., “direct” access) from those situations where an external user or device could only access the low impact BES Cyber System following a security break (i.e., “indirect” access).¹³ As further explained, under CIP-003-6, Responsible Entities are required to implement a LEAP only when there is “direct” electronic access as there are no existing defenses to control access. In contrast, if an external user or device could only access the low impact BES Cyber System indirectly, there is no requirement to implement a LEAP.¹⁴

Although the Commission approved CIP-003-6 and the LERC definition in Order No. 822, the Commission also directed NERC to modify the LERC definition to reflect the clarification provided in the Guidelines and Technical Basis section and NERC’s pleadings.¹⁵ The Commission expressed concern that absent such clarification, the use of the term “direct” in the LERC definition is ambiguous and could lead to complications in the implementation of the proposed CIP

¹² The *NERC Glossary* definition of LEAP is “a Cyber Asset interface that controls [LERC].”

¹³ *Comments of the North American Electric Reliability Corporation in Response to Notice of Proposed Rulemaking*, Docket No. RM15-14-000 at 28-31 (filed Sept. 21, 2015) (“NOPR Comments”).

¹⁴ *Id.*

¹⁵ Order No. 822 at PP 73-75.

Reliability Standards, hindering the adoption of effective security controls for low impact BES Cyber Systems.¹⁶

In response to the Commission's directive, NERC proposes to: (1) retire the *NERC Glossary* terms LERC and LEAP; and (2) modify Section 3 of Attachment 1 to CIP-003-7 to more clearly delineate the circumstances under which Responsible Entities must establish electronic access controls for low impact BES Cyber Systems. The proposed retirement of LERC and LEAP and modifications to Section 3 of Attachment 1 are designed to simplify the electronic access control requirements for low impact BES Cyber Systems to avoid the ambiguities associated with the term "direct" and help ensure that Responsible Entities implement the required security controls effectively.

As explained in greater detail in Section IV.A below, the language in proposed Reliability Standard CIP-003-7 incorporates the concepts from the definitions of LERC and LEAP but does not distinguish between direct and indirect electronic access. Specifically, proposed Section 3 of Attachment 1 to CIP-003-7 simply provides that the Responsible Entity must implement electronic access controls for any communications, whether direct or indirect, "between a low impact BES Cyber System and a Cyber Asset outside the asset containing low impact BES Cyber System" that use "a routable protocol when entering or leaving the asset containing the low impact BES Cyber System," unless that communication is "used for time-sensitive protection or control functions between intelligent electronic devices (e.g., communications using protocol IEC TR-61850-90-5 R-GOOSE)."

This simplified approach improves the clarity of the electronic access requirements by disentangling the type of communications requiring controls from controls that are already in place

¹⁶ Order No. 822 at PP 67, 73.

to address that communication. The existence of a complete security break is no longer used to determine whether electronic access controls are required; instead, the use of a complete security break is treated as another form of electronic access control that is intended to meet the security objective. The proposed modifications avoid overemphasis on identifying LERC and focuses Responsible Entities on the security objective of the requirement. Importantly, the proposed modifications to Section 3 of Attachment 1 and the retirement of LERC and LEAP do not alter the security objective of or the controls required by Section 3 of Attachment 1. As in Reliability Standard CIP-003-6, under proposed Reliability Standard CIP-003-7 entities are required to mitigate risks associated with routable communications by implementing controls to permit only necessary inbound and outbound electronic access to low impact BES Cyber Systems.

Protection of Transient Electronic Devices – As the Commission recognized in Order No. 791, transient electronic devices are potential vehicles for cyber-attacks absent appropriate controls.¹⁷ To that end, in Order No. 822, the Commission (1) approved revisions to Reliability Standard CIP-010-2 to include mandatory protections for transient electronic devices, referred to as Transient Cyber Assets and Removable Media, used at high and medium impact BES Cyber Systems and (2) directed NERC to include mandatory protections for transient electronic devices used for a low impact BES Cyber Systems to improve the defense-in-depth approach of the CIP Reliability Standards.¹⁸

In response to this directive, NERC proposes additional revisions in Attachment 1 to CIP-003-7 to require entities to take steps to mitigate the risk to the BES related to malware propagation through the use of transient electronic devices at low impact BES Cyber Systems. Specifically,

¹⁷ Order No. 791 at PP 134-135.

¹⁸ Order No. 822 at P 32.

Attachment 1 is expanded to include a fifth section requiring entities to implement a plan to protect transient electronic devices to “achieve the objective of mitigating the risk of the introduction of malicious code to low impact BES Cyber Systems.” The requirements in Section 5 of Attachment 1 are tailored to the risks posed by low impact BES Cyber systems and differentiate between Transient Cyber Assets and Removable Media and between Transient Cyber Assets managed by the Responsible Entity and Transient Cyber Assets managed by a party other than the Responsible Entity (e.g. vendors or contractors), as is the case in Reliability Standard CIP-010-2 for high and medium impact BES Cyber Systems. Additionally, NERC modified the definitions of Transient Cyber Asset and Removable Media to accommodate the use of the terms for all impact levels, as discussed below.

CIP Exceptional Circumstance Policy – NERC also proposes revisions in Requirement R1 of proposed Reliability Standard CIP-003-7 to require Responsible Entities to have a policy for declaring and responding to CIP Exceptional Circumstances related to low impact BES Cyber Systems, as is already required for high and medium impact BES Cyber Systems in CIP-003-6. As implementation of existing requirements applicable to low impact BES Cyber Systems is not subject to CIP Exceptional Circumstances, such a policy was not previously included in CIP-003-6 for low impact BES Cyber Systems. Because implementation of the proposed transient electronic device requirements applicable to low impact BES Cyber Systems in Section 5 of Attachment 1 to CIP-003-7 is subject to CIP Exceptional Circumstances, NERC proposes to require entities to have such a policy at this time.

For the reasons discussed herein, NERC respectfully requests that the Commission approve the proposed Reliability Standard as just, reasonable, not unduly discriminatory, or preferential, and in the public interest.

II. NOTICES AND COMMUNICATIONS

Notices and communications with respect to this filing may be addressed to the following:¹⁹

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III. BACKGROUND

A. Regulatory Framework

By enacting the Energy Policy Act of 2005,²⁰ Congress entrusted the Commission with the duties of approving and enforcing rules to ensure the reliability of the Nation's Bulk-Power System, and with the duty of certifying an ERO that would be charged with developing and enforcing mandatory Reliability Standards, subject to Commission approval. Section 215(b)(1) of the FPA states that all users, owners, and operators of the Bulk-Power System in the United States will be subject to Commission-approved Reliability Standards.²¹ Section 215(d)(5) of the FPA authorizes the Commission to order the ERO to submit a new or modified Reliability Standard.²² Section 39.5(a) of the Commission's regulations requires the ERO to file for Commission approval

¹⁹ Persons to be included on the Commission's service list are identified by an asterisk. NERC respectfully requests a waiver of Rule 203 of the Commission's regulations, 18 C.F.R. § 385.203 (2013), to allow the inclusion of more than two persons on the service list in this proceeding.

²⁰ 16 U.S.C. § 824o.

²¹ *Id.* § 824(b)(1).

²² *Id.* § 824o(d)(5).

each Reliability Standard that the ERO proposes should become mandatory and enforceable in the United States, and each modification to a Reliability Standard that the ERO proposes to make effective.²³

The Commission has the regulatory responsibility to approve Reliability Standards that protect the reliability of the Bulk-Power System and to ensure that such Reliability Standards are just, reasonable, not unduly discriminatory, or preferential, and in the public interest. Pursuant to Section 215(d)(2) of the FPA and Section 39.5(c) of the Commission's regulations, the Commission will give due weight to the technical expertise of the ERO with respect to the content of a Reliability Standard.²⁴

B. NERC Reliability Standards Development Procedure

The proposed Reliability Standards were developed in an open and fair manner and in accordance with the Commission-approved Reliability Standard development process.²⁵ NERC develops Reliability Standards in accordance with Section 300 (Reliability Standards Development) of its Rules of Procedure and the NERC Standard Processes Manual.²⁶ In its ERO Certification Order, the Commission found that NERC's proposed rules provide for reasonable notice and opportunity for public comment, due process, openness, and a balance of interests in developing Reliability Standards and thus satisfies certain of the criteria for approving Reliability Standards. The development process is open to any person or entity with a legitimate interest in

²³ 18 C.F.R. § 39.5(a).

²⁴ 16 U.S.C. § 824o(d)(2); 18 C.F.R. § 39.5(c)(1).

²⁵ *Rules Concerning Certification of the Electric Reliability Organization; and Procedures for the Establishment, Approval, and Enforcement of Electric Reliability Standards*, Order No. 672 at P 334, FERC Stats. & Regs. ¶ 31,204, *order on reh'g*, Order No. 672-A, FERC Stats. & Regs. ¶ 31,212 (2006).

²⁶ The NERC Rules of Procedure are available at <http://www.nerc.com/AboutNERC/Pages/Rules-of-Procedure.aspx>. The NERC Standard Processes Manual is available at http://www.nerc.com/comm/SC/Documents/Appendix_3A_StandardsProcessesManual.pdf.

the reliability of the Bulk-Power System. NERC considers the comments of all stakeholders. Further, a vote of stakeholders and adoption by the NERC Board is required before NERC submits the Reliability Standard to the Commission for approval.

C. Order No. 822 Directives

In Order No. 822, the Commission approved revisions to seven CIP Reliability Standards to help improve the base-line cybersecurity posture of Responsible Entities. Among other things, the approved revisions, filed in response to Order No. 791, included (1) enhanced security controls for low impact BES Cyber Systems related to cyber security awareness, physical security, electronic access control, and Cyber Security Incident response; and (2) mandatory protections for Transient Cyber Assets and Removable Media used for high and medium impact BES Cyber Systems.

Pursuant to FPA Section 215(d)(5), in Order No. 822, the Commission also directed NERC to develop the following modifications to improve the CIP Reliability Standards, among other things:

- Clarify the electronic access control requirements for low impact BES Cyber Systems by modifying the *NERC Glossary* definition for LERC to reflect the commentary in the Guidelines and Technical Basis section of CIP-003-6 and eliminate ambiguity surrounding the term “direct” as it is used in the LERC definition.²⁷
- Develop modifications to address the protection of transient electronic devices used at low impact BES Cyber Systems.²⁸
- Develop modifications to protect communication links and sensitive BES data communicated between Control Centers.²⁹

²⁷ Order No. 822 at P 73.

²⁸ *Id.* at P 32.

²⁹ *Id.* at P 53.

NERC was directed to file the modification related to LERC within one year of the effective date of Order No. 822, which is March 31, 2017. No deadline was set for filing modifications to address the other directives. This Petition addresses modifications associated with the LERC and transient electronic device directives. NERC is currently developing modifications to the CIP Reliability Standards to address the directive related to communication links and sensitive BES data. Additional information on the LERC and transient electronic device directives is set forth below.

1. LERC Directive

As noted above, Commission-approved Reliability Standard CIP-003-6 requires Responsible Entities to implement electronic access controls to permit only necessary inbound and outbound access to low impact BES Cyber Systems for certain communications using routable protocol. Specifically, Section 3 of Attachment 1 to CIP-003-6 provides, in relevant part:

Section 3. Electronic Access Controls: Each Responsible Entity shall:

3.1 For LERC, if any, implement a LEAP to permit only necessary inbound and outbound bi-directional routable protocol access; and

The purpose of the LERC definition is to delineate the circumstances under which Responsible Entities are required to establish electronic access controls for low impact BES Cyber Systems that have bi-directional routable protocol communication with devices external to the asset containing the low impact BES Cyber Systems. LERC is defined in the *NERC Glossary* as follows:

Direct user-initiated interactive access or a direct device-to-device connection to a low impact BES Cyber System(s) from a Cyber Asset outside the asset containing those low impact BES Cyber System(s) via a bidirectional routable protocol connection. Point-to-point communications between intelligent electronic devices that use routable communication protocols for time-sensitive protection or control functions between Transmission station or substation assets containing low impact BES Cyber Systems are excluded from this definition (examples of this

communication include, but are not limited to, IEC 61850 GOOSE or vendor proprietary protocols).

In the Commission's Notice of Proposed Rulemaking ("NOPR") in Docket No. RM15-14-000, the Commission requested comment on the clarity of the proposed LERC definition.³⁰ Specifically, the Commission sought comment on: (1) the purpose of the meaning of the term "direct" in relation to the phrases "direct user-initiated interactive access" and "direct device-to-device connection" within the proposed definition; and (2) the implementation of the "layer 7 application layer break" contained in certain reference diagrams in the Guidelines and Technical Basis section of Reliability Standard CIP-003-6.³¹

In its NOPR Comments, NERC explained that the intent of the proposed LERC definition and Section 3 of Attachment 1 to CIP-003-6 was to require Responsible Entities to implement security controls (i.e., a LEAP) where no such controls or other barriers to electronic access would otherwise exist. As discussed in the Guidelines and Technical Basis section, the purpose of using the term "direct" in the LERC definition was to distinguish between the scenarios where an external user or device could electronically access the low impact BES Cyber System without a security break (i.e., "direct" access) from those situations where an external user or device could only access the low impact BES Cyber System following a security break (i.e., "indirect" access).³² The standard drafting team for Reliability Standard CIP-003-6 then designed the electronic access requirements for low impact BES Cyber Systems such that if an external user or device could connect to the low impact BES Cyber System without a security break, then the entity should implement a LEAP to control communication into either the asset containing low impact BES

³⁰ *Revised Critical Infrastructure Protection Reliability Standards*, Notice of Proposed Rulemaking, 152 FERC ¶ 61,054, at PP 69-70, 80 Fed. Reg. 43,354 (2015).

³¹ NOPR at P 70.

³² NOPR Comments at 28-30.

Cyber System(s) or to the low impact BES Cyber System. In contrast, if an external user or device could access the low impact BES Cyber System only following a security break, such that there were existing defenses to prevent connecting to the low impact BES Cyber System, then there is no need to implement a LEAP. Under either scenario, the standard drafting team concluded there would be sufficient barriers to accessing low impact BES Cyber Systems.³³

NERC further explained, consistent with statements in the Guidelines and Technical Basis section, that LERC exists where communication from an external user or device flows through an intermediate Cyber Asset (e.g., an IP/Serial converter) and the intermediate Cyber Asset only does a “pass-through” of the communication (i.e., it does nothing more than extend the communication between the low impact BES Cyber System and the Cyber Asset external to the asset containing the low impact BES Cyber System). Only where the intermediate Cyber Asset provides a complete security break (i.e., prevents extending access to the low impact BES Cyber System from the external Cyber Asset) is there no LERC. In that scenario, NERC explained, there is no need to implement a LEAP as the security break provides sufficient protection commensurate to the risks presented by low impact BES Cyber Systems. The reference to the layer 7 application break in the Guidelines and Technical Basis section was used to demonstrate that if an entity implemented such a break to provide a complete security break, there would be no LERC.

In Order No. 822, the Commission concluded that it is necessary to modify the LERC definition to reflect the commentary in the Guidelines and Technical Basis section of CIP-003-6 so as to provide needed clarity to the definition and eliminate ambiguity surrounding the term

³³ For instance, if the external user or device could connect to a low impact BES Cyber System only after going through another Cyber Asset, the user or device would have to know about that intermediate Cyber Asset and then figure out how to access the low impact BES Cyber System from the intermediate Cyber Asset, which provides a similar barrier to access that a LEAP is intended to provide.

“direct” as it is used in the proposed definition.³⁴ The Commission fundamentally agreed with NERC that, as clarified in the Guidelines and Technical Basis section and NERC’s pleadings, the construct established in CIP-003-6 provided sufficient electronic access protections for low impact BES Cyber Systems.³⁵

2. Transient Electronic Device Directive

In Order No. 822, the Commission approved revisions to Reliability Standards CIP-010-2 to include mandatory protections for Transient Cyber Assets and Removable Media used for high and medium impact BES Cyber Systems. The Commission also directed NERC to include mandatory protections for transient electronic devices used for low impact BES Cyber Systems, concluding that it “will provide an important enhancement to the security posture of the BES by reinforcing the defense-in-depth nature of the CIP Reliability Standards at *all* impact levels.”³⁶ The Commission stated that “the modifications developed by NERC should be designed to effectively address the risks posed by transient electronic devices to Low Impact BES Cyber Systems in a manner that is consistent with the risk-based approach reflected in the CIP version 5 Standards.”³⁷ The Commission recognized that the protections for transient electronic devices used at low impact BES Cyber Systems “may be less stringent than the provisions that apply to medium and high impact BES Cyber Systems – commensurate with the risk.”³⁸

³⁴ Order No. 822 at P 73.

³⁵ Order No. 822 at P 75.

³⁶ *Id.* at P 32.

³⁷ *Id.* at P 32

³⁸ *Id.* at P 35.

D. Development of the Proposed Reliability Standards

As further described in Exhibit G hereto, following the issuance of Order No. 822, NERC initiated a standard development project, Project 2016-02 Modifications to CIP Standards (“Project 2016-02”), to address the directives from Order No. 822 as well as issues identified during implementation of the CIP Reliability Standards approved in Order No. 791.

Given the filing deadline associated with the LERC directive, NERC prioritized development of revisions to address that directive. On July 21, 2016, NERC posted the initial draft of proposed Reliability Standard CIP-003-7 addressing only the LERC directive for a 45-day comment period and ballot. The initial ballot did not receive the requisite stakeholder approval. After considering comments to the initial draft, NERC posted a second draft of CIP-003-7 for another 45-day comment period and ballot on October 21, 2016. The second draft received the requisite stakeholder approval with an affirmative vote of 85.56%. NERC conducted a final ballot of this draft, which received an affirmative vote of 87.95%.

During the development of the second draft of CIP-003-7, the standard drafting team also began to develop language in response to the transient electronic device directive. On November 1, 2016, NERC posted draft revisions to CIP-003-7 to also address the transient electronic device directive for a 17-day informal comment period. On December 12, 2016, after considering comments received on the informal posting, NERC posted a third draft of CIP-003-7 that included the modifications to address the LERC directive, which had already received the requisite stakeholder approval, as well as modifications to address the transient electronic device directive for a 45-day comment period and ballot.³⁹ This draft received the requisite stakeholder approval,

³⁹ During development, the third draft of CIP-003-7 was balloted as CIP-003-7(i). Romanette (i) was included in the version numbering to differentiate it from the earlier ballot of CIP-003-7 that only addressed the LERC directive.

with an affirmative vote of 81.30%. The final ballot for this draft of CIP-003-7, presented herein for Commission approval, received an affirmative stakeholder vote of 78.55%. The Board adopted proposed Reliability Standard CIP-003-7 on February 9, 2017.

IV. JUSTIFICATION FOR APPROVAL

As discussed below and in Exhibit C, the proposed Reliability Standard satisfies the Commission's criteria in Order No. 672 and is just, reasonable, not unduly discriminatory, or preferential, and in the public interest. The following section provides an explanation of the manner in which the proposed Reliability Standard addresses the Order No. 822 directives related to electronic access and transient electronic devices for low impact BES Cyber Systems.

A. Electronic Access Controls for Low Impact BES Cyber Systems

As noted above, in response to the Commission's directive to modify the LERC definition, NERC proposes to: (1) retire the *NERC Glossary* terms LERC and LEAP; and (2) modify Section 3 of Attachment 1 to Reliability Standard CIP-003-7 to more clearly delineate the circumstances under which Responsible Entities must establish electronic access controls for low impact BES Cyber Systems. The proposed retirement of LERC and LEAP and modifications to Section 3 of Attachment 1 are designed to simplify the electronic access control requirements for low impact BES Cyber Systems to avoid the ambiguities associated with the term "direct" and help ensure that Responsible Entities implement the required security controls effectively. NERC recognized that distinguishing between "direct" and "indirect" electronic access within the LERC definition added a layer of unnecessary complexity to identifying the circumstances under which entities must establish electronic access protection.

As discussed below, proposed Reliability Standard CIP-003-7 presents a straightforward approach, requiring Responsible Entities to implement electronic access controls for any communication, whether direct or indirect, between a low impact BES Cyber System and a Cyber

Asset outside the asset containing low impact BES Cyber System that use a routable protocol when entering or leaving the asset containing the low impact BES Cyber System. The proposed modifications to Section 3 of Attachment 1 improve the clarity of the electronic access requirements by untangling the type of communications requiring electronic access controls from whether controls are already in place to address that communication. The existence of a complete security break (i.e., indirect access) is simply treated as another form of electronic access control that is intended to meet the security objective. The proposed approach avoids overemphasis on identifying LERC and focuses Responsible Entities on the security objective of controlling electronic access to permit only necessary inbound and outbound electronic access to low impact BES Cyber Systems.

Proposed Section 3 of Attachment 1 to CIP-003-7 provides as follows:

Section 3. Electronic Access Controls: For each asset containing low impact BES Cyber System(s) identified pursuant to CIP-002, the Responsible Entity shall implement electronic access controls to:

- 3.1** Permit only necessary inbound and outbound electronic access as determined by the Responsible Entity for any communications that are:
 - i. between a low impact BES Cyber System(s) and a Cyber Asset(s) outside the asset containing low impact BES Cyber System(s);
 - ii. using a routable protocol when entering or leaving the asset containing the low impact BES Cyber System(s); and
 - iii. not used for time-sensitive protection or control functions between intelligent electronic devices (e.g., communications using protocol IEC TR-61850-90-5 R-GOOSE).
- 3.2** Authenticate all Dial-up Connectivity, if any, that provides access to low impact BES Cyber System(s), per Cyber Asset capability.

The following is a discussion of each of the basic elements in Section 3 of Attachment 1 and the manner in which the proposed modifications improve the Reliability Standard. As NERC is not proposing any substantive modifications to Section 3.2 of Attachment 1 regarding Dial-up

connectivity, the following discussion focuses on the modifications related to Section 3.1. As discussed below, there are three basic elements to Section 3.1: (1) identifying routable protocol communications from outside the asset containing the low impact BES Cyber System; (2) determining necessary inbound and outbound electronic access; and (3) implementing electronic access controls to permit only necessary inbound and outbound electronic access to the low impact BES Cyber System. Each of these elements is discussed below, in turn.

i. Identifying Routable Protocol Communications

As in Commission-approved Reliability Standard CIP-003-6, the initial step in determining whether a Responsible Entity must implement electronic access controls for its low impact BES Cyber systems under Section 3.1 of Attachment 1 to proposed CIP-003-7 is to identify whether there are any communications requiring electronic access controls. Whereas Reliability Standard CIP-003-6 references the LERC definition to define those communications, proposed Reliability Standard CIP-003-7 defines those circumstances within Section 3.1. Section 3.1 provides that communications with the following characteristics are subject to the electronic access control requirements, each of which had been included in the LERC definition:

- (1) The communication is between the low impact BES Cyber System and a Cyber Asset outside the asset containing low impact BES Cyber System.
- (2) The communication uses a routable protocol when entering or leaving the asset containing the low impact BES Cyber System.
- (3) The communication is not used for time-sensitive protection or control functions between intelligent electronic devices (e.g., communications using protocol IEC TR-61850-90-5 R-GOOSE).

As NERC previously explained in discussing the LERC definition, the first characteristic helps to properly focus the electronic access controls.⁴⁰ Specifically, considering the wide array of low impact BES Cyber Systems and the risk-based approach to protecting different types of BES Cyber Systems, the requirement focuses the electronic access controls on communication between the low impact BES Cyber System and a Cyber Asset outside the asset containing the low impact BES Cyber System and not on inter-asset communication. From a risk perspective, controlling the accessibility to or from the asset containing the low impact BES Cyber System significantly reduces the scale of threats to low impact BES Cyber Systems.

As with the LERC definition, given the various types of assets containing low impact BES Cyber Systems, proposed Section 3.1 does not specify a bright line rule as to what constitutes communication from outside the asset. In demonstrating compliance with Section 3 of Attachment 1, Responsible Entities would be required to show the manner in which they identify external communications. Whether the Responsible Entity uses a logical border as a demarcation point or some other understanding of what is inside or outside the asset, it would have to provide a reasonable justification for its determination.

The second characteristic provides that the communication use a routable protocol when entering or leaving the asset because routable connections present increased risks to the security of the BES Cyber System and require additional protections. Whereas the LERC definition uses the phrase “bi-directional routable protocol connection,” proposed Section 3.1 uses the phrase “uses routable protocol when entering or leaving the asset.” The modification recognizes that Responsible Entity’s may use a uni-directional gateway to control electronic access. The intent,

⁴⁰ *Petition of the North American Electric Reliability Corporation for Approval of Proposed Critical Infrastructure Reliability Standards CIP-003-6, CIP-004-6, CIP-006-6, CIP-007-6, CIP-009-6, CIP-010-2, AND CIP-011-2* at 29, Docket No. RM15-14-000 (Feb. 13, 2015).

however, is the same. Namely, if communication with a low impact BES Cyber System involves routable connections to or from the asset containing the low impact BES Cyber System, the Responsible Entity must implement protections, such as a uni-directional gateway, to address the risk of uncontrolled communication.

As to the third characteristic, the exclusion of communications for time-sensitive protection or control functions between intelligent electronic devices was included in proposed Section 3.1, as in the LERC definition, so as not to inhibit the functionality of the time-sensitive requirements related to this technology nor to preclude the use of such time-sensitive reliability enhancing functions if they use a routable protocol in the future. The time-sensitive communications subject to the exclusion typically have communication delay allowances of less than 10 milliseconds. The standard drafting team was concerned that the introduction of the required access control processing would unacceptably impact the communications throughput in some cases. As explained in the Guidelines and Technical Basis section:

Time-sensitive in this context generally means functions that would be negatively impacted by the latency introduced in the communications by the required electronic access controls. This time-sensitivity exclusion does not apply to SCADA communications which typically operate on scan rates of 2 seconds or greater. While technically time-sensitive, SCADA communications over routable protocols can withstand the delay introduced by electronic access controls. Examples of excluded time-sensitive communications are those communications which may necessitate the tripping of a breaker within a few cycles.

If a Responsible Entity invokes this exclusion, may have to demonstrate to the ERO that applying electronic access controls would introduce latency that would negatively impact functionality.

The language in proposed Reliability Standard CIP-003-7 for the exclusion is different from the language in the LERC definition but was not intended to substantially modify the exclusion. Specifically, NERC removed the reference to “Transmission stations” to allow for the

exemption to apply to communications to a generation station and a control center, and modified the reference to “61850” to provide additional clarity.

As discussed above, the most significant difference between the LERC definition and the communications described in proposed Section 3.1 is that proposed Section 3.1 does not include “direct user-initiated interactive access or a direct device-to-device connection” as a characteristic for determining whether the communication is subject to electronic access controls. This modification does not change the electronic access control protections afforded to low impact BES Cyber Systems. Any communication, whether direct or indirect, using routable protocol from outside the asset is subject to the requirement to implement electronic access controls, unless the communication meets time-sensitive exclusion described above. Under proposed Reliability Standard CIP-003-7, implementing a security break would be a form of electronic access control that may be implemented to meet the objective of the requirement. By untangling the type of communications requiring electronic access controls from whether controls are already in place to address that communication, the proposed modifications establish a more straightforward approach that avoids confusion and helps promote effective implementation.

ii. Determining Necessary Inbound and Outbound Electronic Access

As in Reliability Standard CIP-003-6, after identifying whether the communication is subject to electronic access controls, the next step is for Responsible Entities to determine whether to permit electronic access to or from the low impact BES Cyber System for the communication. Specifically, Section 3.1 provides that for communications subject to this requirement, Responsible Entities may “permit only *necessary* inbound and outbound electronic access as determined by the Responsible Entity.”

Considering the wide array of assets containing low impact BES Cyber Systems and the myriad of reasons a Responsible Entity may need to allow electronic access to or from a low impact

BES Cyber System, Section 3.1 does not specify a bright line as to what constitutes “necessary inbound and outbound access.” Entities have the flexibility to identify the necessary electronic access to meet their business and operational needs. To demonstrate compliance with Section 3.1, however, a Responsible Entity must document the necessity of its inbound and outbound electronic access permissions and provide justification of the need for such access.⁴¹ Provided the Responsible Entity documents a reasonable business or operational need for the electronic access consistent with the security objective of the requirement, the ERO would not override the Responsible Entity’s determination.⁴² Absent a documented, reasonable justification for permitting electronic access, the ERO may find that the Responsible Entity was not compliant with Section 3.1.

During development of proposed Reliability Standard CIP-003-7, there were questions about the addition and meaning of the phrase “as determined by the Responsible Entity” in Section 3.1, as such language is not in Section 3.1 of CIP-003-6. In short, the purpose of the phrase is to indicate that the determination as to whether electronic access is necessary is to be made in the first instance by the Responsible Entity given the facts and circumstances of each case. The use of that phrase does not preclude the ERO from engaging in effective compliance oversight of the electronic access requirements in CIP-003-7. Specifically, when assessing compliance with

⁴¹ As the standard drafting team stated in the Guidelines and Technical Bases section for CIP-003-7, “[h]owever the Responsible Entity chooses to document the inbound and outbound access permissions and the need, *the intent is that the Responsible Entity is able to explain the reasons for the electronic access permitted.*” (Emphasis added)

⁴² As such, the draft of the Reliability Standard Audit Worksheet (“RSAW”) for CIP-003-7 provides as follows in the Note to Auditor section for Requirement R2: “The entity must document its determination as to what is necessary inbound and outbound electronic access and provide justification of the business need for such access. Once this determination has been made and documented, the audit team’s professional judgment cannot override the determination made by the Responsible Entity.” The draft RSAW is available at [http://www.nerc.com/pa/Stand/Project%20201602%20Modifications%20to%20CIP%20Standards%20DL/RSAW_CIP-003-7\(i\)_v2_Clean_01202017.pdf](http://www.nerc.com/pa/Stand/Project%20201602%20Modifications%20to%20CIP%20Standards%20DL/RSAW_CIP-003-7(i)_v2_Clean_01202017.pdf).

Section 3.1, the ERO has the authority to review the Responsible Entity's documented justification for permitting the electronic access and to determine whether it is a reasonable exercise of the entity's discretion in light of the reliability objective of the requirement. As noted above, a failure to provide a reasonable justification may result in a finding of noncompliance.

The phrase "as determined by the Responsible Entity" or substantially similar language is used in 11 other instances in the Commission-approved CIP Reliability Standards, including Section 2 of Attachment 1 to Reliability Standard CIP-003-6, which provides:

Each Responsible Entity shall control physical access, *based on need as determined by the Responsible Entity* [emphasis added], to (1) the asset or the locations of the low impact BES Cyber Systems within the asset, and (2) the Cyber Asset(s), as specified by the Responsible Entity, that provide electronic access control(s) implemented for Section 3.1, if any.

In addition, the phrase "as determined by the Responsible Entity" or substantially similar language is used in the following instances in the CIP Reliability Standards: CIP-004-6, Requirement R4, Part 4.1; CIP-004-6, Requirement R4, Part 4.3; CIP-004-6, Requirement R4, Part 4.4; CIP-004-6, Requirement R4, Part 5.2; CIP-004-6, Requirement R4, Part 5.5; CIP-007-6, Requirement R1, Part 1.1; CIP-007-6, Requirement R1, Part 4.2; CIP-007-6, Requirement R4, Part 4.4; CIP-008-5, Requirement R3, Part 3.2; and CIP-009-6, Requirement R3, Part 3.2. Substantially similar language is also used in Commission-approved Reliability Standards IRO-002-4, Requirement R3; IRO-010-2, Requirement R1, Part 1.1; and TOP-003-3, Requirement R1, Part 1.1.

In each instance in which the "as determined by" or substantially similar language is used, the ERO has the authority to evaluate the reasonableness of the Responsible Entity's determination when assessing compliance to ensure it is consistent with the reliability objective of the requirement. To interpret this language otherwise would be inconsistent with NERC's statutory

obligation to engage in meaningful compliance oversight and the long-standing rule of statutory construction that requires courts to construe statutory language to avoid absurd results.⁴³

For example, if the “as determined by” language in Section 2 of Attachment 1 to CIP-003-6 is interpreted to preclude the ERO from assessing the reasonableness of a Responsible Entity’s determination as to whom to provide physical access to low impact BES Cyber Systems, a Responsible Entity could comply with the Reliability Standard even if it granted physical access to individuals based on the letter of the alphabet with which their last name begins. Implementing the requirement in this manner would be inconsistent with the security objective of the requirement, yet the ERO would have no authority to find the Responsible Entity noncompliant if it could not assess the reasonableness of the Responsible Entity’s determination of need. Language in a Reliability Standard should not be read to allow for such a patently absurd result and limit the ERO’s and the Commission’s statutory authority to engage in meaningful compliance oversight and enforcement. Accordingly, when enforcing Sections 2 and 3 of Attachment 1 to CIP-003-7, as well as the other requirements that include the “as determined by” or substantially similar language, NERC would assess the reasonableness of the Responsible Entity’s determination in light of the reliability and security objective in the requirement.

⁴³ *Mova Pharm. Corp. v. Shalala*, 140 F.3d 1060, 1068 (D.C. Cir. 1998); *Safeco Ins. Co. of Am. v. Burr*, 551 U.S. 47, 59-61 (2007); *Lamie v. United States Trustee*, 540 U.S. 526, 533-534 (2004); *United States v. X-Citement Video, Inc.*, 513 U.S. 64, 68-69 (1994); *United States v. Ron Pair Enters.*, 489 U.S. 235, 242 (1989); *United States ex rel. Totten v. Bombardier Corp.*, 380 F.3d 488, 494-95 (D.C. Cir. 2004). Moreover, even in absence of a plainly absurd result, courts construe statutes so as to further the statutory purpose. *K-Mart Corp. v. Cartier, Inc.*, 486 U.S. 281, 316 (1988); *Dolan v. Postal Service*, 546 U.S. 481, 486 (2006); *Cedar Rapids Cmty. Sch. Dist. v. Garret F.*, 526 U.S. 66, 73 (1999); *McCarthy v. Bronson*, 500 U.S. 136, 139 (1991); *Crandon v. United States*, 494 U.S. 152, 158 (1990); *Griffin v. Oceanic Contractors, Inc.*, 458 U.S. 564, 571 (1982); RICHARD J. PIERCE, FEDERAL ADMINISTRATIVE LAW 567-69 (2010 ed.); Cass Sunstein, *Interpreting Statutes in the Regulatory State*, 103 HARV. L. REV. 405, 425-428 (1989).

iii. Implementation of Electronic Access Controls

The last element of Section 3.1 is to implement electronic access controls to permit only necessary electronic access to or from the low impact BES Cyber System. Whereas Reliability Standard CIP-003-6 references the LEAP definition, proposed CIP-003-7 replaces the reference to LEAP with a statement that Responsible Entities must “implement electronic access controls to permit only necessary inbound and outbound access...” The reference to LEAP was replaced because there are many different technical solutions that can be used to implement electronic access controls in addition to implementing a LEAP. The proposed modifications and the retirement of LEAP, however, do not fundamentally alter the security objective of, or the controls required by, Section 3 of Attachment 1. In short, once a Responsible Entity determines that there is communication between a low impact BES Cyber System and a Cyber Asset outside the asset containing the low impact BES Cyber System that uses a routable protocol when entering or leaving the asset, the Responsible Entity must implement an electronic access control to permit only necessary inbound and outbound electronic access.

As in Reliability Standard CIP-003-6, Responsible Entities have the flexibility under the proposed Reliability Standard to determine the controls necessary to meet this security objective. In the Guidelines and Technical Basis section, the standard drafting team provided conceptual illustrations of various electronic access controls that, if implemented effectively, may meet the security objective. Examples include, among other things:

- Implementation of a host-based firewall technology on the low impact BES Cyber System(s) itself that manages the inbound and outbound electronic access permissions so that only necessary inbound and outbound electronic access is permitted to the low impact BES Cyber Asset.
- Use of a security device that permits only necessary inbound and outbound electronic access to the low impact BES Cyber Asset, or to the network to which the low impact BES Cyber Asset is connected.

- Use of a non-BES Cyber Asset that requires authentication for communication from Cyber Assets outside the asset containing the low impact BES Cyber System before allowing the connection to the low impact BES Cyber Asset to be established.
- Physical or logical isolation of the low impact BES Cyber System from other communications.

In assessing compliance with Section 3 of Attachment 1 to proposed Reliability Standard CIP-003-7, the ERO would evaluate the manner in which the Responsible Entity implemented its electronic access controls to determine whether it meets the security objective.

Lastly, with the proposed retirement of the LEAP definition, NERC is also proposing modifications to Section 2 of Attachment 1 (physical security controls) to replace references to LEAP with the more generic phrase “the Cyber Asset(s), as specified by the Responsible Entity, that provide electronic access control(s) implemented for Section 3.1, if any.” This proposed modification does not substantively modify the obligation from CIP-003-6 to implement physical access controls for those Cyber Assets that control electronic access to low impact BES Cyber Systems.

B. Protection of Transient Electronic Devices Used for Low Impact BES Cyber Systems

Consistent with the Commission’s directive in Order No. 822, proposed Reliability Standard CIP-003-7 includes mandatory protections for transient electronic devices used at low impact BES Cyber Systems. Specifically, NERC proposes to add a fifth section to Attachment 1 to CIP-003-7 to require entities to include in their cyber security plans controls to mitigate the risk of the introduction of malicious code to low impact BES Cyber Systems through the use of Transient Cyber Assets or Removable Media. Proposed Section 5 of Attachment 1 provides as follows:

Section 5. Transient Cyber Asset and Removable Media Malicious Code Risk Mitigation: Each Responsible Entity shall implement, except under CIP Exceptional Circumstances, one or more plan(s) to achieve the objective of mitigating the risk of the introduction of malicious code to low impact BES

Cyber Systems through the use of Transient Cyber Assets or Removable Media. The plan(s) shall include:

- 5.1** For Transient Cyber Asset(s) managed by the Responsible Entity, if any, the use of one or a combination of the following in an ongoing or on-demand manner (per Transient Cyber Asset capability):
 - Antivirus software, including manual or managed updates of signatures or patterns;
 - Application whitelisting; or
 - Other method(s) to mitigate the introduction of malicious code.
- 5.2** For Transient Cyber Asset(s) managed by a party other than the Responsible Entity, if any, the use of one or a combination of the following prior to connecting the Transient Cyber Asset to a low impact BES Cyber System (per Transient Cyber Asset capability):
 - Review of antivirus update level;
 - Review of antivirus update process used by the party;
 - Review of application whitelisting used by the party;
 - Review use of live operating system and software executable only from read-only media;
 - Review of system hardening used by the party; or
 - Other method(s) to mitigate the introduction of malicious code.
- 5.3** For Removable Media, the use of each of the following:
 - 5.3.1** Method(s) to detect malicious code on Removable Media using a Cyber Asset other than a BES Cyber System; and
 - 5.3.2** Mitigation of the threat of detected malicious code on the Removable Media prior to connecting Removable Media to a low impact BES Cyber System.

Requiring the Responsible Entity to develop and implement these controls will provide enhanced protections against the propagation of malware from transient electronic devices.

The language in proposed Section 5 parallels the Commission-approved language in Attachment 1 to Reliability Standard CIP-010-2 related to mitigating the risks of the introduction

of malicious code to high and medium impact BES Cyber Systems through the use of Transient Cyber Assets and Removable Media. As in Reliability Standard CIP-010-2, proposed Section 5 of Attachment 1 to CIP-003-7 distinguishes between Transient Cyber Assets and Removable Media and between Transient Cyber Assets managed by the Responsible Entity and those managed by a party other than the Responsible Entity. The security controls required for a particular transient electronic device must account for the functionality of that device and, for Transient Cyber Assets, whether the Responsible Entity or another party manages the device. Because Transient Cyber Assets and Removable Media have different capabilities, they present different levels of risk to the BES, and the protections required under the proposed Reliability Standards must reflect those differences. Similarly, because a Responsible Entity lacks complete control over Transient Cyber Assets managed by a third party, it may not be able to implement the same controls for those devices as it does for the devices it manages. The Responsible Entity, however, still has the responsibility to mitigate the risks associated with Transient Cyber Assets managed by a third party prior to connection.⁴⁴

Further, as in Reliability Standard CIP-010-2, proposed Section 5 of Attachment 1 does not prescribe a standard method or set of controls that each Responsible Entity must implement to protect its transient electronic devices. Instead, Section 5 requires Responsible Entities to meet certain security objectives by implementing the controls that the Responsible Entity determines necessary to meet its affirmative obligation to mitigate the risks of the introduction of malicious code. This approach provides the Responsible Entity the flexibility to implement the controls that best suit the needs and characteristics of its organization. To comply with the requirements in

⁴⁴ Given the functionality of Removable Media, the standard drafting team concluded that it was not necessary to distinguish between Removable Media managed by the responsible entity and those managed by a third party. That is because, no matter who manages Removable Media, the same type of security controls can be applied (e.g., the scanning of a thumb drive prior to connection).

Section 5, however, the Responsible Entity must demonstrate that its selected controls were designed to meet the security objective to mitigate the risk of the introduction of malicious code.

In contrast to Attachment 1 of Reliability Standard CIP-010-2, Section 5 of Attachment 1 to CIP-003-7 does not include requirements related to authorization or software vulnerabilities. Consistent with the risk-based approach of the CIP Reliability Standards and the underlying principle of concentrating limited industry resources on protecting those BES Cyber Systems with greater risks to the BES, proposed Section 5 focuses directly on the primary risk associated with the use of Transient Cyber Assets and Removable Media, which is the introduction of malicious code. The protections required in proposed Section 5 are commensurate to the cybersecurity risk of low impact BES Cyber Systems and would not divert Responsible Entities' focus from the protection of high and medium impact BES Cyber Systems. As the Commission recognized in Order No. 791, the requirements applicable to low impact BES Cyber Systems, given their lower risk profile, should not be overly burdensome to divert resources from the protection of medium and high impact BES Cyber Systems.⁴⁵

Further, as compared to the requirements in Attachment 1 to CIP-010-2, proposed Section 5 of Attachment 1 to CIP-003-7 does not include language explicitly stating that for the method(s) used to mitigate the introduction of malicious code from Transient Cyber Assets managed by a party other than the Responsible Entity, the Responsible Entity shall determine whether any additional mitigation actions are necessary and implement such actions prior to connecting the Transient Cyber Assets. Nevertheless, NERC's expectation is that if another party's processes and practices for protecting its Transient Cyber Assets do not provide reasonable assurance that they

⁴⁵ Order No. 791 at P 111 (finding that it would be unduly burdensome to require responsible entities to create and maintain an inventory of Low Impact assets for audit purposes).

are designed to effectively meet the security objective of mitigating the introduction of malicious code, the Responsible Entity must take additional steps to meet the stated objective. In assessing compliance with the proposed Reliability Standard, NERC will focus on whether the Responsible Entity implemented one or more controls designed to achieve the security objective. Accordingly, if a Responsible Entity reviews the policies and practices of another party and those practices and policies do not provide reasonable assurance that the party's transient electronic devices would be protected from malicious code, simply reviewing those policies and procedures without taking other steps to mitigate the risks of introduction of malicious code may not constitute compliance.

In addition to the modifications in Attachment 1 to CIP-003-7, NERC also proposes modifications to the definitions of Transient Cyber Asset and Removable Media to accommodate the use of those terms for all impact levels. As those definitions were originally drafted for use of transient electronic devices at high and medium impact BES Cyber Systems only, they include references to other *NERC Glossary* terms – Electronic Security Perimeter and Protected Cyber Asset – that specifically relate to concepts or requirements associated with high and medium impact BES Cyber Systems only. So as to avoid confusion as to the application of Electronic Security Perimeters and Protected Cyber Assets at low impact BES Cyber Systems, the definitions of Transient Cyber Asset and Removable Media were modified.

As provided in Exhibit B hereto, the proposed definition for Transient Cyber Asset is as follows:

A Cyber Asset that is:

1. capable of transmitting or transferring executable code,
2. not included in a BES Cyber System,
3. not a Protected Cyber Asset (PCA) associated with high or medium impact BES Cyber Systems, and

4. directly connected (e.g., using Ethernet, serial, Universal Serial Bus, or wireless including near field or Bluetooth communication) for 30 consecutive calendar days or less to a:
 - BES Cyber Asset,
 - network within an Electronic Security Perimeter (ESP) containing high or medium impact BES Cyber Systems, or
 - PCA associated with high or medium impact BES Cyber Systems.

Examples of Transient Cyber Assets include, but are not limited to, Cyber Assets used for data transfer, vulnerability assessment, maintenance, or troubleshooting purposes.

Similarly, the proposed definition for Removable Media is as follows:

Storage media that:

1. are not Cyber Assets,
2. are capable of transferring executable code,
3. can be used to store, copy, move, or access data, and
4. are directly connected for 30 consecutive calendar days or less to a:
 - BES Cyber Asset, a
 - network within an Electronic Security Perimeter (ESP) containing high or medium impact BES Cyber Systems, or a
 - Protected Cyber Asset associated with high or medium impact BES Cyber Systems.

Examples of Removable Media include, but are not limited to, floppy disks, compact disks, USB flash drives, external hard drives, and other flash memory cards/drives that contain nonvolatile memory.

C. CIP Exceptional Circumstance Policy

NERC also proposes revisions in Requirement R1 of CIP-003-7 to require Responsible Entities to have a policy for declaring and responding to CIP Exceptional Circumstances related to low impact BES Cyber Systems, as is already required for their high and medium impact BES Cyber Systems. As defined in the *NERC Glossary*, a CIP Exceptional Circumstance is:

A situation that involves or threatens to involve one or more of the following, or similar, conditions that impact safety or BES reliability: a risk of injury or death; a natural disaster; civil unrest; an imminent or existing hardware, software, or equipment failure; a Cyber Security Incident requiring emergency assistance; a response by emergency services; the enactment of a mutual assistance agreement; or an impediment of large scale workforce availability.

In the existing CIP Reliability Standards, a number of requirements applicable to high and medium impact BES Cyber Systems specify that Responsible Entities need not implement (or continue implementing) the requirement during CIP Exceptional Circumstances.⁴⁶ The purpose of this exception is not to require implementation when the Responsible Entity would be physically unable to implement due to the CIP Exceptional Circumstance or implementation would hinder the Responsible Entity's ability to timely and effectively respond to the CIP Exceptional Circumstance. To that end, under Reliability Standard CIP-003-6, Requirement R1, Part 1.1, a Responsible Entity must have cyber security policies for its high and medium impact BES Cyber System that addresses, among other topics, declaring and responding to CIP Exceptional Circumstances. These policies would outline the procedures Responsible Entities would take to address a CIP Exceptional Circumstance in the context of its cyber security requirements.

As the existing requirements in CIP-003-6 applicable to low impact BES Cyber Systems are not subject to CIP Exceptional Circumstances, such a policy was not included in CIP-003-6, Requirement R1, Part 1.2 for low impact BES Cyber Systems. Now that the proposed requirements related to transient electronic devices used at low impact BES Cyber Systems include an exception for CIP Exceptional Circumstances,⁴⁷ NERC is proposing to add a new part to Requirement R1 of

⁴⁶ See, e.g., CIP-004-6, Requirement R2, Part 2.2; CIP-004-6, Requirement R4, Part 4.1; CIP-006-6, Requirement R2, Part 2.1.

⁴⁷ The Commission-approved requirements applicable to the protection of transient electronic devices at high and medium impact BES Cyber Systems also includes an exception for CIP Exceptional Circumstances. See CIP-010-2, Requirement R4.

CIP-003-7, Part 1.2.6, to require entities to have a CIP Exceptional Circumstance policy applicable to low impact BES Cyber Systems.

V. EFFECTIVE DATE

NERC respectfully requests that the Commission approve proposed Reliability Standard CIP-003-7 and the revised definitions of Transient Cyber Asset and Removable Media to become effective as set forth in the proposed Implementation Plan, provided in Exhibit C hereto. The proposed Implementation Plan provides that the proposed Reliability Standard and revised definitions shall become effective on the first day of the first calendar quarter that is 18 calendar months after the effective date of the Commission's order approving the proposed Reliability Standard. The 18-month implementation period is designed to afford Responsible Entities sufficient time to revise their cyber security plans for low impact BES Cyber Systems under proposed Reliability Standard CIP-003-7, Requirement R2 to account for the proposed modifications and implement the required controls.

Additionally, as entities must implement the current version of Sections 2 and 3 of Attachment 1 to Reliability Standard CIP-003-6 on September 1, 2018, the proposed Implementation Plan provides that the compliance dates for CIP-003-6, Requirement R2, Attachment 1, Sections 2 and 3 shall be replaced with the effective date of proposed Reliability Standard CIP-003-7. This provision is to avoid the situation where Responsible Entities would have to have their cyber security plans and implement electronic access protections using the LERC and LEAP construct and then a short time later modify those plans to account for the changes proposed herein.

Lastly, the Implementation Plan provides that Reliability Standard CIP-003-6 and the current definitions of LERC, LEAP, Removable Media, and Transient Cyber Asset shall be retired immediately prior to the effective date of proposed Reliability Standard CIP-003-7.

VI. CONCLUSION

For the reasons set forth above, NERC respectfully requests that the Commission approve:

- proposed Reliability Standard CIP-003-7 and associated elements included in Exhibit A, effective as proposed herein;
- the proposed Implementation Plan included in Exhibit C;
- the proposed revised definitions for removable Media and Transient Cyber Asset to be incorporated into the *NERC Glossary* included in Exhibit B; and
- the retirement of Reliability Standards CIP-003-6, and the current definitions for LERC, LEAP, Removable Media, and Transient Cyber Asset, effective as proposed herein.

Respectfully submitted,

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