

June 15, 2012

VIA ELECTRONIC FILING

David Erickson
President and Chief Executive Officer
Alberta Electric System Operator
2500, 330 - 5 Avenue SW
Calgary, Alberta
T2P 0L4

Re: *North American Electric Reliability Corporation*

Dear Mr. Erickson:

The North American Electric Reliability Corporation (“NERC”) hereby submits this Notice of Filing of an interpretation to Requirement R1.1 to Reliability Standard CIP-006-4,¹ as set forth in **Exhibit A** to this notice, to become effective concurrent with the date of approval.

This interpretation was approved by the NERC Board of Trustees on February 9, 2012. The standard will be referred to as CIP-006-3d or CIP-006-4d, whichever version of the standard is in effect at the time of approval.² NERC’s notice consists of the following:

- This transmittal letter;

¹ This interpretation applies to Versions 1, 2, 3, and 4 of the CIP-006 standard. For purposes of this filing, the standard will be referred to as CIP-006-4.

² At the time this request for interpretation was submitted to NERC, Version 1 of the CIP standards was in effect. The request was therefore processed referencing CIP-006-1. Subsequently, Versions 2, 3 and 4 of the CIP standards have been filed. However, the changes in Versions 2, 3, and 4, relative to Version 1 of CIP-006, are not material to the substance of the interpretation request. Given that Version 3 is currently-effective, and Version 4 will become effective on April 1, 2014, NERC will append the requested interpretation to Version 3 or Version 4 of the CIP-006 standard, whichever is in effect, in lieu of Version 1.

- A table of contents for the filing;
- A narrative description explaining the interpretation and how it meets the reliability goal of the standard;
- Interpretation of Requirement R1.1 of CIP-006-4 (**Exhibit A**);
- Reliability Standard CIP-006-3d, that includes the appended interpretations of Requirement R1.1 (**Exhibit B1**);
- Reliability Standard CIP-006-4d, that includes the appended interpretations of Requirement R1.1 (**Exhibit B2**);
- Consideration of Comments for interpretations to Requirements R1.1 of CIP-006-4 (**Exhibit C**);
- The complete development record of the interpretation Requirement R1.1 of CIP-006-4 (**Exhibit D**); and
- A roster of the interpretation drafting team for the interpretations of Requirement R1.1 of CIP-006-4 (**Exhibit E**).

NERC understands the AESO may adopt the proposed interpretation to a reliability standard subject to Alberta legislation, principally as established in the *Transmission Regulation* (“the T Reg.”). Briefly, it is NERC’s understanding that the T Reg. requires the following with regard to the adoption in Alberta of a NERC Reliability Standard:

1. The AESO must consult with those market participants that it considers are likely to be directly affected.
2. The AESO must forward the proposed reliability standards to the Alberta Utilities Commission for review, along with the AESO’s recommendation that the Commission approve or reject them.
3. The Commission must follow the recommendation of the AESO that the Commission approve or reject the proposed reliability standards unless an interested person satisfies the Commission that the AESO’s recommendation is “technically deficient” or “not in the public interest.”

Further, NERC has been advised by the AESO that the AESO practice with respect to the adoption of a NERC Reliability Standard includes a review of the NERC Reliability Standard for applicability to Alberta legislation and electric industry practice. NERC has been advised that, while the objective is to adhere as closely as possible to the requirements of the NERC Reliability Standard, each NERC Reliability Standard approved in Alberta (called an “Alberta reliability standard”) generally varies from the similar and related NERC Reliability Standard.

NERC requests the AESO consider the attached interpretation for adoption in Alberta as an “Alberta reliability standard(s)”, subject to the required procedures and legislation of Alberta.

Respectfully submitted,

/s/ Willie L. Phillips

Willie L. Phillips

*Attorney for North American Electric
Reliability Corporation*

**BEFORE THE
ALBERTA ELECTRIC SYSTEM OPERATOR**

**NORTH AMERICAN ELECTRIC)
RELIABILITY CORPORATION)**

**NOTICE OF FILING OF THE
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION
OF INTERPRETATION
TO RELIABILITY STANDARD CIP-006 – CYBER SECURITY — PHYSICAL
SECURITY OF CRITICAL CYBER ASSETS**

Gerald W. Cauley
President and Chief Executive Officer
3353 Peachtree Road NE
Suite 600, North Tower
Atlanta, GA 30326-1001

Holly A. Hawkins
Assistant General Counsel for Standards and
Critical Infrastructure Protection
North American Electric Reliability
Corporation

David N. Cook
Senior Vice President and General Counsel
North American Electric Reliability
Corporation
1325 G Street, N.W., Suite 600
Washington, D.C. 20005
david.cook@nerc.net

Willie L. Phillips
Attorney
North American Electric Reliability
Corporation
1325 G Street, N.W., Suite 600
Washington, D.C. 20005
(202) 400-3000
(202) 644-8099 – facsimile
holly.hawkins@nerc.net
willie.phillips@nerc.net

June 15, 2012

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Exhibit A — Interpretation of Requirement R1.1 of CIP-006-4

Exhibit B1 —Reliability Standard CIP-006-3, that includes the appended interpretation of Requirement R1.1

Exhibit B2 —Reliability Standard CIP-006-4, that includes the appended interpretation of Requirement R1.1

Exhibit C — Consideration of Comments for interpretation to Requirement R1.1 of CIP-006-4

Exhibit D — Complete Record of Development of the Interpretation of Requirement R1.1 of CIP-006-4

Exhibit E — Roster of the interpretation drafting team for the Interpretation of Requirement R.1.1 of CIP-006-4

I. INTRODUCTION

The North American Electric Reliability Corporation (“NERC”) hereby submits this notice of a proposed interpretation to Reliability Standard CIP-006-4³ — Cyber Security — Physical Security of Critical Cyber Assets, Requirement R1.1.⁴

No modification to the language contained in this specific requirement is being proposed through the interpretation. The NERC Board of Trustees approved the interpretation to CIP-006-4 on February 9, 2012.

The standard will be referred to as CIP-006-3d or CIP-006-4d — Cyber Security — Physical Security of Critical Cyber Assets, whichever version of the standard is in effect. For ease of reference, the interpretation will be referred to as CIP-006-4d in this filing.

Exhibit A to this notice sets forth the interpretation of Requirement R1.1 to CIP-006-4. **Exhibit B1** to this notice contains proposed Reliability Standard CIP-006-3d, which includes the appended interpretation of Requirement R1.1. **Exhibit B2** to this notice contains proposed Reliability Standard CIP-006-4d, which includes the appended interpretation of Requirement R1.1. **Exhibit C** contains the drafting team’s consideration of industry comments for the interpretation to Requirement R1.1. **Exhibit D** contains the complete development history of the Interpretation of Requirement R1.1 of CIP-006-4. **Exhibit E** contains the roster of the interpretation drafting team that drafted the interpretation of Requirement R1.1.

³ The proposed interpretation applies to versions 1, 2, 3, and 4 of the standard. For purposes of this filing, the standard will be referred to as CIP-006-4.

⁴ Capitalized terms not otherwise defined, shall have the meaning set forth in the *NERC Glossary of Terms Used in NERC Reliability Standards*, available at: http://www.nerc.com/files/Glossary_of_Terms.pdf.

NERC filed this interpretation with the Federal Energy Regulatory Commission (“FERC”), and is also filing this interpretation with the other applicable governmental authorities in Canada.

II. NOTICES AND COMMUNICATIONS

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

Gerald W. Cauley
President and Chief Executive Officer
3353 Peachtree Road NE
Suite 600, North Tower
Atlanta, GA 30326-1001

Holly A. Hawkins
Assistant General Counsel for Standards and
Critical Infrastructure Protection
North American Electric Reliability
Corporation

David N. Cook
Senior Vice President and General Counsel
North American Electric Reliability
Corporation
1325 G Street, N.W., Suite 600
Washington, D.C. 20005
david.cook@nerc.net

Willie L. Phillips
Attorney
North American Electric Reliability
Corporation
1325 G Street, N.W., Suite 600
Washington, D.C. 20005
(202) 400-3000
(202) 644-8099 – facsimile
holly.hawkins@nerc.net
willie.phillips@nerc.net

III. BACKGROUND

a. Basis for Approval of Proposed Reliability Standard Interpretation

The proposed Reliability Standard contains an interpretation of a requirement within a Reliability Standard, but does not represent a new or modified Reliability Standard. The proposed Reliability Standard interpretation provides additional clarity with regard to the intent of the Reliability Standard.

b. Reliability Standards Development Procedure and Interpretation

All persons who are directly or materially affected by the reliability of the North American bulk power system are permitted to request an interpretation of a Reliability

Standard, as discussed in NERC's *Standard Processes Manual*, which is incorporated into the NERC Rules of Procedure as Appendix 3A.

The process for responding to a valid request for interpretation requires NERC to assemble a team with the relevant expertise to address the interpretation request. The interpretation drafting team is then required to draft a response to the request for interpretation and then present that response for industry ballot. If approved by the ballot pool and the NERC Board of Trustees, the interpretation is appended to the Reliability Standard and filed for approval with FERC and applicable governmental authorities in Canada. And once the affected Reliability Standard undergoes its next substantive revision, the interpretation will be incorporated into the Reliability Standard, as appropriate.

The standing CIP interpretation drafting team was appointed to develop the response to the instant request for interpretation regarding Requirement R1.1 of CIP-006-4. The proposed interpretation included as **Exhibit A** was approved by the ballot pool on December 19, 2011, with a ballot pool quorum of 88.02 percent and weighted segment approval of 96.04 percent. It was approved by the NERC Board of Trustees on February 9, 2012.

IV. Proposed Reliability Standard CIP-006-4 Cyber Security — Physical Security of Critical Cyber Assets Requirement R1.1

Reliability Standard CIP-006-1 was filed on April 3, 2006, Reliability Standard CIP-006-2 was filed on May 27, 2009, Reliability Standard CIP-006-3 was filed on January 21, 2010,⁵ and Reliability Standard CIP-006-4 was filed on June 6, 2011.

⁵ *Order on Compliance*, 130 FERC ¶ 61,271 (March 31, 2010).

This filing includes the proposed Reliability Standard CIP-006-3d that contains the appended interpretation in **Exhibit B1**, and proposed Reliability Standard CIP-006-4d that contains the appended interpretation in **Exhibit B2**. In Section IV(a), below, NERC summarizes the justification for the proposed interpretation of Requirements R1.1 of the standard, and explains the development of the interpretation. Section IV(b) describes the stakeholder ballot results and provides an explanation of how stakeholder comments were considered and addressed by the interpretation drafting team assembled to develop the interpretation. The interpretation drafting team’s considerations of comments for the interpretation is contained in **Exhibit C**. The complete development record for the interpretation, set forth in **Exhibit D**, includes the request for the interpretation, the response to the request for the interpretation, the ballot pool, and the final ballot results by registered ballot body members, stakeholder comments received during the balloting and an explanation of how those comments were considered. **Exhibit E** contains the roster of the team members who developed the proposed interpretation.

a. Justification of Interpretation

The stated purpose of Reliability Standard CIP-006-4 — Cyber Security — Physical Security of Critical Cyber Assets is to ensure the implementation of a physical security program for the protection of Critical Cyber Assets. Requirement R1 of CIP-006-4 provides:

R1. Physical Security Plan —The Responsible Entity shall document, implement, and maintain a physical security plan, approved by the senior manager or delegate(s) that shall address, at a minimum, the following:

R1.1. All Cyber Assets within an Electronic Security Perimeter shall reside within an identified Physical Security Perimeter. Where a completely enclosed (“six-wall”) border cannot be established, the Responsible Entity shall deploy and document

alternative measures to control physical access to such Cyber Assets.

In April 2008, Progress Energy requested an interpretation of Requirement R1 of CIP-006-1.⁶ Specifically, Progress Energy sought clarification with respect to the following language in CIP-006-4, Requirement R1.1:

Request:

Progress Energy requests a formal interpretation of CIP-006-1 Requirement R1.1.

In CIP-006-1, Requirement 1.1 states “Processes to ensure and document that all Cyber Assets within an Electronic Security Perimeter (ESP) also reside within an identified Physical Security Perimeter. Where a completely enclosed (“six-wall”) border cannot be established, the Responsible Entity shall deploy and document alternative measures to control physical access to the Critical Cyber Assets.”

In CIP-005-1, Requirement 1 states “Electronic Security Perimeter — The Responsible Entity shall ensure that every Critical Cyber Asset resides within an Electronic Security Perimeter. The Responsible Entity shall identify and document the Electronic Security Perimeter(s) and all access points to the perimeter(s).”

In CIP-002-1, Requirement 3 states “Critical Cyber Asset Identification — Using the list of Critical Assets developed pursuant to Requirement R2, the Responsible Entity shall develop a list of associated Critical Cyber Assets essential to the operation of the Critical Asset. Examples at control centers and backup control centers include systems and facilities at master and remote sites that provide monitoring and control, automatic generation control, real-time power system modeling, and real-time interutility data exchange. The Responsible Entity shall review this list at least annually, and update it as necessary. For the purpose of Standard CIP-002, Critical Cyber Assets are further qualified to be those having at least one of the following characteristics:

R3.1. The Cyber Asset uses a routable protocol to communicate outside the Electronic Security Perimeter; or,

R3.2. The Cyber Asset uses a routable protocol within a control center; or,

R3.3. The Cyber Asset is dial-up accessible.

⁶ At the time this request for interpretation was submitted to NERC, Version 1 of the CIP standards was in effect. The request was therefore processed referencing CIP-006-1. Subsequently, Versions 2, 3 and 4 of the CIP standards were filed. However, the changes in Versions 2, 3, and 4, relative to Version 1 of CIP-006, are not material to the substance of the interpretation request. Given that Version 3 is currently-effective, and Version 4 will become effective on April 1, 2014, NERC will append the requested interpretation to Version 3 or Version 4 of the CIP-006 standard, whichever is in effect, in lieu of Version 1.

CIP-002-1 R3 defines Critical Cyber Assets as assets essential to the operation of Critical Asset and assets meeting one of the characteristics of R3.1, R3.2 or R3.3. It is unclear from the stated requirements the extent ESP wiring external to physical security perimeter must be protected within a six wall boundary. Progress Energy requests an interpretation as to the applicability of CIP-006-1 R1 to the aspects of the wiring that comprises the ESP.

In response to Progress Energy's interpretation request, the interpretation drafting team developed, and the industry stakeholders approved, the following interpretation:

Response:

CIP-006-1, Requirement R1.1 applies to "Cyber Assets," and the first test in determining whether it applies to wiring is to determine whether wiring is a "Cyber Asset." The definition of "Cyber Asset" in the NERC Glossary of Terms Used in Reliability Standards includes "communication networks," but it does not explicitly include wiring or communication mediums in general. Since wiring is not included in the definition of "Cyber Asset," Requirement R1.1 of CIP-006-1 does not apply to wiring.

This interpretation is limited to whether Requirement R1.1 applies to a particular circumstance (e.g., "wiring"), which makes it distinct from the interpretation in CIP-006-3c, appendix 1. The interpretation in CIP-006-3c, appendix 1, only applies when a completely enclosed ("six-wall") border cannot be established for a "Cyber Asset" within an Electronic Security Perimeter (ESP).

The interpretation of Requirement R1.1 of CIP-006-4 is consistent with the stated purpose of the Reliability Standard, which is to ensure that Critical Cyber Assets are protected. As part of a physical security program, the standard requires the creation and maintenance of a Physical Security Plan that addresses protection of Cyber Assets within a Physical Security Perimeter. In this context, the interpretation discusses the distinction between a Cyber Asset and underlying components of Cyber Assets that are not themselves classified Cyber Assets. Since the requirement only applies to a Cyber Asset, and wiring is not a Cyber Asset, the requirement does not apply to wiring. Accordingly, the interpretation clarifies that Requirement R1.1 of CIP-006-4 does not apply to wiring.

In finding that wiring is not a Cyber Asset, and thus not subject to the requirement, the interpretation drafting team determined that the definition of Cyber Asset in the *Glossary of Terms Used in NERC Reliability Standards* does not include communication mediums (*i.e.*, wiring).⁷

A “communication network,” which is included in the definition of a Cyber Asset, is typically a set of devices and a population of data, but not the wires or any other supporting component. For example, as noted by members of the interpretation drafting team, a “communication network” uses electricity and power cables. Although electricity and power cables are essential components of a communication network, they are not classified as Cyber Assets. Moreover, while the term “data” is included in the definition of Cyber Asset, the use of wiring to transmit data does not automatically transform wiring into a Cyber Asset.⁸ Even so, NERC notes that CIP-005 requires the identification and protection of the ESP inside which all Critical Cyber Assets reside, as well as all access points on the perimeter.

Assuming *arguendo* that “wiring” is a Cyber Asset, wiring would then be subject to all Reliability Standards that apply to Cyber Assets. Such a reading of NERC’s Cyber Asset definition would lead to an unintended application of the CIP standards and the wasting of limited industry resources. Therefore, the proposed interpretation is consistent with the definition of Cyber Asset and the Reliability Standard’s purpose.⁹

⁷ *NERC Glossary of Terms Used in NERC Reliability Standards*, at p. 14, available at: http://www.nerc.com/files/Glossary_of_Terms.pdf.

⁸ *Id.*

⁹ This interpretation also clarifies a separate question from a previous interpretation to the same requirement. The proposed interpretation is limited to whether the requirement applies at all (in this case, to “wiring”). The previous interpretation assumes that the standard applies, and then provides clarity on the “alternative measures” component of CIP-006-4, Requirement R1.1, after determining that a fully enclosed six-wall border cannot be established around the applicable Cyber Asset.

b. Summary of the Reliability Standard Development Proceedings

NERC presented the interpretation of CIP-006-4, Requirement R1.1 for a first initial ballot from August 7, 2008, through August 16, 2008, and achieved a quorum of 88.18 percent with a weighted affirmative approval of 21.52 percent. There were 142 negative ballots submitted in the initial ballot, and 97 of those ballots included a comment, which initiated the need for another initial ballot.

A second draft interpretation was developed and posted for initial ballot from November 30, 2009, to October 12, 2009. Stakeholders supported the draft interpretation, which achieved a quorum of 79.92 percent with a weighted affirmative approval of 74.47 percent. There were 46 negative ballots submitted in the second initial ballot, and 30 of those ballots included a comment; however, work on the interpretation was delayed based on reprioritization of the total standards workload in accordance with guidance from the NERC Board of Trustees issued November 2009.

In April 2011, the Standards Committee approved and issued the *NERC Guidelines for Interpretation Drafting Teams*, and the Standards Committee directed that work resume on the interpretation.¹⁰ A project team assembled from members of the CIP interpretation drafting team reviewed and responded to the comments received during the last successive ballot and made revisions to the interpretation. The interpretation drafting team ultimately determined that the second draft interpretation did not conform to the new guidelines. Consequently, the interpretation drafting team revised the interpretation to be limited to the question asked: whether CIP-006-1, Requirement R1.1, applies to the aspects of wiring that comprises the ESP.

¹⁰ *NERC Guidelines for Interpretation Drafting Teams*, available at: http://www.nerc.com/files/Guidelines_for_Interpretation_Drafting_Teams_Approved_April_2011.pdf.

An updated draft of the interpretation was posted for successive ballot on October 12, 2011, with the ballot occurring from November 11 through November 21, 2011. The ballot achieved a 95.99% approval, with a quorum of 83.53%. There were 9 negative ballots submitted in the successive ballot, and 5 of those ballots included a comment, which initiated the need for a recirculation ballot.

A recirculation ballot was held from December 9, 2011 to December 19, 2011, and the interpretation was approved by stakeholders, achieving 96.04 percent approval with a quorum of 88.02 percent.

As demonstrated in the summary of comments presented below, some commenters noted disagreement with the standard drafting team's interpretation that wiring is not a Cyber Asset. Some balloters commented on more than one issue. More specifically, the reasons cited for the negative ballots included the following:

- 1 balloter did not believe the Request for Interpretation was clear enough to formulate an interpretation and that Progress Energy should have been afforded an opportunity to reformulate its question. The interpretation drafting team and majority of balloters agree, however, that the interpretation was able to provide clarity to the meaning of the requirement through its analysis.
- 1 balloter indicated that the interpretation did not provide enough clarity and should be addressed in future versions of the standard. The interpretation drafting team and balloters agree, however, that the interpretation was able to provide clarity to the meaning of the requirement through its analysis.

- 1 balloter indicated that the interpretation is flawed because it defines wiring as a Cyber Asset and expands the requirement, and that the “six-wall” border issue should not be addressed. It is presumed that this balloter perhaps read an earlier draft of the interpretation when commenting.
- 1 balloter noted that a wire is the transport medium for the data, and data is a Cyber Asset. CIP-006-3, R1.1, requires data to be protected; to protect the data, the wire must also be protected. The interpretation drafting team determined that wire is an underlying component of a Cyber Asset and therefore not a Cyber Asset), which is consistent with CIP-006-3c, R1.1’s requirement to protect data.
- 1 balloter noted that wiring is an essential component of the hardware comprising a network, further supporting the need to protect the wiring. The interpretation drafting team noted that it is outside the scope of the language of the definition of “Cyber Asset,” and CIP-006-4c, R1.1’s application is limited to Cyber Assets.

c. Future Action

The interpretation shall remain in effect until such time as the interpretation can be incorporated into a future revision of the standard.

V. CONCLUSION

For the reasons set forth above, the North American Electric Reliability Corporation requests that the AESO take the steps necessary to adopt the proposed interpretation contained in this filing.

Respectfully submitted,

/s/ Willie L. Phillips

Gerald W. Cauley
President and Chief Executive Officer
3353 Peachtree Road NE
Suite 600, North Tower
Atlanta, GA 30326-1001

David N. Cook
Senior Vice President and General Counsel
North American Electric Reliability
Corporation
1325 G Street, N.W., Suite 600
Washington, D.C. 20005
david.cook@nerc.net

Holly A. Hawkins
Assistant General Counsel for Standards and
Critical Infrastructure Protection
North American Electric Reliability
Corporation

Willie L. Phillips
Attorney
North American Electric Reliability
Corporation
1325 G Street, N.W., Suite 600
Washington, D.C. 20005
(202) 400-3000
(202) 393-3955 – facsimile
holly.hawkins@nerc.net
willie.phillips@nerc.net

Exhibits A - E

(Available on the NERC Website at
http://www.nerc.com/fileUploads/File/Filings/Attachments_CIP-006Interp_2012.5.2)