



May 6, 2010

**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 of Requirement R1.1 in NERC Reliability Standard CIP-006-3 — Cyber Security — Physical Security of Critical Cyber Assets, as set forth in **Exhibit A** to this Notice. The standard that includes the interpretation will be referred to as CIP-006-3c.<sup>1</sup>

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<sup>1</sup> In its submission to the Federal Energy Regulatory Commission (“FERC”), NERC explained that, at the time this interpretation was submitted to NERC, Version 1 of the CIP standards was the version in effect. The request for interpretation was therefore processed referencing CIP-006-1. Since then, CIP-006-2 has been submitted and approved by FERC in the *North American Electric Reliability Corporation*, “Order Approving Revised Reliability Standards for Critical Infrastructure Protection and Requiring Compliance Filing,” 128 FERC ¶ 61,291 (September 30, 2009). In that Order, FERC noted an effective date of Version 2 of the standards to be April 1, 2010. Additionally, NERC submitted a request for FERC approval of Version 3 of the CIP-002 through CIP-009 standards on December 29, 2009. On March 31, 2010, FERC approved the CIP Version 3 standards in the *North American Electric Reliability Corporation*, “Order on Compliance,” 130 FERC ¶ 61,271 (2010) (March 31, 2010). In that Order, FERC noted an effective date of Version 3 of the standards to be October 1, 2010. NERC noted in its FERC filing that, upon FERC approval of the interpretation, the standard that included the interpretation will be referred to as either CIP-005-2a or CIP-005-3a, depending on which version of the standard is in effect at the time of FERC approval. Thus, if FERC has not approved CIP-005-3 when it approves this interpretation, the interpretation will be referred to as CIP-005-2a until CIP-005-3 is approved by FERC.

The interpretation was approved by the NERC Board of Trustees on February 16, 2010.

NERC's Notice consists of the following:

- This transmittal letter;
- A table of contents for the filing;
- A narrative description explaining how the interpretation meets the reliability goal of the standard involved;
- Interpretation of CIP-006-3 — Cyber Security — Physical Security of Critical Cyber Assets, Requirement R1.1 (**Exhibit A**);
- Reliability Standard CIP-006-3c – Cyber Security – Physical Security of Critical Cyber Assets, that includes the appended interpretation of Requirement R1.1 (**Exhibit B**);
- The complete development record of the interpretation (**Exhibit C**); and
- A roster of the interpretation development team (**Exhibit D**).

Please contact the undersigned if you have any questions.

Respectfully submitted,

/s/ Holly A. Hawkins

Holly A. Hawkins

*Attorney for North American Electric  
Reliability Corporation*

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**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-006-3 — CYBER  
SECURITY — PHYSICAL SECURITY OF CRITICAL CYBER ASSETS,  
REQUIREMENT R1.1**

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May 6, 2010

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Exhibit A — Interpretation of Reliability Standard CIP-006-2 — Cyber Security — Physical Security of Critical Cyber Assets, Requirement R1.1.

Exhibit B — Reliability Standards CIP-006-3— Cyber Security — Physical Security of Critical Cyber Assets, Requirement R1.1, that includes the appended interpretation.

Exhibit C — Complete Record of Development of the Interpretation for Reliability Standards CIP-006-2c— Cyber Security — Physical Security of Critical Cyber Assets, Requirement R1.1.

Exhibit D — Roster of the Interpretation Development Team.

## I. INTRODUCTION

The North American Electric Reliability Corporation (“NERC”) hereby submits this Notice of an interpretation to a requirement of a NERC Reliability Standard:

- CIP-006-3 — Cyber Security — Physical Security of Critical Cyber Assets, Requirement R1.1<sup>2</sup>

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 Reliability Standard CIP-006-3 — Cyber Security — Physical Security of Critical Cyber Assets, Requirement R1.1, on February 16, 2010. . **Exhibit A** to this filing sets forth the proposed interpretation. **Exhibit B** contains the CIP-006-3c Reliability Standard that includes the appended interpretation. **Exhibit C** contains the complete development record of the proposed interpretation to CIP-006-3 — Cyber Security — Physical Security of Critical Cyber Assets, Requirement R1.1. **Exhibit D** contains a roster of the interpretation development team.

NERC filed this interpretation with FERC on April 20, 2010, and is also filing this interpretation with the other applicable governmental authorities in Canada.

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<sup>2</sup> In its submission to FERC, NERC explained that, at the time this interpretation was submitted to NERC, Version 1 of the CIP standards was the version in effect. The request for interpretation was therefore processed referencing CIP-006-1. Since then, CIP-006-2 has been submitted and approved by FERC in the *North American Electric Reliability Corporation*, “Order Approving Revised Reliability Standards for Critical Infrastructure Protection and Requiring Compliance Filing,” 128 FERC ¶ 61,291 (September 30, 2009) (“September 30 Order”). In that Order, FERC noted an effective date of Version 2 of the standards to be April 1, 2010. Additionally, NERC submitted a request for FERC approval of Version 3 of the CIP-002 through CIP-009 standards on December 29, 2009. On March 31, 2010, FERC approved the CIP Version 3 standards in the *North American Electric Reliability Corporation*, “Order on Compliance,” 130 FERC ¶ 61,271 (2010) (March 31, 2010) (“March 31 Order”). In that Order, FERC noted an effective date of Version 3 of the standards to be October 1, 2010. NERC noted in its FERC filing that, upon FERC approval of the interpretation, the standard that included the interpretation will be referred to as either CIP-005-2a or CIP-005-3a, depending on which version of the standard is in effect at the time of FERC approval. Thus, if FERC has not approved CIP-005-3 when it approves this interpretation, the interpretation will be referred to as CIP-005-2a until CIP-005-3 is approved by FERC.

## **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  
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## **III. BACKGROUND**

### **a. Basis of Proposed Interpretation**

While this interpretation does not represent a new or modified Reliability Standard requirement, it does provide instruction with regard to the intent and, in some cases, application of the requirement that will guide compliance to it.

### **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 *Reliability Standards Development Procedure*, which is incorporated into the NERC Rules of Procedure as Appendix 3A.<sup>3</sup> Upon request, NERC will assemble a team with the relevant expertise to address the interpretation

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<sup>3</sup> See NERC's *Reliability Standards Development Procedure Version 7*, approved by the NERC Board of Trustees on November 5, 2009, available at [http://www.nerc.com/files/Appendix\\_3A\\_ReliabilityStandardsDevelopmentProcedure\\_02052010.pdf](http://www.nerc.com/files/Appendix_3A_ReliabilityStandardsDevelopmentProcedure_02052010.pdf).

request and, within 45 days, present the interpretation 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 by FERC and applicable governmental authorities in Canada to be made effective when approved. When the affected Reliability Standard is next substantively revised using the *Reliability Standards Development Procedure*, the interpretation will then be incorporated into the Reliability Standard.

The interpretation set out in **Exhibit A** has been developed and approved by industry stakeholders using NERC's *Reliability Standards Development Procedure*. It was approved by the NERC Board of Trustees on February 16, 2010.

**IV. Reliability Standard CIP-006-3 — Cyber Security — Physical Security of Critical Cyber Assets Requirement R1.1**

NERC submitted CIP-006-3 on January 21, 2010. This filing includes the proposed Reliability Standard CIP-006-3c that contains the appended interpretation in **Exhibit B**. In Section IV (a), below, NERC discusses the proposed interpretation to the standard, and explains the need for the development of an interpretation to Requirement R1.1 of the CIP-006 Reliability Standard. In this discussion, NERC demonstrates that the interpretation is consistent with the stated reliability goals of the Reliability Standard. Section IV (b) below, describes the stakeholder ballot results and an explanation of how stakeholder comments were considered and addressed by the interpretation development team assembled to provide the interpretation.

The complete development record for the interpretation, set forth in **Exhibit C**, 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 D** contains a roster of the team members who developed the proposed interpretation.

#### **a. Justification of Interpretation**

The stated purpose of Reliability Standard CIP-006-3 — 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 the standard 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.<sup>4</sup>

On February 6, 2009, PacifiCorp, with a shared interest from nine other registered entities, submitted a request for formal interpretation of CIP-006-1 — Cyber Security — Physical Security of Critical Cyber Assets, Requirement R1.1. The focus of the request is whether “alternative measures” must be physical in nature.

PacifiCorp requested clarification on several aspects of Requirement R1.1 as outlined in the questions below. Members of the Cyber Security Order No. 706 Standard Authorization Request (“SAR”) Standard Drafting Team were assigned to develop the response to the interpretation request that is presented below:

#### **Question**

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<sup>4</sup> The requirements in R1 and R1.1 of CIP-006-3 are identical to the R1 and R1.1 requirements in the FERC-approved CIP-006-2 version of the standard.



If a completely enclosed border cannot be created, what does the phrase, “to control physical access” require? Must the alternative measure be physical in nature? If so, must the physical barrier literally prevent physical access *e.g.* using concrete encased fiber, or can the alternative measure effectively mitigate the risks associated with physical access through cameras, motions sensors, or encryption?

Does this requirement preclude the application of logical controls as an alternative measure in mitigating the risks of physical access to Critical Cyber Assets?

**Response**

*For Electronic Security Perimeter wiring external to a Physical Security Perimeter, the drafting team interprets the Requirement R1.1 as not limited to measures that are “physical in nature.” The alternative measures may be physical or logical, on the condition that they provide security equivalent or better to a completely enclosed (“six-wall”) border. Alternative physical control measures may include, but are not limited to, multiple physical access control layers within a non-public, controlled space. Alternative logical control measures may include, but are not limited to, data encryption and/or circuit monitoring to detect unauthorized access or physical tampering.*

The interpretation 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. Where a completely enclosed border cannot be established, the Reliability Standard permits the deployment of alternative measures to control physical access. In this context, the interpretation request discusses connections between multiple Physical Security Perimeters that reside within a single Electronic Security Perimeter, and the protection of Cyber Assets within it.

The interpretation clarifies that alternative measures to “control” physical access may comprise both physical as well as logical measures. Acceptable alternative non-physical control measures may include, for example, data encryption for protection and

circuit monitoring for detection of unauthorized physical access or tampering. The main objective of the Reliability Standard can be achieved through any measure, physical or logical, that succeeds in controlling physical access to the Critical Cyber Asset, providing an equivalent security posture consistent with the intent of the standard and objective of the requirement. The interpretation therefore is consistent with the Reliability Standard's purpose.

### **b. Summary of the Reliability Standard Development Proceedings**

NERC presented the interpretation response for pre-ballot review on July 27, 2009. The initial ballot was conducted from August 27, 2009 through September 8, 2009 and achieved a quorum of 84.92 percent with a weighted affirmative approval of 79.04 percent. There were 34 negative ballots submitted in the initial ballot, and 20 of those ballots included a comment, which initiated the need for a recirculation ballot.

The recirculation ballot was conducted from December 11, 2009 through December 23, 2009 and achieved a quorum of 90.08 percent with a weighted affirmative approval of 78.77 percent. There were 39 negative ballots submitted in the recirculation ballot, and 22 of those ballots included a comment. Some balloters listed more than one reason for their negative ballot.

As demonstrated in the summary of comments presented below, several commenters noted disagreement with the standard drafting team's interpretation that wiring is a component of a communication network and needs protection. More specifically, the reasons cited for the negative ballots included the following:

- Five balloters did not believe the interpretation fully addressed the issues raised by PacifiCorp. The balloters indicated the response only addressed the ESP wiring external to a PSP and not alternative measures to control physical access to Critical Cyber Assets that may not reside within a "six-wall" physical border.

- Three balloters indicated wiring does not qualify as a Critical Cyber Asset subject to CIP requirements. Some balloters offered opinions of what should be considered Critical Cyber Assets:
  - Critical Cyber Assets are those that are IP addressable (routable) or accessible via hard lines (*i.e.* telephone or modem).
  - Critical Cyber Assets are those components to which the wires are connected, such as patch panels, routers, switches, *etc.*
- Three balloters indicated the response to question 3 is confusing and introduces ambiguity into the standards, stating that a thorough analysis of the implications of defining endpoints as either physical or logical and the resulting impact on the rest of the standards has not been completed.
- Two balloters indicated the question being asked is broader than just the location of the wiring that makes up part of the ESP. One balloter requested more specifics for what constitutes appropriate alternative measures, what is meant by control, and how a logical measure could be equivalent to or better than a physical measure, stating that logical controls will not prevent a cable from being cut.
- Two balloters indicated that Requirement R1.1 requires physical measures and does not reference logical measures. One balloter stated that encryption does not control physical access in any way. Though the balloter indicated support for allowing alternative protective measures, both balloters indicated this interpretation would essentially change the requirement and standard, which is inconsistent with the NERC *Reliability Standards Development Procedure* (*i.e.*, interpretations may not be used to change a requirement or a standard).
- One balloter indicated the interpretation lacked clarity regarding the characteristics of an “endpoint” and what devices are in scope as being associated with “data communication links.”
- One balloter suggested the drafting team explain the purpose of a six-wall border and measures for effectiveness, which would allow for an alternative implementation to be measured.
- One balloter requested clarification regarding whether “wiring” is meant as physical wires or a broader concept of communication paths, “including intermediate devices such as repeaters, bridges, frame relay devices, MPLS nodes, *etc.*” The balloter also requested clarification regarding which elements of security need to be provided (confidentiality, integrity, availability, *etc.*).
- One balloter seemed to indicate support for this interpretation but voted no with a reference to another interpretation. The balloter indicated this interpretation for CIP-006-1 Requirement R1 clarifies the option to use logical controls as alternative measures, which is something the company supported. The balloter explained the posted interpretation of CIP-005-1, Section 4.2.2 and CIP-005-1, Requirement R1.3, did provide the clarity the company sought regarding the characteristics of an “endpoint” and what devices are in scope as being associated with “data communication links.”

- One balloter indicated the response introduces a reference to wiring, but the question did not specifically refer to wiring.
- One balloter indicated concern that this interpretation would make compliance at power plants nearly impossible.
- One balloter indicated that the interpretation response inadvertently resulted in expanding the requirements of the standard rather than interpreting the existing requirement. The balloter stated that neither Requirement R1.1 (CIP-006-1) nor Requirement 3 (CIP-002-1) specifically discusses or identifies wiring as a Critical Cyber Asset that would need physical protection within a six-wall barrier.

The standard drafting team responded to comments by explaining that the definition of Cyber Asset in the NERC Glossary includes communication networks, and that the physical media (wiring) is a component of the communication network. Furthermore, the standard drafting team indicated its belief that logical methods are within the spectrum of potential alternative measures for CIP-006 Requirement R1.1.<sup>5</sup>

## **V. CONCLUSION**

NERC requests that the AESO take the steps necessary to make the proposed interpretation to Reliability Standard CIP-006-3, as set out in Exhibit A, effective within the province of Alberta.

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<sup>5</sup> Note that FERC also ordered NERC to include this requirement in those to be considered for Technical Feasibility Exceptions (“TFEs”). See *North American Electric Reliability Corporation*, “Order Approving Technical Feasibility Exception Procedures And Ordering Compliance Filing,” 130 FERC ¶ 61,050 (January 21, 2010).

Respectfully submitted,

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/s/ Holly A. Hawkins  
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**Exhibit A**

**Interpretation of Reliability Standard CIP-006-2 — Cyber Security — Physical Security of Critical Cyber Assets, Requirement R1.1 Proposed for Approval**

Note: an Interpretation cannot be used to change a standard.

Request for an Interpretation of a Reliability Standard	
<b>Date submitted:</b>	02/06/09
Contact information for person requesting the interpretation:	
<b>Name:</b>	Daniel Marvin
<b>Organization:</b>	PacifiCorp
<b>Telephone:</b>	503.813.5375
<b>E-mail:</b>	daniel.marvin@pacificorp.com
Identify the standard that needs clarification:	
<b>Standard Number (include version number):</b>	CIP-006-1.R1.1
<b>Standard Title:</b>	CIP-006-1 --Cyber Security -- Physical Security
Identify specifically what needs clarification (If a category is not applicable, please leave it blank):	
<b>Requirement Number and Text of Requirement:</b>	CIP-006-1 R1.1
<p><b>R1.1</b> 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.</p>	
<b>Clarification needed:</b>	
<p>If a completely enclosed border cannot be created, what does the phrase, “to control physical access” require? Must the alternative measure be physical in nature? If so, must the physical barrier literally prevent physical access e.g. using concrete encased fiber, or can the alternative measure effectively mitigate the risks associated with physical access through cameras, motions sensors, or encryption?</p>	
<p>Does this requirement preclude the application of logical controls as an alternative measure in mitigating the risks of physical access to Critical Cyber Assets?</p>	
Identify the material impact associated with this interpretation:	

## Request for an Interpretation of a Reliability Standard

The material impact is potential non-compliance with the standard as written.

**Other industry entities interested in the clarification requested above are:**

- PacifiCorp
- Idaho Power
- Puget Sound Energy
- Platte River Power Authority
- Eugene Water & Electric Board
- Seattle City Light
- Arizona Public Service
- Bonneville Power Administration
- TransAlta
- Xcelenergy



**Project 2009-13: Response to Request for an Interpretation of CIP-006-1 Requirement R1.1 for PacifiCorp**

The following interpretation of CIP-006-1 — Cyber Security — Physical Security of Critical Cyber Assets was developed by the Cyber Security Order 706 SAR drafting team.

**Requirement Number and Text of Requirement**

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

R1.1. Processes to ensure and document that all Cyber Assets within an Electronic Security Perimeter 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.

**Question**

If a completely enclosed border cannot be created, what does the phrase, “to control physical access” require? Must the alternative measure be physical in nature? If so, must the physical barrier literally prevent physical access e.g. using concrete encased fiber, or can the alternative measure effectively mitigate the risks associated with physical access through cameras, motions sensors, or encryption?

Does this requirement preclude the application of logical controls as an alternative measure in mitigating the risks of physical access to Critical Cyber Assets?

**Response**

For Electronic Security Perimeter wiring external to a Physical Security Perimeter, the drafting team interprets the Requirement R1.1 as not limited to measures that are “physical in nature.” The alternative measures may be physical or logical, on the condition that they provide security equivalent or better to a completely enclosed (“six-wall”) border. Alternative physical control measures may include, but are not limited to, multiple physical access control layers within a non-public, controlled space. Alternative logical control measures may include, but are not limited to, data encryption and/or circuit monitoring to detect unauthorized access or physical tampering.

**Exhibit B**

**Reliability Standard CIP-006-3c — Cyber Security — Physical Security of Critical  
Cyber Assets, Requirement R1.1 that includes the Appended Interpretation  
(Clean and Redline)**

## A. Introduction

1. **Title:** Cyber Security — Physical Security of Critical Cyber Assets
2. **Number:** CIP-006-3c
3. **Purpose:** Standard CIP-006-3 is intended to ensure the implementation of a physical security program for the protection of Critical Cyber Assets. Standard CIP-006-3 should be read as part of a group of standards numbered Standards CIP-002-3 through CIP-009-3.
4. **Applicability:**
  - 4.1. Within the text of Standard CIP-006-3, “Responsible Entity” shall mean:
    - 4.1.1 Reliability Coordinator
    - 4.1.2 Balancing Authority
    - 4.1.3 Interchange Authority
    - 4.1.4 Transmission Service Provider
    - 4.1.5 Transmission Owner
    - 4.1.6 Transmission Operator
    - 4.1.7 Generator Owner
    - 4.1.8 Generator Operator
    - 4.1.9 Load Serving Entity
    - 4.1.10 NERC
    - 4.1.11 Regional Entity
  - 4.2. The following are exempt from Standard CIP-006-3:
    - 4.2.1 Facilities regulated by the U.S. Nuclear Regulatory Commission or the Canadian Nuclear Safety Commission.
    - 4.2.2 Cyber Assets associated with communication networks and data communication links between discrete Electronic Security Perimeters.
    - 4.2.3 Responsible Entities that, in compliance with Standard CIP-002-3, identify that they have no Critical Cyber Assets
5. **Effective Date:** The first day of the third calendar quarter after applicable regulatory approvals have been received (or the Reliability Standard otherwise becomes effective the first day of the third calendar quarter after BOT adoption in those jurisdictions where regulatory approval is not required).

## B. Requirements

- 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.
  - R1.2. Identification of all physical access points through each Physical Security Perimeter and measures to control entry at those access points.
  - R1.3. Processes, tools, and procedures to monitor physical access to the perimeter(s).

- R1.4.** Appropriate use of physical access controls as described in Requirement R4 including visitor pass management, response to loss, and prohibition of inappropriate use of physical access controls.
- R1.5.** Review of access authorization requests and revocation of access authorization, in accordance with CIP-004-3 Requirement R4.
- R1.6.** A visitor control program for visitors (personnel without authorized unescorted access to a Physical Security Perimeter), containing at a minimum the following:
  - R1.6.1.** Logs (manual or automated) to document the entry and exit of visitors, including the date and time, to and from Physical Security Perimeters.
  - R1.6.2.** Continuous escorted access of visitors within the Physical Security Perimeter.
- R1.7.** Update of the physical security plan within thirty calendar days of the completion of any physical security system redesign or reconfiguration, including, but not limited to, addition or removal of access points through the Physical Security Perimeter, physical access controls, monitoring controls, or logging controls.
- R1.8.** Annual review of the physical security plan.
- R2.** Protection of Physical Access Control Systems — Cyber Assets that authorize and/or log access to the Physical Security Perimeter(s), exclusive of hardware at the Physical Security Perimeter access point such as electronic lock control mechanisms and badge readers, shall:
  - R2.1.** Be protected from unauthorized physical access.
  - R2.2.** Be afforded the protective measures specified in Standard CIP-003-3; Standard CIP-004-3 Requirement R3; Standard CIP-005-3 Requirements R2 and R3; Standard CIP-006-3 Requirements R4 and R5; Standard CIP-007-3; Standard CIP-008-3; and Standard CIP-009-3.
- R3.** Protection of Electronic Access Control Systems — Cyber Assets used in the access control and/or monitoring of the Electronic Security Perimeter(s) shall reside within an identified Physical Security Perimeter.
- R4.** Physical Access Controls — The Responsible Entity shall document and implement the operational and procedural controls to manage physical access at all access points to the Physical Security Perimeter(s) twenty-four hours a day, seven days a week. The Responsible Entity shall implement one or more of the following physical access methods:
  - Card Key: A means of electronic access where the access rights of the card holder are predefined in a computer database. Access rights may differ from one perimeter to another.
  - Special Locks: These include, but are not limited to, locks with “restricted key” systems, magnetic locks that can be operated remotely, and “man-trap” systems.
  - Security Personnel: Personnel responsible for controlling physical access who may reside on-site or at a monitoring station.
  - Other Authentication Devices: Biometric, keypad, token, or other equivalent devices that control physical access to the Critical Cyber Assets.
- R5.** Monitoring Physical Access — The Responsible Entity shall document and implement the technical and procedural controls for monitoring physical access at all access points to the Physical Security Perimeter(s) twenty-four hours a day, seven days a week. Unauthorized access attempts shall be reviewed immediately and handled in accordance with the procedures specified in Requirement CIP-008-3. One or more of the following monitoring methods shall be used:

- Alarm Systems: Systems that alarm to indicate a door, gate or window has been opened without authorization. These alarms must provide for immediate notification to personnel responsible for response.
  - Human Observation of Access Points: Monitoring of physical access points by authorized personnel as specified in Requirement R4.
- R6.** Logging Physical Access — Logging shall record sufficient information to uniquely identify individuals and the time of access twenty-four hours a day, seven days a week. The Responsible Entity shall implement and document the technical and procedural mechanisms for logging physical entry at all access points to the Physical Security Perimeter(s) using one or more of the following logging methods or their equivalent:
- Computerized Logging: Electronic logs produced by the Responsible Entity’s selected access control and monitoring method.
  - Video Recording: Electronic capture of video images of sufficient quality to determine identity.
  - Manual Logging: A log book or sign-in sheet, or other record of physical access maintained by security or other personnel authorized to control and monitor physical access as specified in Requirement R4.
- R7.** Access Log Retention — The Responsible Entity shall retain physical access logs for at least ninety calendar days. Logs related to reportable incidents shall be kept in accordance with the requirements of Standard CIP-008-3.
- R8.** Maintenance and Testing — The Responsible Entity shall implement a maintenance and testing program to ensure that all physical security systems under Requirements R4, R5, and R6 function properly. The program must include, at a minimum, the following:
- R8.1.** Testing and maintenance of all physical security mechanisms on a cycle no longer than three years.
  - R8.2.** Retention of testing and maintenance records for the cycle determined by the Responsible Entity in Requirement R8.1.
  - R8.3.** Retention of outage records regarding access controls, logging, and monitoring for a minimum of one calendar year.

**C. Measures**

- M1.** The Responsible Entity shall make available the physical security plan as specified in Requirement R1 and documentation of the implementation, review and updating of the plan.
- M2.** The Responsible Entity shall make available documentation that the physical access control systems are protected as specified in Requirement R2.
- M3.** The Responsible Entity shall make available documentation that the electronic access control systems are located within an identified Physical Security Perimeter as specified in Requirement R3.
- M4.** The Responsible Entity shall make available documentation identifying the methods for controlling physical access to each access point of a Physical Security Perimeter as specified in Requirement R4.
- M5.** The Responsible Entity shall make available documentation identifying the methods for monitoring physical access as specified in Requirement R5.
- M6.** The Responsible Entity shall make available documentation identifying the methods for logging physical access as specified in Requirement R6.

- M7.** The Responsible Entity shall make available documentation to show retention of access logs as specified in Requirement R7.
- M8.** The Responsible Entity shall make available documentation to show its implementation of a physical security system maintenance and testing program as specified in Requirement R8.

## **D. Compliance**

### **1. Compliance Monitoring Process**

#### **1.1. Compliance Enforcement Authority**

- 1.1.1** Regional Entity for Responsible Entities that do not perform delegated tasks for their Regional Entity.
- 1.1.2** ERO for Regional Entities.
- 1.1.3** Third-party monitor without vested interest in the outcome for NERC.

#### **1.2. Compliance Monitoring Period and Reset Time Frame**

Not applicable.

#### **1.3. Compliance Monitoring and Enforcement Processes**

Compliance Audits  
Self-Certifications  
Spot Checking  
Compliance Violation Investigations  
Self-Reporting  
Complaints

#### **1.4. Data Retention**

- 1.4.1** The Responsible Entity shall keep documents other than those specified in Requirements R7 and R8.2 from the previous full calendar year unless directed by its Compliance Enforcement Authority to retain specific evidence for a longer period of time as part of an investigation.
- 1.4.2** The Compliance Enforcement Authority in conjunction with the Registered Entity shall keep the last audit records and all requested and submitted subsequent audit records.

#### **1.5. Additional Compliance Information**

- 1.5.1** The Responsible Entity may not make exceptions in its cyber security policy to the creation, documentation, or maintenance of a physical security plan.
- 1.5.2** For dial-up accessible Critical Cyber Assets that use non-routable protocols, the Responsible Entity shall not be required to comply with Standard CIP-006-3 for that single access point at the dial-up device.

### **2. Violation Severity Levels (Under development by the CIP VSL Drafting Team)**

## **E. Regional Variances**

None identified.

**Version History**

<b>Version</b>	<b>Date</b>	<b>Action</b>	<b>Change Tracking</b>
2		<p>Modifications to remove extraneous information from the requirements, improve readability, and to bring the compliance elements into conformance with the latest guidelines for developing compliance elements of standards.</p> <p>Replaced the RRO with RE as a responsible entity.</p> <p>Modified CIP-006-1 Requirement R1 to clarify that a physical security plan to protect Critical Cyber Assets must be documented, maintained, implemented, and approved by the senior manager.</p> <p>Revised the wording in R1.2 to identify all “physical” access points. Added Requirement R2 to CIP-006-2 to clarify the requirement to safeguard the Physical Access Control Systems and exclude hardware at the Physical Security Perimeter access point, such as electronic lock control mechanisms and badge readers from the requirement. Requirement R2.1 requires the Responsible Entity to protect the Physical Access Control Systems from unauthorized access. CIP-006-1 Requirement R1.8 was moved to become CIP-006-2 Requirement R2.2.</p> <p>Added Requirement R3 to CIP-006-2, clarifying the requirement for Electronic Access Control Systems to be safeguarded within an identified Physical Security Perimeter.</p> <p>The sub requirements of CIP-006-2 Requirements R4, R5, and R6 were changed from formal requirements to bulleted lists of options consistent with the intent of the requirements.</p> <p>Changed the Compliance Monitor to Compliance Enforcement Authority.</p>	
3		<p>Updated version numbers from -2 to -3</p> <p>Revised Requirement 1.6 to add a Visitor Control program component to the Physical Security Plan, in response to FERC order issued September 30, 2009.</p> <p>In Requirement R7, the term “Responsible Entity” was capitalized.</p>	
	11/18/2009	Updated Requirements R1.6.1 and R1.6.2 to be responsive to FERC Order RD09-7	
3	12/16/09	Approved by NERC Board of Trustees	Update
1a	02/12/08	Added Appendix 1: Interpretation of R1 and Additional Compliance Information Section 1.4.4 as adopted by the Board of Trustees	Interpretation
1b	08/05/09	Added Appendix 2: Interpretation of R4 as adopted by the Board of Trustees	Interpretation
3c	02/16/10	Added Appendix 1 — Interpretation of R1.3 approved by BOT on February 16, 2010	Interpretation

## Appendix 1

### Interpretation of Requirement R1.1.

**Request:** *Are dial-up RTUs that use non-routable protocols and have dial-up access required to have a six-wall perimeters or are they exempted from CIP-006-1 and required to have only electronic security perimeters? This has a direct impact on how any identified RTUs will be physically secured.*

**Interpretation:**

Dial-up assets are Critical Cyber Assets, assuming they meet the criteria in CIP-002-1, and they must reside within an Electronic Security Perimeter. However, physical security control over a critical cyber asset is not required if that asset does not have a routable protocol. Since there is minimal risk of compromising other critical cyber assets dial-up devices such as Remote Terminals Units that do not use routable protocols are not required to be enclosed within a “six-wall” border.

**CIP-006-1 — Requirement 1.1** requires a Responsible Entity to have a physical security plan that stipulate cyber assets that are within the Electronic Security Perimeter also be within a Physical Security Perimeter.

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

**R1.1. Processes to ensure and document that all Cyber Assets within an Electronic Security Perimeter 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.**

**CIP-006-1 — Additional Compliance Information 1.4.4** identifies dial-up accessible assets that use non-routable protocols as a special class of cyber assets that are not subject to the Physical Security Perimeter requirement of this standard.

**1.4. Additional Compliance Information**

**1.4.4 For dial-up accessible Critical Cyber Assets that use non-routable protocols, the Responsible Entity shall not be required to comply with Standard CIP-006 for that single access point at the dial-up device.**



## Appendix 2

The following interpretation of CIP-006-1a — Cyber Security — Physical Security of Critical Cyber Assets, Requirement R4 was developed by the standard drafting team assigned to Project 2008-14 (Cyber Security Violation Severity Levels) on October 23, 2008.

### Request:

1. *For physical access control to cyber assets, does this include monitoring when an individual leaves the controlled access cyber area?*
2. *Does the term, “time of access” mean logging when the person entered the facility or does it mean logging the entry/exit time and “length” of time the person had access to the critical asset?*

### Interpretation:

No, monitoring and logging of access are only required for ingress at this time. The term “time of access” refers to the time an authorized individual enters the physical security perimeter.

### Requirement Number and Text of Requirement

- R4. Logging Physical Access — Logging shall record sufficient information to uniquely identify individuals and the time of access twenty-four hours a day, seven days a week. The Responsible Entity shall implement and document the technical and procedural mechanisms for logging physical entry at all access points to the Physical Security Perimeter(s) using one or more of the following logging methods or their equivalent:**
- R4.1. Computerized Logging: Electronic logs produced by the Responsible Entity’s selected access control and monitoring method.**
  - R4.2. Video Recording: Electronic capture of video images of sufficient quality to determine identity.**
  - R4.3. Manual Logging: A log book or sign-in sheet, or other record of physical access maintained by security or other personnel authorized to control and monitor physical access as specified in Requirement R2.3.**

### Appendix 3

<b>Requirement Number and Text of Requirement</b>
<p>R1. Physical Security Plan — The Responsible Entity shall create and maintain a physical security plan, approved by a senior manager or delegate(s) that shall address, at a minimum, the following:</p> <p style="padding-left: 40px;">R1.1. Processes to ensure and document that all Cyber Assets within an Electronic Security Perimeter 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.</p>
<b>Question</b>
<p>If a completely enclosed border cannot be created, what does the phrase, “to control physical access” require? Must the alternative measure be physical in nature? If so, must the physical barrier literally prevent physical access e.g. using concrete encased fiber, or can the alternative measure effectively mitigate the risks associated with physical access through cameras, motions sensors, or encryption?</p> <p>Does this requirement preclude the application of logical controls as an alternative measure in mitigating the risks of physical access to Critical Cyber Assets?</p>
<b>Response</b>
<p>For Electronic Security Perimeter wiring external to a Physical Security Perimeter, the drafting team interprets the Requirement R1.1 as not limited to measures that are “physical in nature.” The alternative measures may be physical or logical, on the condition that they provide security equivalent or better to a completely enclosed (“six-wall”) border. Alternative physical control measures may include, but are not limited to, multiple physical access control layers within a non-public, controlled space. Alternative logical control measures may include, but are not limited to, data encryption and/or circuit monitoring to detect unauthorized access or physical tampering.</p>

## A. Introduction

1. **Title:** Cyber Security — Physical Security of Critical Cyber Assets
2. **Number:** CIP-006-3c
3. **Purpose:** Standard CIP-006-3 is intended to ensure the implementation of a physical security program for the protection of Critical Cyber Assets. Standard CIP-006-3 should be read as part of a group of standards numbered Standards CIP-002-3 through CIP-009-3.
4. **Applicability:**
  - 4.1. Within the text of Standard CIP-006-3, “Responsible Entity” shall mean:
    - 4.1.1 Reliability Coordinator
    - 4.1.2 Balancing Authority
    - 4.1.3 Interchange Authority
    - 4.1.4 Transmission Service Provider
    - 4.1.5 Transmission Owner
    - 4.1.6 Transmission Operator
    - 4.1.7 Generator Owner
    - 4.1.8 Generator Operator
    - 4.1.9 Load Serving Entity
    - 4.1.10 NERC
    - 4.1.11 Regional Entity
  - 4.2. The following are exempt from Standard CIP-006-3:
    - 4.2.1 Facilities regulated by the U.S. Nuclear Regulatory Commission or the Canadian Nuclear Safety Commission.
    - 4.2.2 Cyber Assets associated with communication networks and data communication links between discrete Electronic Security Perimeters.
    - 4.2.3 Responsible Entities that, in compliance with Standard CIP-002-3, identify that they have no Critical Cyber Assets
5. **Effective Date:** The first day of the third calendar quarter after applicable regulatory approvals have been received (or the Reliability Standard otherwise becomes effective the first day of the third calendar quarter after BOT adoption in those jurisdictions where regulatory approval is not required).

## B. Requirements

- 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.
  - R1.2. Identification of all physical access points through each Physical Security Perimeter and measures to control entry at those access points.
  - R1.3. Processes, tools, and procedures to monitor physical access to the perimeter(s).

- R1.4.** Appropriate use of physical access controls as described in Requirement R4 including visitor pass management, response to loss, and prohibition of inappropriate use of physical access controls.
- R1.5.** Review of access authorization requests and revocation of access authorization, in accordance with CIP-004-3 Requirement R4.
- R1.6.** A visitor control program for visitors (personnel without authorized unescorted access to a Physical Security Perimeter), containing at a minimum the following:
  - R1.6.1.** Logs (manual or automated) to document the entry and exit of visitors, including the date and time, to and from Physical Security Perimeters.
  - R1.6.2.** Continuous escorted access of visitors within the Physical Security Perimeter.
- R1.7.** Update of the physical security plan within thirty calendar days of the completion of any physical security system redesign or reconfiguration, including, but not limited to, addition or removal of access points through the Physical Security Perimeter, physical access controls, monitoring controls, or logging controls.
- R1.8.** Annual review of the physical security plan.
- R2.** Protection of Physical Access Control Systems — Cyber Assets that authorize and/or log access to the Physical Security Perimeter(s), exclusive of hardware at the Physical Security Perimeter access point such as electronic lock control mechanisms and badge readers, shall:
  - R2.1.** Be protected from unauthorized physical access.
  - R2.2.** Be afforded the protective measures specified in Standard CIP-003-3; Standard CIP-004-3 Requirement R3; Standard CIP-005-3 Requirements R2 and R3; Standard CIP-006-3 Requirements R4 and R5; Standard CIP-007-3; Standard CIP-008-3; and Standard CIP-009-3.
- R3.** Protection of Electronic Access Control Systems — Cyber Assets used in the access control and/or monitoring of the Electronic Security Perimeter(s) shall reside within an identified Physical Security Perimeter.
- R4.** Physical Access Controls — The Responsible Entity shall document and implement the operational and procedural controls to manage physical access at all access points to the Physical Security Perimeter(s) twenty-four hours a day, seven days a week. The Responsible Entity shall implement one or more of the following physical access methods:
  - Card Key: A means of electronic access where the access rights of the card holder are predefined in a computer database. Access rights may differ from one perimeter to another.
  - Special Locks: These include, but are not limited to, locks with “restricted key” systems, magnetic locks that can be operated remotely, and “man-trap” systems.
  - Security Personnel: Personnel responsible for controlling physical access who may reside on-site or at a monitoring station.
  - Other Authentication Devices: Biometric, keypad, token, or other equivalent devices that control physical access to the Critical Cyber Assets.
- R5.** Monitoring Physical Access — The Responsible Entity shall document and implement the technical and procedural controls for monitoring physical access at all access points to the Physical Security Perimeter(s) twenty-four hours a day, seven days a week. Unauthorized access attempts shall be reviewed immediately and handled in accordance with the procedures specified in Requirement CIP-008-3. One or more of the following monitoring methods shall be used:

- Alarm Systems: Systems that alarm to indicate a door, gate or window has been opened without authorization. These alarms must provide for immediate notification to personnel responsible for response.
  - Human Observation of Access Points: Monitoring of physical access points by authorized personnel as specified in Requirement R4.
- R6.** Logging Physical Access — Logging shall record sufficient information to uniquely identify individuals and the time of access twenty-four hours a day, seven days a week. The Responsible Entity shall implement and document the technical and procedural mechanisms for logging physical entry at all access points to the Physical Security Perimeter(s) using one or more of the following logging methods or their equivalent:
- Computerized Logging: Electronic logs produced by the Responsible Entity’s selected access control and monitoring method.
  - Video Recording: Electronic capture of video images of sufficient quality to determine identity.
  - Manual Logging: A log book or sign-in sheet, or other record of physical access maintained by security or other personnel authorized to control and monitor physical access as specified in Requirement R4.
- R7.** Access Log Retention — The Responsible Entity shall retain physical access logs for at least ninety calendar days. Logs related to reportable incidents shall be kept in accordance with the requirements of Standard CIP-008-3.
- R8.** Maintenance and Testing — The Responsible Entity shall implement a maintenance and testing program to ensure that all physical security systems under Requirements R4, R5, and R6 function properly. The program must include, at a minimum, the following:
- R8.1.** Testing and maintenance of all physical security mechanisms on a cycle no longer than three years.
  - R8.2.** Retention of testing and maintenance records for the cycle determined by the Responsible Entity in Requirement R8.1.
  - R8.3.** Retention of outage records regarding access controls, logging, and monitoring for a minimum of one calendar year.

### C. Measures

- M1.** The Responsible Entity shall make available the physical security plan as specified in Requirement R1 and documentation of the implementation, review and updating of the plan.
- M2.** The Responsible Entity shall make available documentation that the physical access control systems are protected as specified in Requirement R2.
- M3.** The Responsible Entity shall make available documentation that the electronic access control systems are located within an identified Physical Security Perimeter as specified in Requirement R3.
- M4.** The Responsible Entity shall make available documentation identifying the methods for controlling physical access to each access point of a Physical Security Perimeter as specified in Requirement R4.
- M5.** The Responsible Entity shall make available documentation identifying the methods for monitoring physical access as specified in Requirement R5.
- M6.** The Responsible Entity shall make available documentation identifying the methods for logging physical access as specified in Requirement R6.

- M7.** The Responsible Entity shall make available documentation to show retention of access logs as specified in Requirement R7.
- M8.** The Responsible Entity shall make available documentation to show its implementation of a physical security system maintenance and testing program as specified in Requirement R8.

## **D. Compliance**

### **1. Compliance Monitoring Process**

#### **1.1. Compliance Enforcement Authority**

- 1.1.1** Regional Entity for Responsible Entities that do not perform delegated tasks for their Regional Entity.
- 1.1.2** ERO for Regional Entities.
- 1.1.3** Third-party monitor without vested interest in the outcome for NERC.

#### **1.2. Compliance Monitoring Period and Reset Time Frame**

Not applicable.

#### **1.3. Compliance Monitoring and Enforcement Processes**

Compliance Audits  
Self-Certifications  
Spot Checking  
Compliance Violation Investigations  
Self-Reporting  
Complaints

#### **1.4. Data Retention**

- 1.4.1** The Responsible Entity shall keep documents other than those specified in Requirements R7 and R8.2 from the previous full calendar year unless directed by its Compliance Enforcement Authority to retain specific evidence for a longer period of time as part of an investigation.
- 1.4.2** The Compliance Enforcement Authority in conjunction with the Registered Entity shall keep the last audit records and all requested and submitted subsequent audit records.

#### **1.5. Additional Compliance Information**

- 1.5.1** The Responsible Entity may not make exceptions in its cyber security policy to the creation, documentation, or maintenance of a physical security plan.
- 1.5.2** For dial-up accessible Critical Cyber Assets that use non-routable protocols, the Responsible Entity shall not be required to comply with Standard CIP-006-3 for that single access point at the dial-up device.

### **2. Violation Severity Levels (Under development by the CIP VSL Drafting Team)**

## **E. Regional Variances**

None identified.

**Version History**

Version	Date	Action	Change Tracking
2		<p>Modifications to remove extraneous information from the requirements, improve readability, and to bring the compliance elements into conformance with the latest guidelines for developing compliance elements of standards.</p> <p>Replaced the RRO with RE as a responsible entity.</p> <p>Modified CIP-006-1 Requirement R1 to clarify that a physical security plan to protect Critical Cyber Assets must be documented, maintained, implemented, and approved by the senior manager.</p> <p>Revised the wording in R1.2 to identify all “physical” access points. Added Requirement R2 to CIP-006-2 to clarify the requirement to safeguard the Physical Access Control Systems and exclude hardware at the Physical Security Perimeter access point, such as electronic lock control mechanisms and badge readers from the requirement. Requirement R2.1 requires the Responsible Entity to protect the Physical Access Control Systems from unauthorized access. CIP-006-1 Requirement R1.8 was moved to become CIP-006-2 Requirement R2.2.</p> <p>Added Requirement R3 to CIP-006-2, clarifying the requirement for Electronic Access Control Systems to be safeguarded within an identified Physical Security Perimeter.</p> <p>The sub requirements of CIP-006-2 Requirements R4, R5, and R6 were changed from formal requirements to bulleted lists of options consistent with the intent of the requirements.</p> <p>Changed the Compliance Monitor to Compliance Enforcement Authority.</p>	
3		<p>Updated version numbers from -2 to -3</p> <p>Revised Requirement 1.6 to add a Visitor Control program component to the Physical Security Plan, in response to FERC order issued September 30, 2009.</p> <p>In Requirement R7, the term “Responsible Entity” was capitalized.</p>	
	11/18/2009	Updated Requirements R1.6.1 and R1.6.2 to be responsive to FERC Order RD09-7	
3	12/16/09	Approved by NERC Board of Trustees	Update
<a href="#">1a</a>	<a href="#">02/12/08</a>	<a href="#">Added Appendix 1: Interpretation of R1 and Additional Compliance Information Section 1.4.4 as adopted by the Board of Trustees</a>	<a href="#">Interpretation</a>
<a href="#">1b</a>	<a href="#">08/05/09</a>	<a href="#">Added Appendix 2: Interpretation of R4 as adopted by the Board of Trustees</a>	<a href="#">Interpretation</a>
<a href="#">3c</a>	<a href="#">02/16/10</a>	<a href="#">Added Appendix 1 — Interpretation of R1.3 approved by BOT on February 16, 2010</a>	<a href="#">Interpretation</a>

## Appendix 1

### Interpretation of Requirement R1.1.

**Request:** *Are dial-up RTUs that use non-routable protocols and have dial-up access required to have a six-wall perimeters or are they exempted from CIP-006-1 and required to have only electronic security perimeters? This has a direct impact on how any identified RTUs will be physically secured.*

**Interpretation:**

Dial-up assets are Critical Cyber Assets, assuming they meet the criteria in CIP-002-1, and they must reside within an Electronic Security Perimeter. However, physical security control over a critical cyber asset is not required if that asset does not have a routable protocol. Since there is minimal risk of compromising other critical cyber assets dial-up devices such as Remote Terminals Units that do not use routable protocols are not required to be enclosed within a “six-wall” border.

**CIP-006-1 — Requirement 1.1** requires a Responsible Entity to have a physical security plan that stipulate cyber assets that are within the Electronic Security Perimeter also be within a Physical Security Perimeter.

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

**R1.1. Processes to ensure and document that all Cyber Assets within an Electronic Security Perimeter 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.**

**CIP-006-1 — Additional Compliance Information 1.4.4** identifies dial-up accessible assets that use non-routable protocols as a special class of cyber assets that are not subject to the Physical Security Perimeter requirement of this standard.

**1.4. Additional Compliance Information**

**1.4.4 For dial-up accessible Critical Cyber Assets that use non-routable protocols, the Responsible Entity shall not be required to comply with Standard CIP-006 for that single access point at the dial-up device.**



## Appendix 2

The following interpretation of CIP-006-1a — Cyber Security — Physical Security of Critical Cyber Assets, Requirement R4 was developed by the standard drafting team assigned to Project 2008-14 (Cyber Security Violation Severity Levels) on October 23, 2008.

### Request:

1. *For physical access control to cyber assets, does this include monitoring when an individual leaves the controlled access cyber area?*
2. *Does the term, “time of access” mean logging when the person entered the facility or does it mean logging the entry/exit time and “length” of time the person had access to the critical asset?*

### Interpretation:

No, monitoring and logging of access are only required for ingress at this time. The term “time of access” refers to the time an authorized individual enters the physical security perimeter.

### Requirement Number and Text of Requirement

- R4. Logging Physical Access — Logging shall record sufficient information to uniquely identify individuals and the time of access twenty-four hours a day, seven days a week. The Responsible Entity shall implement and document the technical and procedural mechanisms for logging physical entry at all access points to the Physical Security Perimeter(s) using one or more of the following logging methods or their equivalent:**
- R4.1. Computerized Logging: Electronic logs produced by the Responsible Entity’s selected access control and monitoring method.**
  - R4.2. Video Recording: Electronic capture of video images of sufficient quality to determine identity.**
  - R4.3. Manual Logging: A log book or sign-in sheet, or other record of physical access maintained by security or other personnel authorized to control and monitor physical access as specified in Requirement R2.3.**

### Appendix 3

#### Requirement Number and Text of Requirement

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

R1.1. Processes to ensure and document that all Cyber Assets within an Electronic Security Perimeter 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.

#### Question

If a completely enclosed border cannot be created, what does the phrase, “to control physical access” require? Must the alternative measure be physical in nature? If so, must the physical barrier literally prevent physical access e.g. using concrete encased fiber, or can the alternative measure effectively mitigate the risks associated with physical access through cameras, motions sensors, or encryption?

Does this requirement preclude the application of logical controls as an alternative measure in mitigating the risks of physical access to Critical Cyber Assets?

#### Response

For Electronic Security Perimeter wiring external to a Physical Security Perimeter, the drafting team interprets the Requirement R1.1 as not limited to measures that are “physical in nature.” The alternative measures may be physical or logical, on the condition that they provide security equivalent or better to a completely enclosed (“six-wall”) border. Alternative physical control measures may include, but are not limited to, multiple physical access control layers within a non-public, controlled space. Alternative logical control measures may include, but are not limited to, data encryption and/or circuit monitoring to detect unauthorized access or physical tampering.

**Exhibit C**

**Complete Record of Development of the interpretation for Reliability Standard  
CIP-006-2c — Cyber Security — Physical Security of Critical Cyber Assets,  
Requirement R1.1**

## Project 2009-13 Interpretation of CIP-006-1 R1.1

**Status:**

The interpretation was approved by the NERC Board of Trustees on February 16, 2010.

**Summary:**


The request asks to clarify the following: If a completely enclosed border cannot be created, what does the phrase, "to control physical access" require? Must the alternative measure be physical in nature? If so, must the physical barrier literally prevent physical access e.g. using concrete encased fiber, or can the alternative measure effectively mitigate the risks associated with physical access through cameras, motions sensors, or encryption? Does this requirement preclude the application of logical controls as an alternative measure in mitigating the risks of physical access to Critical Cyber Assets?

**Interpretation Process:**

In accordance with the Reliability Standards Development Procedure, the interpretation must be posted for a 30-day pre-ballot review, and then balloted. There is no public comment period for an interpretation. Balloting will be conducted following the same method used for balloting standards. If the interpretation is approved by its ballot pool, then the interpretation will be appended to the standard and will become effective when adopted by the NERC Board of Trustees and approved by the applicable regulatory authorities. The interpretation will remain appended to the standard until the standard is revised through the normal standards development process. When the standard is revised, the clarifications provided by the interpretation will be incorporated into the revised standard.

Draft	Action	Dates	Results	Consideration of Comments
PacifiCorp Request for Interpretation of CIP-006-1  <a href="#">Interpretation (1)</a>  <a href="#">Request for Interpretation (2)</a>	Recirculation Ballot  <a href="#">Info&gt;&gt; (8)</a>   <a href="#">Vote&gt;&gt;</a>	12/11/09 - 12/23/09 (closed)	<a href="#">Summary&gt;&gt; (9)</a>  <a href="#">Full Record&gt;&gt; (10)</a>	
	Initial Ballot  <a href="#">Info&gt;&gt; (4)</a>   <a href="#">Vote&gt;&gt;</a>	08/27/09 - 09/08/09 (closed)	<a href="#">Summary&gt;&gt; (5)</a>  <a href="#">Full Record&gt;&gt; (6)</a>	<a href="#">Consideration of Comments&gt;&gt; (7)</a>
	Pre-ballot Review  <a href="#">Info&gt;&gt; (3)</a>   <a href="#">Join&gt;&gt;</a>	07/27/09 - 08/27/09 (closed)		

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**Note: an Interpretation cannot be used to change a standard.**

Request for an Interpretation of a Reliability Standard	
<b>Date submitted:</b>	02/06/09
<b>Contact information for person requesting the interpretation:</b>	
<b>Name:</b>	Daniel Marvin
<b>Organization:</b>	PacifiCorp
<b>Telephone:</b>	503.813.5375
<b>E-mail:</b>	daniel.marvin@pacificorp.com
<b>Identify the standard that needs clarification:</b>	
<b>Standard Number (include version number):</b>	CIP-006-1.R1.1
<b>Standard Title:</b>	CIP-006-1 --Cyber Security -- Physical Security
<b>Identify specifically what needs clarification</b> (If a category is not applicable, please leave it blank):	
<b>Requirement Number and Text of Requirement:</b>	CIP-006-1 R1.1
<p><b>R1.1</b> 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.</p>	
<b>Clarification needed:</b>	
<p>If a completely enclosed border cannot be created, what does the phrase, “to control physical access” require? Must the alternative measure be physical in nature? If so, must the physical barrier literally prevent physical access e.g. using concrete encased fiber, or can the alternative measure effectively mitigate the risks associated with physical access through cameras, motions sensors, or encryption?</p> <p>Does this requirement preclude the application of logical controls as an alternative measure in mitigating the risks of physical access to Critical Cyber Assets?</p>	
<b>Identify the material impact associated with this interpretation:</b>	

## Request for an Interpretation of a Reliability Standard

The material impact is potential non-compliance with the standard as written.

**Other industry entities interested in the clarification requested above are:**

- PacifiCorp
- Idaho Power
- Puget Sound Energy
- Platte River Power Authority
- Eugene Water & Electric Board
- Seattle City Light
- Arizona Public Service
- Bonneville Power Administration
- TransAlta
- Xcelenergy

## Project 2009-13: Response to Request for an Interpretation of CIP-006-1 Requirement R1.1 for PacifiCorp

The following interpretation of CIP-006-1 — Cyber Security — Physical Security of Critical Cyber Assets was developed by the Cyber Security Order 706 SAR drafting team.

### Requirement Number and Text of Requirement

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

R1.1. Processes to ensure and document that all Cyber Assets within an Electronic Security Perimeter 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.

### Question

If a completely enclosed border cannot be created, what does the phrase, “to control physical access” require? Must the alternative measure be physical in nature? If so, must the physical barrier literally prevent physical access e.g. using concrete encased fiber, or can the alternative measure effectively mitigate the risks associated with physical access through cameras, motions sensors, or encryption?

Does this requirement preclude the application of logical controls as an alternative measure in mitigating the risks of physical access to Critical Cyber Assets?

### Response

For Electronic Security Perimeter wiring external to a Physical Security Perimeter, the drafting team interprets the Requirement R1.1 as not limited to measures that are “physical in nature.” The alternative measures may be physical or logical, on the condition that they provide security equivalent or better to a completely enclosed (“six-wall”) border. Alternative physical control measures may include, but are not limited to, multiple physical access control layers within a non-public, controlled space. Alternative logical control measures may include, but are not limited to, data encryption and/or circuit monitoring to detect unauthorized access or physical tampering.

**Note: an Interpretation cannot be used to change a standard.**

Request for an Interpretation of a Reliability Standard	
Date submitted:	<a href="#">02/06/09</a>
<b>Contact information for person requesting the interpretation:</b>	
Name:	<a href="#">Daniel Marvin</a>
Organization:	<a href="#">PacifiCorp</a>
Telephone:	<a href="#">503.813.5375</a>
E-mail:	<a href="mailto:daniel.marvin@pacificorp.com">daniel.marvin@pacificorp.com</a>
<b>Identify the standard that needs clarification:</b>	
Standard Number (include version number):	<a href="#">CIP-006-1.R1.1</a>
Standard Title:	<a href="#">CIP-006-1 --Cyber Security -- Physical Security</a>
<b>Identify specifically what needs clarification</b> (If a category is not applicable, please leave it blank):	
Requirement Number and Text of Requirement:	<a href="#">CIP-006-1 R1.1</a>
<p><b>R1.1</b> 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.</p>	
<b>Clarification needed:</b>	
<p>If a completely enclosed border cannot be created, what does the phrase, “to control physical access” require? Must the alternative measure be physical in nature? If so, must the physical barrier literally prevent physical access e.g. using concrete encased fiber, or can the alternative measure effectively mitigate the risks associated with physical access through cameras, motions sensors, or encryption?</p>	
<p>Does this requirement preclude the application of logical controls as an alternative measure in mitigating the risks of physical access to Critical Cyber Assets?</p>	
<b>Identify the material impact associated with this interpretation:</b>	



## Request for an Interpretation of a Reliability Standard

The material impact is potential non-compliance with the standard as written.

**Other industry entities interested in the clarification requested above are:**

- PacifiCorp
- Idaho Power
- Puget Sound Energy
- Platte River Power Authority
- Eugene Water & Electric Board
- Seattle City Light
- Arizona Public Service
- Bonneville Power Administration
- TransAlta
- Xcelenergy



NORTH AMERICAN ELECTRIC  
RELIABILITY CORPORATION

## Standards Announcement

### Ballot Pool and Pre-ballot Window

July 27–August 27, 2009

Now available at: <https://standards.nerc.net/BallotPool.aspx>

#### **Project 2009-13: Interpretation of CIP-006-1 Requirement R1.1 for PacifiCorp**

An interpretation of standard CIP-006-1 — Cyber Security — Physical Security of Critical Cyber Assets Requirement R1.1 for PacifiCorp is posted for a 30-day pre-ballot review. Registered Ballot Body members may join the ballot pool to be eligible to vote on this interpretation **until 8 a.m. EDT on August 27, 2009**.

During the pre-ballot window, members of the ballot pool may communicate with one another by using their “ballot pool list server.” (Once the balloting begins, ballot pool members are prohibited from using the ballot pool list servers.) The list server for this ballot pool is: [bp-2009-13\\_RFI\\_CIP-006\\_in@nerc.com](mailto:bp-2009-13_RFI_CIP-006_in@nerc.com).

#### **Next Steps**

Voting will begin shortly after the pre-ballot review closes.

#### **Project Background**

PacifiCorp requested clarification on alternative measures for physical access control.

The request and interpretation can be found on the project page:

[http://www.nerc.com/filez/standards/Project2009-13\\_Interpretation\\_CIP-006-1\\_PacifiCorp.html](http://www.nerc.com/filez/standards/Project2009-13_Interpretation_CIP-006-1_PacifiCorp.html)

#### **Standards Development Process**

The [Reliability Standards Development Procedure](#) contains all the procedures governing the standards development process. The success of the NERC standards development process depends on stakeholder participation. We extend our thanks to all those who participate.

*For more information or assistance,  
please contact Shaun Streeter at [shaun.streeter@nerc.net](mailto:shaun.streeter@nerc.net) or at 609.452.8060.*

## Standards Announcement Initial Ballot Window Open August 27–September 8, 2009

Now available at: <https://standards.nerc.net/CurrentBallots.aspx>

### **Project 2009-13: Interpretation of CIP-006-1 Requirement R1.1 for PacifiCorp**

An initial ballot window for an interpretation of standard CIP-006-1 — Cyber Security — Physical Security of Critical Cyber Assets Requirement R1.1 for PacifiCorp is now open **until 8 p.m. EDT on September 8, 2009**.

### **Instructions**

Members of the ballot pool associated with this project may log in and submit their votes from the following page: <https://standards.nerc.net/CurrentBallots.aspx>

### **Next Steps**

Voting results will be posted and announced after the ballot window closes.

### **Project Background**

PacifiCorp requested clarification on alternative measures for physical access control.

The request and interpretation can be found on the project page:

[http://www.nerc.com/filez/standards/Project2009-13\\_Interpretation\\_CIP-006-1\\_PacifiCorp.html](http://www.nerc.com/filez/standards/Project2009-13_Interpretation_CIP-006-1_PacifiCorp.html)

### **Standards Development Process**

The [Reliability Standards Development Procedure](#) contains all the procedures governing the standards development process. The success of the NERC standards development process depends on stakeholder participation. We extend our thanks to all those who participate.

*For more information or assistance,  
please contact Shaun Streeter at [shaun.streeter@nerc.net](mailto:shaun.streeter@nerc.net) or at 609.452.8060.*



NORTH AMERICAN ELECTRIC  
RELIABILITY CORPORATION

## Standards Announcement Initial Ballot Results

Now available at: <https://standards.nerc.net/Ballots.aspx>

### **Project 2009-13: Interpretation of CIP-006-1 Requirement R1.1 for PacifiCorp**

The initial ballot for an interpretation of standard CIP-006-1 — Cyber Security — Physical Security of Critical Cyber Assets Requirement R1.1 for PacifiCorp ended September 8, 2009.

### **Ballot Results**

Voting statistics are listed below, and the [Ballot Results](#) Web page provides a link to the detailed results:

Quorum: 84.92%  
Approval: 79.04%

Since at least one negative ballot included a comment, these results are not final. A second (or recirculation) ballot must be conducted. Ballot criteria details are listed at the end of the announcement.

### **Next Steps**

As part of the recirculation ballot process, the drafting team must draft and post responses to voter comments. The drafting team will also determine whether or not to make revisions to the balloted item(s). Should the team decide to make revisions, the revised item(s) will return to the initial ballot phase.

### **Project Background**

PacifiCorp requested clarification on alternative measures for physical access control.

The request and interpretation can be found on the project page:

[http://www.nerc.com/filez/standards/Project2009-13\\_Interpretation\\_CIP-006-1\\_PacifiCorp.html](http://www.nerc.com/filez/standards/Project2009-13_Interpretation_CIP-006-1_PacifiCorp.html)

### **Standards Development Process**

The [Reliability Standards Development Procedure](#) contains all the procedures governing the standards development process. The success of the NERC standards development process depends on stakeholder participation. We extend our thanks to all those who participate.

### **Ballot Criteria**

Approval requires both a (1) quorum, which is established by at least 75% of the members of the ballot pool for submitting either an affirmative vote, a negative vote, or an abstention, and (2) A two-thirds majority of the weighted segment votes cast must be affirmative; the number of votes cast is the sum of affirmative and negative votes, excluding abstentions and nonresponses. If there are no negative votes with reasons from the first ballot, the results of the first ballot shall stand. If, however, one or more members submit negative votes with reasons, a second ballot shall be conducted.

*For more information or assistance,  
please contact Shaun Streeter at [shaun.streeter@nerc.net](mailto:shaun.streeter@nerc.net) or at 609.452.8060.*

User Name

Password

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[Home Page](#)

Ballot Results	
<b>Ballot Name:</b>	Project 2009-13 - Interpretation - PacifiCorp - CIP-006-1_in
<b>Ballot Period:</b>	8/27/2009 - 9/8/2009
<b>Ballot Type:</b>	Initial
<b>Total # Votes:</b>	214
<b>Total Ballot Pool:</b>	252
<b>Quorum:</b>	<b>84.92 % The Quorum has been reached</b>
<b>Weighted Segment Vote:</b>	79.04 %
<b>Ballot Results:</b>	<b>The standard will proceed to recirculation ballot.</b>

Summary of Ballot Results									
Segment	Ballot Pool	Segment Weight	Affirmative		Negative		Abstain # Votes	No Vote	
			# Votes	Fraction	# Votes	Fraction			
1 - Segment 1.	69	1	48	0.873	7	0.127	3	11	
2 - Segment 2.	10	0.9	6	0.6	3	0.3	0	1	
3 - Segment 3.	60	1	44	0.898	5	0.102	1	10	
4 - Segment 4.	11	1	7	0.7	3	0.3	0	1	
5 - Segment 5.	47	1	33	0.846	6	0.154	2	6	
6 - Segment 6.	33	1	20	0.769	6	0.231	1	6	
7 - Segment 7.	0	0	0	0	0	0	0	0	
8 - Segment 8.	8	0.6	3	0.3	3	0.3	0	2	
9 - Segment 9.	8	0.6	6	0.6	0	0	1	1	
10 - Segment 10.	6	0.6	5	0.5	1	0.1	0	0	
<b>Totals</b>	<b>252</b>	<b>7.7</b>	<b>172</b>	<b>6.086</b>	<b>34</b>	<b>1.614</b>	<b>8</b>	<b>38</b>	

Individual Ballot Pool Results				
Segment	Organization	Member	Ballot	Comments
1	Allegheny Power	Rodney Phillips	Affirmative	
1	Ameren Services	Kirit S. Shah	Affirmative	
1	American Electric Power	Paul B. Johnson	Affirmative	
1	American Transmission Company, LLC	Jason Shaver	Affirmative	
1	Avista Corp.	Scott Kinney	Affirmative	
1	BC Transmission Corporation	Gordon Rawlings	Negative	<a href="#">View</a>
1	Black Hills Corp	Eric Egge	Affirmative	
1	Bonneville Power Administration	Donald S. Watkins	Affirmative	

1	Brazos Electric Power Cooperative, Inc.	Tony Kroskey		
1	CenterPoint Energy	Paul Rocha	Affirmative	
1	Central Maine Power Company	Brian Conroy	Affirmative	
1	Consolidated Edison Co. of New York	Christopher L de Graffenried	Affirmative	
1	Deseret Power	James Tucker		
1	Dominion Virginia Power	William L. Thompson	Affirmative	
1	Duke Energy Carolina	Douglas E. Hils	Affirmative	
1	E.ON U.S. LLC	Larry Monday		
1	East Kentucky Power Coop.	George S. Carruba		
1	Entergy Corporation	George R. Bartlett	Affirmative	
1	Exelon Energy	John J. Blazekovich	Affirmative	
1	FirstEnergy Energy Delivery	Robert Martinko	Negative	<a href="#">View</a>
1	Florida Keys Electric Cooperative Assoc.	Dennis Minton		
1	Georgia Transmission Corporation	Harold Taylor, II	Affirmative	
1	Great River Energy	Gordon Pietsch	Affirmative	
1	Hoosier Energy Rural Electric Cooperative, Inc.	Damon Holladay	Affirmative	
1	Hydro One Networks, Inc.	Ajay Garg	Affirmative	
1	Hydro-Quebec TransEnergie	Albert Poire	Affirmative	
1	Idaho Power Company	Ronald D. Schellberg	Affirmative	
1	ITC Transmission	Elizabeth Howell	Affirmative	
1	JEA	Ted E. Hobson	Negative	
1	Kansas City Power & Light Co.	Michael Gammon	Negative	<a href="#">View</a>
1	Kissimmee Utility Authority	Joe B Watson		
1	Lakeland Electric	Larry E Watt	Affirmative	
1	Lee County Electric Cooperative	Rodney Hawkins		
1	Lincoln Electric System	Doug Bantam		
1	Long Island Power Authority	Jonathan Appelbaum	Negative	<a href="#">View</a>
1	Manitoba Hydro	Michelle Rheault	Affirmative	
1	MidAmerican Energy Co.	Terry Harbour	Affirmative	
1	National Grid	Manuel Couto	Affirmative	
1	Nebraska Public Power District	Richard L. Koch	Abstain	
1	New York Power Authority	Ralph Ruffano	Affirmative	
1	New York State Electric & Gas Corp.	Henry G. Masti	Affirmative	
1	Northeast Utilities	David H. Boguslawski	Affirmative	
1	Northern Indiana Public Service Co.	Kevin M Largura	Negative	
1	Ohio Valley Electric Corp.	Robert Matthey	Affirmative	
1	Oklahoma Gas and Electric Co.	Marvin E VanBebber	Affirmative	
1	Oncor Electric Delivery	Charles W. Jenkins	Affirmative	
1	Orange and Rockland Utilities, Inc.	Edward Bedder	Affirmative	
1	Otter Tail Power Company	Lawrence R. Larson	Affirmative	
1	Pacific Gas and Electric Company	Chifong L. Thomas		
1	PacifiCorp	Mark Sampson		
1	Potomac Electric Power Co.	Richard J. Kafka	Affirmative	
1	PowerSouth Energy Cooperative	Larry D. Avery	Negative	
1	PP&L, Inc.	Ray Mammarella	Affirmative	
1	Progress Energy Carolinas	Sammy Roberts	Affirmative	
1	Public Service Electric and Gas Co.	Kenneth D. Brown	Affirmative	
1	Puget Sound Energy, Inc.	Catherine Koch		
1	Salt River Project	Robert Kondziolka	Affirmative	
1	Santee Cooper	Terry L. Blackwell	Affirmative	
1	SaskPower	Wayne Guttormson	Abstain	
1	Seattle City Light	Pawel Krupa	Affirmative	
1	Sierra Pacific Power Co.	Richard Salgo	Affirmative	
1	Southern California Edison Co.	Dana Cabbell	Affirmative	
1	Southern Company Services, Inc.	Horace Stephen Williamson	Affirmative	
1	Southwest Transmission Cooperative, Inc.	James L. Jones	Affirmative	
1	Tampa Electric Co.	Thomas J. Szelistowski	Abstain	
1	Tri-State G & T Association Inc.	Keith V. Carman	Affirmative	
1	Westar Energy	Allen Klassen	Affirmative	
1	Western Area Power Administration	Brandy A Dunn	Affirmative	
1	Xcel Energy, Inc.	Gregory L. Pieper	Affirmative	
2	Alberta Electric System Operator	Jason L. Murray	Negative	<a href="#">View</a>
2	BC Transmission Corporation	Faramarz Amjadi	Negative	<a href="#">View</a>
2	California ISO	Greg Tillitson	Affirmative	
2	Electric Reliability Council of Texas, Inc.	Chuck B Manning	Affirmative	
2	Independent Electricity System Operator	Kim Warren	Negative	<a href="#">View</a>

2	ISO New England, Inc.	Kathleen Goodman	Affirmative	
2	Midwest ISO, Inc.	Terry Bilke	Affirmative	
2	New Brunswick System Operator	Alden Briggs		
2	PJM Interconnection, L.L.C.	Tom Bowe	Affirmative	
2	Southwest Power Pool	Charles H Yeung	Affirmative	
3	Alabama Power Company	Bobby Kerley	Affirmative	
3	Allegheny Power	Bob Reeping	Affirmative	
3	Ameren Services	Mark Peters	Affirmative	
3	American Electric Power	Raj Rana		
3	Arizona Public Service Co.	Thomas R. Glock	Affirmative	
3	Atlantic City Electric Company	James V. Petrella	Affirmative	
3	BC Hydro and Power Authority	Pat G. Harrington	Abstain	
3	Black Hills Power	Andy Butcher	Affirmative	
3	Bonneville Power Administration	Rebecca Berdahl	Affirmative	
3	Central Lincoln PUD	Steve Alexanderson		
3	City of Farmington	Linda R. Jacobson		
3	City Public Service of San Antonio	Edwin Les Barrow	Affirmative	
3	Colorado Springs Utilities	Alan Laborwit	Affirmative	
3	Commonwealth Edison Co.	Stephen Lesniak	Affirmative	
3	Consolidated Edison Co. of New York	Peter T Yost	Affirmative	
3	Consumers Energy	David A. Lapinski	Affirmative	
3	Cowlitz County PUD	Russell A Noble	Affirmative	
3	Delmarva Power & Light Co.	Michael R. Mayer	Affirmative	
3	Detroit Edison Company	Kent Kujala	Affirmative	
3	Dominion Resources, Inc.	Jalal (John) Babik	Affirmative	
3	Duke Energy Carolina	Henry Ernst-Jr	Affirmative	
3	East Kentucky Power Coop.	Sally Witt	Affirmative	
3	Entergy Services, Inc.	Matt Wolf	Affirmative	
3	FirstEnergy Solutions	Joanne Kathleen Borrell	Negative	<a href="#">View</a>
3	Florida Power Corporation	Lee Schuster	Affirmative	
3	Georgia Power Company	Leslie Sibert	Affirmative	
3	Georgia System Operations Corporation	Edward W Pourciau	Negative	
3	Grays Harbor PUD	Wesley W Gray		
3	Great River Energy	Sam Kokkinen	Affirmative	
3	Gulf Power Company	Gwen S Frazier	Affirmative	
3	Hydro One Networks, Inc.	Michael D. Penstone	Affirmative	
3	JEA	Garry Baker		
3	Kansas City Power & Light Co.	Charles Locke	Negative	<a href="#">View</a>
3	Kissimmee Utility Authority	Gregory David Woessner		
3	Lakeland Electric	Mace Hunter		
3	Lincoln Electric System	Bruce Merrill	Affirmative	
3	Louisville Gas and Electric Co.	Charles A. Freibert	Affirmative	
3	Manitoba Hydro	Greg C Parent	Affirmative	
3	Mississippi Power	Don Horsley	Affirmative	
3	New York Power Authority	Michael Lupo	Affirmative	
3	Niagara Mohawk (National Grid Company)	Michael Schiavone	Affirmative	
3	Northern Indiana Public Service Co.	William SeDoris	Negative	
3	Orlando Utilities Commission	Ballard Keith Mutters		
3	PacifiCorp	John Apperson	Affirmative	
3	PECO Energy an Exelon Co.	John J. McCawley	Affirmative	
3	Platte River Power Authority	Terry L Baker	Affirmative	
3	Potomac Electric Power Co.	Robert Reuter	Affirmative	
3	Progress Energy Carolinas	Sam Waters	Affirmative	
3	Public Service Electric and Gas Co.	Jeffrey Mueller	Affirmative	
3	Public Utility District No. 2 of Grant County	Greg Lange	Affirmative	
3	Sacramento Municipal Utility District	Mark Alberter	Affirmative	
3	Salt River Project	John T. Underhill	Affirmative	
3	San Diego Gas & Electric	Scott Peterson		
3	Santee Cooper	Zack Dusenbury	Affirmative	
3	Seattle City Light	Dana Wheelock	Affirmative	
3	South Carolina Electric & Gas Co.	Hubert C. Young	Negative	<a href="#">View</a>
3	Southern California Edison Co.	David Schiada	Affirmative	
3	Tampa Electric Co.	Ronald L. Donahey		
3	Wisconsin Electric Power Marketing	James R. Keller	Affirmative	
3	Xcel Energy, Inc.	Michael Ibold	Affirmative	
4	Alliant Energy Corp. Services, Inc.	Kenneth Goldsmith	Affirmative	
4	American Municipal Power - Ohio	Kevin L Holt		



4	Consumers Energy	David Frank Ronk	Affirmative	
4	Detroit Edison Company	Daniel Herring	Affirmative	
4	Georgia System Operations Corporation	Guy Andrews	Negative	
4	Northern California Power Agency	Fred E. Young	Affirmative	
4	Ohio Edison Company	Douglas Hohlbaugh	Negative	<a href="#">View</a>
4	Public Utility District No. 1 of Snohomish County	John D. Martinsen	Affirmative	
4	Seattle City Light	Hao Li	Affirmative	
4	Seminole Electric Cooperative, Inc.	Steven R. Wallace	Negative	
4	Wisconsin Energy Corp.	Anthony Jankowski	Affirmative	
5	AEP Service Corp.	Brock Ondayko	Affirmative	
5	Amerenue	Sam Dwyer	Affirmative	
5	Avista Corp.	Edward F. Groce	Affirmative	
5	Bonneville Power Administration	Francis J. Halpin	Affirmative	
5	Calpine Corporation	John Brent Hebert		
5	City of Tallahassee	Alan Gale	Negative	<a href="#">View</a>
5	Colmac Clarion/Piney Creek LP	Harvie D. Beavers	Affirmative	
5	Consumers Energy	James B Lewis		
5	Detroit Edison Company	Ronald W. Bauer	Affirmative	
5	Dominion Resources, Inc.	Mike Garton	Affirmative	
5	Duke Energy	Robert Smith	Affirmative	
5	Dynegy	Greg Mason	Affirmative	
5	Entergy Corporation	Stanley M Jaskot	Affirmative	
5	Exelon Nuclear	Michael Korchynsky	Affirmative	
5	FirstEnergy Solutions	Kenneth Dresner	Negative	<a href="#">View</a>
5	Great River Energy	Cynthia E Sulzer	Affirmative	
5	JEA	Donald Gilbert	Affirmative	
5	Kansas City Power & Light Co.	Scott Heidtbrink	Negative	
5	Lakeland Electric	Thomas J Trickey	Affirmative	
5	Liberty Electric Power LLC	Daniel Duff	Affirmative	
5	Lincoln Electric System	Dennis Florom	Affirmative	
5	Louisville Gas and Electric Co.	Charlie Martin	Affirmative	
5	Manitoba Hydro	Mark Aikens	Abstain	
5	Michigan Public Power Agency	James R. Nickel	Negative	<a href="#">View</a>
5	MidAmerican Energy Co.	Christopher Schneider	Abstain	
5	New York Power Authority	Gerald Mannarino	Affirmative	
5	Northern Indiana Public Service Co.	Michael K Wilkerson	Negative	
5	Northern States Power Co.	Liam Noailles	Affirmative	
5	Orlando Utilities Commission	Richard Kinas		
5	Pacific Gas and Electric Company	Richard J. Padilla		
5	PacifiCorp Energy	David Godfrey	Affirmative	
5	Portland General Electric Co.	Gary L Tingley	Affirmative	
5	PPL Generation LLC	Mark A. Heimbach	Affirmative	
5	Progress Energy Carolinas	Wayne Lewis	Affirmative	
5	PSEG Power LLC	Thomas Piascik		
5	RRI Energy	Thomas J. Bradish	Affirmative	
5	Salt River Project	Glen Reeves	Affirmative	
5	Seattle City Light	Michael J. Haynes	Affirmative	
5	South California Edison Company	Ahmad Sanati		
5	South Carolina Electric & Gas Co.	Richard Jones	Negative	<a href="#">View</a>
5	Tampa Electric Co.	Frank L Busot	Affirmative	
5	Tenaska, Inc.	Scott M. Helyer	Affirmative	
5	TransAlta Centralia Generation, LLC	Joanna Luong-Tran	Affirmative	
5	Tri-State G & T Association Inc.	Barry Ingold	Affirmative	
5	U.S. Army Corps of Engineers Northwestern Division	Karl Bryan	Affirmative	
5	U.S. Bureau of Reclamation	Martin Bauer	Affirmative	
5	Wisconsin Electric Power Co.	Linda Horn	Affirmative	
6	AEP Marketing	Edward P. Cox	Affirmative	
6	Ameren Energy Marketing Co.	Jennifer Richardson	Affirmative	
6	Bonneville Power Administration	Brenda S. Anderson	Affirmative	
6	Consolidated Edison Co. of New York	Nickesha P Carrol	Affirmative	
6	Constellation Energy Commodities Group	Chris Lyons	Negative	
6	Dominion Resources, Inc.	Louis S Slade	Affirmative	
6	Duke Energy Carolina	Walter Yeager	Affirmative	
6	Entergy Services, Inc.	Terri F Benoit		
6	Eugene Water & Electric Board	Daniel Mark Bedbury	Affirmative	



6	Exelon Power Team	Pulin Shah	Affirmative	
6	FirstEnergy Solutions	Mark S Travaglianti	Negative	<a href="#">View</a>
6	Great River Energy	Donna Stephenson	Affirmative	
6	Kansas City Power & Light Co.	Thomas Saitta	Negative	<a href="#">View</a>
6	Lincoln Electric System	Eric Ruskamp	Affirmative	
6	Louisville Gas and Electric Co.	Daryn Barker	Affirmative	
6	Luminant Energy	Thomas Burke		
6	Manitoba Hydro	Daniel Prowse	Abstain	
6	New York Power Authority	Thomas Papadopoulos	Affirmative	
6	Northern Indiana Public Service Co.	Joseph O'Brien	Negative	
6	PacifiCorp	Gregory D Maxfield	Negative	<a href="#">View</a>
6	Portland General Electric Co.	John Jamieson		
6	Progress Energy	James Eckelkamp	Affirmative	
6	PSEG Energy Resources & Trade LLC	James D. Hebson	Affirmative	
6	Public Utility District No. 1 of Chelan County	Hugh A. Owen	Affirmative	
6	RRI Energy	Trent Carlson	Negative	<a href="#">View</a>
6	Salt River Project	Mike Hummel		
6	Santee Cooper	Suzanne Ritter	Affirmative	
6	Seattle City Light	Dennis Sismaet	Affirmative	
6	Seminole Electric Cooperative, Inc.	Trudy S. Novak		
6	Southern California Edison Co.	Marcus V Lotto	Affirmative	
6	Tampa Electric Co.	Joann Wehle		
6	Western Area Power Administration - UGP Marketing	John Stonebarger	Affirmative	
6	Xcel Energy, Inc.	David F. Lemmons	Affirmative	
8	Edward C Stein	Edward C Stein	Negative	
8	James A Maenner	James A Maenner	Affirmative	
8	JDRJC Associates	Jim D. Cyrulewski	Affirmative	
8	Network & Security Technologies	Nicholas Lauriat	Negative	
8	Power Energy Group LLC	Peggy Abbadini		
8	Roger C Zaklukiewicz	Roger C Zaklukiewicz		
8	Volkman Consulting, Inc.	Terry Volkman	Negative	
8	Wally Magda	Wally Magda	Affirmative	
9	Commonwealth of Massachusetts Department of Public Utilities	Donald E. Nelson	Affirmative	
9	Maine Public Utilities Commission	Jacob A McDermott	Affirmative	
9	National Association of Regulatory Utility Commissioners	Diane J. Barney	Affirmative	
9	New York State Department of Public Service	Thomas G Dvorsky		
9	Oregon Public Utility Commission	Jerome Murray	Abstain	
9	Public Service Commission of South Carolina	Philip Riley	Affirmative	
9	Public Utilities Commission of Ohio	Klaus Lambeck	Affirmative	
9	Utah Public Service Commission	Ric Campbell	Affirmative	
10	Electric Reliability Council of Texas, Inc.	Kent Saathoff	Affirmative	
10	Midwest Reliability Organization	Dan R Schoenecker	Affirmative	
10	Northeast Power Coordinating Council, Inc.	Guy V. Zito	Affirmative	
10	ReliabilityFirst Corporation	Jacque Smith	Affirmative	
10	SERC Reliability Corporation	Carter B Edge	Affirmative	
10	Western Electricity Coordinating Council	Louise McCarren	Negative	<a href="#">View</a>

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**Project 2009-13: Interpretation of CIP-006-1 for PacifiCorp  
Consideration of Comments on Initial Ballot (conducted August 27–September 8, 2009)**

**Summary Consideration:** Of the negative ballots with comments, the majority noted disagreement with the drafting team’s interpretation that wiring is a component of a communication network and needs protection. The drafting team explained that the definition of Cyber Assets in the NERC Glossary of Terms Used in Reliability Standards (Glossary) includes communication networks, and the physical media (wiring) is a component of the communication network.

A minority of comments expressed disagreement with the interpretation that alternate measures include logical methods. The drafting team believes logical methods to be within the spectrum of potential alternate measures for CIP-006-1.

If you feel that the drafting team overlooked your comments, please let us know immediately. Our goal is to give every comment serious consideration in this process. If you feel there has been an error or omission, you can contact the Vice President and Director of Standards, Gerry Adamski, at 609-452-8060 or at gerry.adamski@nerc.net. In addition, there is a NERC Reliability Standards Appeals Process.<sup>1</sup>

Voter	Entity	Segment	Vote	Comment
Gordon Rawlings	BC Transmission Corporation	1	Negative	BCTC’s interpretation, through reading the requirements, is that cyber assets are those that are IP addressable (routable) or accessible via hard lines (i.e. telephone or modem); wiring is neither.
Faramarz Amjadi	BC Transmission Corporation	2	Negative	BCTC’s interpretation, through reading the requirements, is that cyber assets are those that are IP addressable (routable) or accessible via hard lines (i.e. telephone or modem); wiring is neither.
<p><b>Response1:</b> The definition of Cyber Asset in the NERC Glossary includes communication networks. The interpretation response team has reviewed its response and considers the physical media (wiring) a component of a communication network within an Electronic Security Perimeter (ESP), but the wiring itself is not a separate Cyber Asset; therefore, the network wiring needs to be protected.</p>				
Robert Martinko	FirstEnergy Energy Delivery	1	Negative	FirstEnergy is voting NEGATIVE to the interpretation response as we do not believe it fully addresses the issues raised by PacifiCorp. The interpretation response provided only addresses the Electronic Security Perimeter (ESP) wiring external to a Physical Security Perimeter (PSP) and not alternative measures to control physical access to Critical Cyber Assets that may not reside within a "six-wall" physical border. The question posed by PacifiCorp relates to Critical Cyber Assets, not simply the ESP wiring. As such, the interpretation provided does not meet the NERC Reliability Standard Development Procedure which states " ...the team will draft a written interpretation to the standard addressing the issues raised."

<sup>1</sup> The appeals process is in the Reliability Standards Development Procedure: [http://www.nerc.com/files/RSDP\\_V6\\_1\\_12Mar07.pdf](http://www.nerc.com/files/RSDP_V6_1_12Mar07.pdf).

Voter	Entity	Segment	Vote	Comment
Joanne Kathleen Borrell	FirstEnergy Solutions	3	Negative	FirstEnergy is voting NEGATIVE to the interpretation response as we do not believe it fully addresses the issues raised by PacifiCorp. The interpretation response provided only addresses the Electronic Security Perimeter (ESP) wiring external to a Physical Security Perimeter (PSP) and not alternative measures to control physical access to Critical Cyber Assets that may not reside within a "six-wall" physical border. The question posed by PacifiCorp relates to Critical Cyber Assets, not simply the ESP wiring. As such, the interpretation provided does not meet the NERC Reliability Standard Development Procedure which states " ...the team will draft a written interpretation to the standard addressing the issues raised."
Kenneth Dresner	FirstEnergy Solutions	5	Negative	FirstEnergy is voting NEGATIVE to the interpretation response as we do not believe it fully addresses the issues raised by PacifiCorp. The interpretation response provided only addresses the Electronic Security Perimeter (ESP) wiring external to a Physical Security Perimeter (PSP) and not alternative measures to control physical access to Critical Cyber Assets that may not reside within a "six-wall" physical border. The question posed by PacifiCorp relates to Critical Cyber Assets, not simply the ESP wiring. As such, the interpretation provided does not meet the NERC Reliability Standard Development Procedure which states " ...the team will draft a written interpretation to the standard addressing the issues raised."
Mark S Travaglianti	FirstEnergy Solutions	6	Negative	FirstEnergy is voting NEGATIVE to the interpretation response as we do not believe it fully addresses the issues raised by PacifiCorp. The interpretation response provided only addresses the Electronic Security Perimeter (ESP) wiring external to a Physical Security Perimeter (PSP) and not alternative measures to control physical access to Critical Cyber Assets that may not reside within a "six-wall" physical border. The question posed by PacifiCorp relates to Critical Cyber Assets, not simply the ESP wiring. As such, the interpretation provided does not meet the NERC Reliability Standard Development Procedure which states " ...the team will draft a written interpretation to the standard addressing the issues raised."
Douglas Hohlbaugh	Ohio Edison Company	4	Negative	FirstEnergy is voting NEGATIVE to the interpretation response as we do not believe it fully addresses the issues raised by PacifiCorp. The interpretation response provided only addresses the Electronic Security Perimeter (ESP) wiring external to a Physical Security Perimeter (PSP) and not alternative measures to control physical access to Critical Cyber Assets that may not reside within a "six-wall" physical border. The question posed by PacifiCorp relates to Critical Cyber Assets, not simply the ESP wiring. As such, the interpretation provided does not meet the NERC Reliability Standard Development Procedure which states " ...the team will draft a written interpretation to the standard addressing the issues raised."

**Response2:** The drafting team interprets "alternative measures" for ESP wiring that is external to the PSP to include use of a combined/complementary physical or logical approach to achieve the same or better protection. The requester describes their topology as such therefore the drafting team addressed the issue as stated.

Voter	Entity	Segment	Vote	Comment
<p>CIP-006 R1.1 states: “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.” The alternative measures for ESP wiring that is external to the PSP may be physical or logical, on the condition that they provide effective security, i.e., equivalent to or better than a completely enclosed (“six-wall”) border. For ESP wiring that is external to the PSP: alternative physical control measures may include, but are not limited to, multiple physical access control layers within a non-public, controlled space; alternative logical control measures may include, but are not limited to, data encryption and/or monitoring to detect unauthorized access or physical tampering.</p>				
James R. Nickel	Michigan Public Power Agency	5	Negative	MPPA does not believe the intent of R1.1 was to classify wiring as a Cyber Asset subject to the CIP requirements. The term "Cyber Asset" refers to those components to which the wires are connected, such as patch panels, routers, switches etc. MPPA is not arguing that the wiring is irrelevant or unimportant, but contends that it should be handled separately from the existing CIP Standards.
<p><b>Response3:</b> The definition of Cyber Asset in the NERC Glossary includes communication networks. The interpretation response team has reviewed its response and considers the physical media (wiring) a component of a communication network within an ESP, but the wiring itself is not a separate Cyber Asset; therefore, the network wiring needs to be protected.</p>				
Gregory D Maxfield	PacifiCorp	6	Negative	<p>Regarding PacifiCorp’s requested interpretation of CIP006.R1.1: Our primary concern was commentary from some industry participants who took the view that the phrase “..to control physical access” as used in CIP006.R1.1 represented a requirement for a control that would literally prevent physical access. This viewpoint was not a consensus opinion, but if left unchecked might percolate into the auditor ranks and represent a compliance risk to entities needing to use logical controls as an “alternative measure”. Hence, we took the proactive action of requesting an interpretation from the drafting team. Entities should support this interpretation as it is simply a clarification that entities have the option to use logical controls as alternative measures for CIP006.R1.1.</p> <p>Regarding the posted interpretation of CIP005.4.2.2 and CIP005R1.3: Our primary concern was a distinct lack of clarity around the characteristics of an “endpoint” and what devices are in scope as being associated with “data communication links”. Unfortunately, the proposed interpretation provides no meaningful clarity. We recommend that entities not support this provided interpretation.</p>
<p><b>Response4:</b> Thank you for your comment. The drafting team agrees with your position that controlling physical access may encompass both logical and physical measures.</p> <p>In regard your comment on endpoints, the drafting team refers you to the response to comments for Project 2009-12: Interpretation of CIP-005-1 – Cyber Security – Electronic Security Perimeters for PacifiCorp.</p>				
Trent Carlson	RRI Energy	6	Negative	RRI Energy votes negative in support of PacifiCorp's position. PacifiCorp’s primary concern was a distinct lack of clarity around the characteristics of an “endpoint” and what devices are in scope as being associated with “data communication links”. Unfortunately, the proposed interpretation provides no meaningful clarity.

Voter	Entity	Segment	Vote	Comment
<p><b>Response5:</b> In regard your comment on endpoints, the drafting team refers you to the response to comments for Project 2009-12: Interpretation of CIP-005-1 – Cyber Security – Electronic Security Perimeters for PacifiCorp.</p>				
Jonathan Appelbaum	Long Island Power Authority	1	Negative	The interpretaion team needs to explain what the purpose of a six wall border is and measures for effectiveness. Then the effectiveness of an alternative implemetaion to a six wall border can be measured. For example, is the purpose of a the border to encourage persons to enter thru monitored access points, or is it hardened protection? Once measures are provided then logical controls and alternative methods can be evaluated for effectiveness by the entities.
<p><b>Response6:</b> The drafting team provided an interpretation for the issue requested and does not have the latitude to go beyond what is requested.</p>				
Louise McCarren	Western Electricity Coordinating Council	10	Negative	The interpretation introduces the option of logical controls where a six-wall border cannot be established. This removes some uncertainty surrounding the language of R1.1. However, a negative vote is being cast for the following reason. Clarification should be provided as to whether the term "wiring" is intended to be exclusive literally to physical wires, or more expansively to communication paths, including intermediate devices such as repeaters, bridges, frame relay devices, MPLS nodes, etc. Clarification should be provided with respect to the particular elements of security which need to be provided (i.e. confidentiality, integrity, availability). If additional clarity is provided we would support this interpretation.
<p><b>Response7:</b> The definition of Cyber Asset in the NERC Glossary includes communication networks. The interpretation response team has reviewed its response and considers the physical media (wiring) a component of a communication network within an ESP, but the wiring itself is not a separate Cyber Asset; therefore, the network wiring needs to be protected.</p>				
Hubert C. Young	South Carolina Electric & Gas Co.	3	Negative	The question being asked is broader than just the location of the wiring that makes up part of the ESP. The interpretation should address the questions of 1) what constitutes appropriate "alternative measures" if a physical six-wall boundary cannot be established? (motion detectors, video cameras, others) and 2) what is meant by "control"? Also, how can a logical measure be equivalent or better than a physical measure? After all, no matter how encrypted the connection or how well the circuit is monitored via a security system, couldn't someone just cut the cable?
<p><b>Response8:</b> CIP-006 R1.1 states: "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." The alternative measures for ESP wiring that is external to the PSP may be physical or logical, on the condition that they provide effective security, i.e., equivalent to or better than a completely enclosed ("six-wall") border: alternative physical control measures may include, but are not limited to, multiple physical access control layers within a non-public, controlled space; alternative logical control measures may include, but are not limited to, data encryption and/or circuit monitoring to detect unauthorized access or physical tampering.</p>				

Voter	Entity	Segment	Vote	Comment
Richard Jones	South Carolina Electric & Gas Co.	5	Negative	The question being asked is broader than just the location of the wiring that makes up part of the ESP. The interpretation should address the questions of: 1) What constitutes appropriate "alternative measures" if a physical six-wall boundary cannot be established? (motion detectors, video cameras, others), and 2) What is meant by "control"? In addition, how can a logical measure be equivalent to or better than a physical measure? No matter how encrypted the connection or how well the circuit is monitored via a security system it doesn't stop someone from physically cutting a cable.
<p><b>Response9:</b> CIP-006 R1.1 states: "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." The alternative measures for ESP wiring that is external to the PSP may be physical or logical, on the condition that they provide effective security, i.e., equivalent to or better than a completely enclosed ("six-wall") border: alternative physical control measures may include, but are not limited to, multiple physical access control layers within a non-public, controlled space; alternative logical control measures may include, but are not limited to, data encryption and/or circuit monitoring to detect unauthorized access or physical tampering.</p>				
Michael Gammon	Kansas City Power & Light Co.	1	Negative	The response to question 3 is confusing and introduces ambiguity into the standards. A thorough analysis of the implications of defining endpoints as either physical or logical and the resulting impact on the rest of the standards has not been completed.
Charles Locke	Kansas City Power & Light Co.	3	Negative	The response to question 3 is confusing and introduces ambiguity into the standards. A thorough analysis of the implications of defining endpoints as either physical or logical and the resulting impact on the rest of the standards has not been completed.
Thomas Saitta	Kansas City Power & Light Co.	6	Negative	The response to question 3 is confusing and introduces ambiguity into the standards. A thorough analysis of the implications of defining endpoints as either physical or logical and the resulting impact on the rest of the standards has not been completed.
<p><b>Response10:</b> In regard your comment on endpoints, the drafting team refers you to the response to comments for Project 2009-12: Interpretation of CIP-005-1 – Cyber Security – Electronic Security Perimeters for PacifiCorp.</p>				
Jason L. Murray	Alberta Electric System Operator	2	Negative	This interpretation would change the standard by allowing the use of safeguards that cannot control physical access, as required by the standard. An interpretation cannot be used to change a standard, and this interpretation would have that effect.
<p><b>Response11:</b> The RFI response drafting team interprets "alternative measures" for ESP wiring that is external to the PSP to include use of a combined/complementary physical or logical approach to achieve the same or better protection.</p> <p>CIP-006 R1.1 states: "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." The alternative measures for ESP wiring that is external to the PSP may be physical or logical, on the condition that they provide effective security, i.e., equivalent to or better than a completely enclosed ("six-wall") border: alternative physical control measures may include, but are not limited to, multiple physical access control layers within a non-public, controlled space; alternative logical control measures may include, but are not limited to, data encryption and/or circuit monitoring to detect unauthorized access or physical tampering.</p>				

Voter	Entity	Segment	Vote	Comment
Kim Warren	Independent Electricity System Operator	2	Negative	While CIP-006-1, Requirement R1.1 clearly requires physical measures, it does not reference logical measures. Thus, our view is that this interpretation effectively alters the requirement, rather than interprets it, with the words "physical or logical" and "Alternative logical control measures may include, but are not limited to, data encryption and/or circuit monitoring to detect unauthorized access or physical tampering." Although we believe the standard should be revised to allow alternative protective measures, doing so within the context of an interpretation is inconsistent with the Reliability Standards Development Procedure. We are therefore of the view that the interpretation needs more work.

**Response12:** The RFI response drafting team interprets "alternative measures" for ESP wiring that is external to the PSP to include use of a combined/complementary physical or logical approach to achieve the same or better protection.

CIP-006 R1.1 states: "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." The alternative measures for ESP wiring that is external to the PSP may be physical or logical, on the condition that they provide effective security, i.e., equivalent to or better than a completely enclosed ("six-wall") border: alternative physical control measures may include, but are not limited to, multiple physical access control layers within a non-public, controlled space; alternative logical control measures may include, but are not limited to, data encryption and/or circuit monitoring to detect unauthorized access or physical tampering.

Alan Gale	City of Tallahassee	5	Negative	While we agree that "alternate logical control measures" should be allowed, we feel the interpretation is still forcing the "wiring" of a "communication network" into the list of what is a Cyber Asset". This we vehemently disagree with.
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**Response13:** The definition of Cyber Asset in the NERC Glossary includes communication networks. The interpretation response team has reviewed its response and considers the physical media (wiring) a component of a communication network within an ESP, but the wiring itself is not a separate Cyber Asset; therefore, the network wiring needs to be protected.





NORTH AMERICAN ELECTRIC  
RELIABILITY CORPORATION

## Standards Announcement

### Recirculation Ballot Window Open

December 11-23, 2009

Now available at: <https://standards.nerc.net/CurrentBallots.aspx>

#### **Project 2009-13: Interpretation of CIP-006-1 for PacifiCorp**

A recirculation ballot window for an interpretation of standard CIP-006-1 — Cyber Security — Physical Security of Critical Cyber Assets Requirement R1.1 for PacifiCorp is now open **until 8 p.m. EST on December 23, 2009.**

#### **Instructions**

Members of the ballot pool associated with this project may log in and submit their votes from the following page: <https://standards.nerc.net/CurrentBallots.aspx>

#### **Recirculation Ballot Process**

The Standards Committee encourages all members of the ballot pool to review the consideration of comments submitted with the initial ballots. In the recirculation ballot, votes are counted by exception only — if a ballot pool member does not submit a revision to that member's original vote, the vote remains the same as in the first ballot. Members of the ballot pool may:

- Reconsider and change their vote from the first ballot.
- Vote in the second ballot even if they did not vote on the first ballot.
- Take no action if they do not want to change their original vote.

#### **Next Steps**

Voting results will be posted and announced after the ballot window closes.

#### **Project Background**

PacifiCorp requested clarification on alternative measures for physical access control.

The request and interpretation can be found on the project page:

[http://www.nerc.com/filez/standards/Project2009-13\\_Interpretation\\_CIP-006-1\\_PacifiCorp.html](http://www.nerc.com/filez/standards/Project2009-13_Interpretation_CIP-006-1_PacifiCorp.html)

#### **Standards Development Process**

The [Reliability Standards Development Procedure](#) contains all the procedures governing the standards development process. The success of the NERC standards development process depends on stakeholder participation. We extend our thanks to all those who participate.

*For more information or assistance,  
please contact Shaun Streeter at [shaun.streeter@nerc.net](mailto:shaun.streeter@nerc.net) or at 609.452.8060.*



NORTH AMERICAN ELECTRIC  
RELIABILITY CORPORATION

## Standards Announcement

### Final Ballot Results

Now available at: <https://standards.nerc.net/Ballots.aspx>

#### **Project 2009-13: Interpretation of CIP-006-1 for PacifiCorp**

The recirculation ballot for an interpretation of standard CIP-006-1 — Cyber Security — Physical Security of Critical Cyber Assets, Requirement R1.1, for PacifiCorp ended December 23, 2009.

#### **Ballot Results**

Voting statistics are listed below, and the [Ballot Results](#) Web page provides a link to the detailed results:

Quorum: 90.08%  
Approval: 78.77%

The ballot pool approved the interpretation. Ballot criteria details are listed at the end of the announcement.

#### **Next Steps**

The interpretation will be submitted to the NERC Board of Trustees for approval.

#### **Project Background**

PacifiCorp requested clarification on alternative measures for physical access control.

The request and interpretation can be found on the project page:

<http://www.nerc.com/filez/standards/Project2009-13 Interpretation CIP-006-1 PacifiCorp.html>

#### **Standards Development Process**

The [Reliability Standards Development Procedure](#) contains all the procedures governing the standards development process. The success of the NERC standards development process depends on stakeholder participation. We extend our thanks to all those who participate.

#### **Ballot Criteria**

Approval requires both a (1) quorum, which is established by at least 75% of the members of the ballot pool for submitting either an affirmative vote, a negative vote, or an abstention, and (2) A two-thirds majority of the weighted segment votes cast must be affirmative; the number of votes cast is the sum of affirmative and negative votes, excluding abstentions and nonresponses. If there are no negative votes with reasons from the first ballot, the results of the first ballot shall stand. If, however, one or more members submit negative votes with reasons, a second ballot shall be conducted.

*For more information or assistance,  
please contact Shaun Streeter at [shaun.streeter@nerc.net](mailto:shaun.streeter@nerc.net) or at 609.452.8060.*

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Ballot Results	
<b>Ballot Name:</b>	Project 2009-13 - Interpretation - PacifiCorp - CIP-006-1_rc
<b>Ballot Period:</b>	12/11/2009 - 12/23/2009
<b>Ballot Type:</b>	recirculation
<b>Total # Votes:</b>	227
<b>Total Ballot Pool:</b>	252
<b>Quorum:</b>	<b>90.08 % The Quorum has been reached</b>
<b>Weighted Segment Vote:</b>	78.77 %
<b>Ballot Results:</b>	<b>The Standard has Passed</b>

Summary of Ballot Results									
Segment	Ballot Pool	Segment Weight	Affirmative		Negative		Abstain # Votes	No Vote	
			# Votes	Fraction	# Votes	Fraction			
1 - Segment 1.	69	1	49	0.845	9	0.155	4	7	
2 - Segment 2.	10	1	7	0.7	3	0.3	0	0	
3 - Segment 3.	60	1	47	0.87	7	0.13	1	5	
4 - Segment 4.	11	1	7	0.7	3	0.3	0	1	
5 - Segment 5.	47	1	32	0.8	8	0.2	3	4	
6 - Segment 6.	33	1	21	0.808	5	0.192	1	6	
7 - Segment 7.	0	0	0	0	0	0	0	0	
8 - Segment 8.	8	0.7	4	0.4	3	0.3	0	1	
9 - Segment 9.	8	0.6	6	0.6	0	0	1	1	
10 - Segment 10.	6	0.6	5	0.5	1	0.1	0	0	
<b>Totals</b>	<b>252</b>	<b>7.9</b>	<b>178</b>	<b>6.223</b>	<b>39</b>	<b>1.677</b>	<b>10</b>	<b>25</b>	

Individual Ballot Pool Results				
Segment	Organization	Member	Ballot	Comments
1	Allegheny Power	Rodney Phillips	Affirmative	
1	Ameren Services	Kirit S. Shah	Affirmative	
1	American Electric Power	Paul B. Johnson	Affirmative	
1	American Transmission Company, LLC	Jason Shaver	Negative	<a href="#">View</a>
1	Avista Corp.	Scott Kinney	Affirmative	
1	BC Transmission Corporation	Gordon Rawlings	Affirmative	<a href="#">View</a>
1	Black Hills Corp	Eric Egge	Affirmative	
1	Bonneville Power Administration	Donald S. Watkins	Affirmative	

1	Brazos Electric Power Cooperative, Inc.	Tony Kroskey	<a href="#">Abstain</a>	
1	CenterPoint Energy	Paul Rocha	<a href="#">Affirmative</a>	
1	Central Maine Power Company	Brian Conroy	<a href="#">Affirmative</a>	
1	Consolidated Edison Co. of New York	Christopher L de Graffenried	<a href="#">Affirmative</a>	
1	Deseret Power	James Tucker		
1	Dominion Virginia Power	William L. Thompson	<a href="#">Affirmative</a>	
1	Duke Energy Carolina	Douglas E. Hils	<a href="#">Affirmative</a>	
1	E.ON U.S. LLC	Larry Monday		
1	East Kentucky Power Coop.	George S. Carruba		
1	Entergy Corporation	George R. Bartlett	<a href="#">Affirmative</a>	
1	Exelon Energy	John J. Blazekovich	<a href="#">Affirmative</a>	
1	FirstEnergy Energy Delivery	Robert Martinko	<a href="#">Negative</a>	<a href="#">View</a>
1	Florida Keys Electric Cooperative Assoc.	Dennis Minton	<a href="#">Negative</a>	
1	Georgia Transmission Corporation	Harold Taylor, II	<a href="#">Affirmative</a>	
1	Great River Energy	Gordon Pietsch	<a href="#">Affirmative</a>	
1	Hoosier Energy Rural Electric Cooperative, Inc.	Damon Holladay	<a href="#">Affirmative</a>	
1	Hydro One Networks, Inc.	Ajay Garg	<a href="#">Affirmative</a>	
1	Hydro-Quebec TransEnergie	Albert Poire	<a href="#">Affirmative</a>	
1	Idaho Power Company	Ronald D. Schellberg	<a href="#">Affirmative</a>	
1	ITC Transmission	Elizabeth Howell	<a href="#">Affirmative</a>	
1	JEA	Ted E Hobson	<a href="#">Negative</a>	
1	Kansas City Power & Light Co.	Michael Gammon	<a href="#">Negative</a>	<a href="#">View</a>
1	Kissimmee Utility Authority	Joe B Watson		
1	Lakeland Electric	Larry E Watt	<a href="#">Affirmative</a>	
1	Lee County Electric Cooperative	Rodney Hawkins		
1	Lincoln Electric System	Doug Bantam	<a href="#">Affirmative</a>	
1	Long Island Power Authority	Jonathan Appelbaum	<a href="#">Negative</a>	<a href="#">View</a>
1	Manitoba Hydro	Michelle Rheault	<a href="#">Affirmative</a>	
1	MidAmerican Energy Co.	Terry Harbour	<a href="#">Negative</a>	
1	National Grid	Manuel Couto	<a href="#">Affirmative</a>	
1	Nebraska Public Power District	Richard L. Koch	<a href="#">Abstain</a>	
1	New York Power Authority	Ralph Ruffano	<a href="#">Affirmative</a>	
1	New York State Electric & Gas Corp.	Henry G. Masti	<a href="#">Affirmative</a>	
1	Northeast Utilities	David H. Boguslawski	<a href="#">Affirmative</a>	
1	Northern Indiana Public Service Co.	Kevin M Largura	<a href="#">Negative</a>	
1	Ohio Valley Electric Corp.	Robert Matthey	<a href="#">Affirmative</a>	
1	Oklahoma Gas and Electric Co.	Marvin E VanBebber	<a href="#">Affirmative</a>	
1	Oncor Electric Delivery	Charles W. Jenkins	<a href="#">Affirmative</a>	
1	Orange and Rockland Utilities, Inc.	Edward Bedder	<a href="#">Affirmative</a>	
1	Otter Tail Power Company	Lawrence R. Larson	<a href="#">Affirmative</a>	
1	Pacific Gas and Electric Company	Chifong L. Thomas		
1	PacifiCorp	Mark Sampson		
1	Potomac Electric Power Co.	Richard J. Kafka	<a href="#">Affirmative</a>	
1	PowerSouth Energy Cooperative	Larry D. Avery	<a href="#">Affirmative</a>	
1	PP&L, Inc.	Ray Mammarella	<a href="#">Affirmative</a>	
1	Progress Energy Carolinas	Sammy Roberts	<a href="#">Affirmative</a>	
1	Public Service Electric and Gas Co.	Kenneth D. Brown	<a href="#">Affirmative</a>	
1	Puget Sound Energy, Inc.	Catherine Koch	<a href="#">Affirmative</a>	
1	Salt River Project	Robert Kondziolka	<a href="#">Affirmative</a>	
1	Santee Cooper	Terry L. Blackwell	<a href="#">Affirmative</a>	
1	SaskPower	Wayne Guttormson	<a href="#">Abstain</a>	
1	Seattle City Light	Pawel Krupa	<a href="#">Affirmative</a>	
1	Sierra Pacific Power Co.	Richard Salgo	<a href="#">Affirmative</a>	
1	Southern California Edison Co.	Dana Cabbell	<a href="#">Affirmative</a>	
1	Southern Company Services, Inc.	Horace Stephen Williamson	<a href="#">Affirmative</a>	
1	Southwest Transmission Cooperative, Inc.	James L. Jones	<a href="#">Affirmative</a>	
1	Tampa Electric Co.	Thomas J. Szelistowski	<a href="#">Abstain</a>	
1	Tri-State G & T Association Inc.	Keith V. Carman	<a href="#">Affirmative</a>	
1	Westar Energy	Allen Klassen	<a href="#">Negative</a>	<a href="#">View</a>
1	Western Area Power Administration	Brandy A Dunn	<a href="#">Affirmative</a>	
1	Xcel Energy, Inc.	Gregory L Pieper	<a href="#">Affirmative</a>	
2	Alberta Electric System Operator	Jason L. Murray	<a href="#">Negative</a>	<a href="#">View</a>
2	BC Transmission Corporation	Faramarz Amjadi	<a href="#">Negative</a>	<a href="#">View</a>
2	California ISO	Greg Tillitson	<a href="#">Affirmative</a>	
2	Electric Reliability Council of Texas, Inc.	Chuck B Manning	<a href="#">Affirmative</a>	
2	Independent Electricity System Operator	Kim Warren	<a href="#">Negative</a>	<a href="#">View</a>

2	ISO New England, Inc.	Kathleen Goodman	Affirmative	
2	Midwest ISO, Inc.	Terry Bilke	Affirmative	
2	New Brunswick System Operator	Alden Briggs	Affirmative	
2	PJM Interconnection, L.L.C.	Tom Bowe	Affirmative	
2	Southwest Power Pool	Charles H Yeung	Affirmative	
3	Alabama Power Company	Bobby Kerley	Affirmative	
3	Allegheny Power	Bob Reeping	Affirmative	
3	Ameren Services	Mark Peters	Affirmative	
3	American Electric Power	Raj Rana		
3	Arizona Public Service Co.	Thomas R. Glock	Affirmative	
3	Atlantic City Electric Company	James V. Petrella	Affirmative	
3	BC Hydro and Power Authority	Pat G. Harrington	Abstain	
3	Black Hills Power	Andy Butcher	Affirmative	
3	Bonneville Power Administration	Rebecca Berdahl	Affirmative	
3	Central Lincoln PUD	Steve Alexanderson	Affirmative	
3	City of Farmington	Linda R. Jacobson	Affirmative	
3	City Public Service of San Antonio	Edwin Les Barrow	Affirmative	
3	Colorado Springs Utilities	Alan Laborwit	Affirmative	
3	Commonwealth Edison Co.	Stephen Lesniak	Affirmative	
3	Consolidated Edison Co. of New York	Peter T Yost	Affirmative	
3	Consumers Energy	David A. Lapinski	Negative	
3	Cowlitz County PUD	Russell A Noble	Affirmative	
3	Delmarva Power & Light Co.	Michael R. Mayer	Affirmative	
3	Detroit Edison Company	Kent Kujala	Affirmative	
3	Dominion Resources, Inc.	Jalal (John) Babik	Affirmative	
3	Duke Energy Carolina	Henry Ernst-Jr	Affirmative	
3	East Kentucky Power Coop.	Sally Witt	Affirmative	
3	Entergy Services, Inc.	Matt Wolf	Affirmative	
3	FirstEnergy Solutions	Joanne Kathleen Borrell	Negative	<a href="#">View</a>
3	Florida Power Corporation	Lee Schuster	Affirmative	
3	Georgia Power Company	Leslie Sibert	Affirmative	
3	Georgia System Operations Corporation	Edward W. Pourciau	Affirmative	
3	Grays Harbor PUD	Wesley W Gray	Affirmative	
3	Great River Energy	Sam Kokkinen	Affirmative	
3	Gulf Power Company	Gwen S Frazier	Affirmative	
3	Hydro One Networks, Inc.	Michael D. Penstone	Affirmative	
3	JEA	Garry Baker	Affirmative	
3	Kansas City Power & Light Co.	Charles Locke	Negative	<a href="#">View</a>
3	Kissimmee Utility Authority	Gregory David Woessner		
3	Lakeland Electric	Mace Hunter		
3	Lincoln Electric System	Bruce Merrill	Affirmative	
3	Louisville Gas and Electric Co.	Charles A. Freibert	Affirmative	
3	Manitoba Hydro	Greg C Parent	Affirmative	
3	Mississippi Power	Don Horsley	Affirmative	
3	New York Power Authority	Michael Lupo	Affirmative	
3	Niagara Mohawk (National Grid Company)	Michael Schiavone	Affirmative	
3	Northern Indiana Public Service Co.	William SeDoris	Negative	
3	Orlando Utilities Commission	Ballard Keith Muters	Affirmative	
3	PacifiCorp	John Apperson	Negative	
3	PECO Energy an Exelon Co.	John J. McCawley	Affirmative	
3	Platte River Power Authority	Terry L Baker	Affirmative	
3	Potomac Electric Power Co.	Robert Reuter	Affirmative	
3	Progress Energy Carolinas	Sam Waters	Affirmative	
3	Public Service Electric and Gas Co.	Jeffrey Mueller	Affirmative	
3	Public Utility District No. 2 of Grant County	Greg Lange	Affirmative	
3	Sacramento Municipal Utility District	Mark Alberter	Affirmative	
3	Salt River Project	John T. Underhill	Affirmative	
3	San Diego Gas & Electric	Scott Peterson		
3	Santee Cooper	Zack Dusenbury	Affirmative	
3	Seattle City Light	Dana Wheelock	Affirmative	
3	South Carolina Electric & Gas Co.	Hubert C. Young	Negative	<a href="#">View</a>
3	Southern California Edison Co.	David Schiada	Affirmative	
3	Tampa Electric Co.	Ronald L. Donahey		
3	Wisconsin Electric Power Marketing	James R. Keller	Negative	
3	Xcel Energy, Inc.	Michael Ibold	Affirmative	
4	Alliant Energy Corp. Services, Inc.	Kenneth Goldsmith	Affirmative	
4	American Municipal Power - Ohio	Kevin L Holt		

4	Consumers Energy	David Frank Ronk	Affirmative	
4	Detroit Edison Company	Daniel Herring	Affirmative	
4	Georgia System Operations Corporation	Guy Andrews	Affirmative	
4	Northern California Power Agency	Fred E. Young	Affirmative	
4	Ohio Edison Company	Douglas Hohlbaugh	Negative	<a href="#">View</a>
4	Public Utility District No. 1 of Snohomish County	John D. Martinsen	Affirmative	
4	Seattle City Light	Hao Li	Affirmative	
4	Seminole Electric Cooperative, Inc.	Steven R Wallace	Negative	
4	Wisconsin Energy Corp.	Anthony Jankowski	Negative	
5	AEP Service Corp.	Brock Ondayko	Affirmative	
5	Amerenue	Sam Dwyer	Affirmative	
5	Avista Corp.	Edward F. Groce	Affirmative	
5	Bonneville Power Administration	Francis J. Halpin	Affirmative	
5	Calpine Corporation	John B. Hebert		
5	City of Tallahassee	Alan Gale	Negative	<a href="#">View</a>
5	Colmac Clarion/Piney Creek LP	Harvie D. Beavers	Affirmative	
5	Consumers Energy	James B Lewis	Negative	<a href="#">View</a>
5	Detroit Edison Company	Ronald W. Bauer	Affirmative	
5	Dominion Resources, Inc.	Mike Garton	Affirmative	
5	Duke Energy	Robert Smith	Affirmative	
5	Dynegy	Greg Mason	Affirmative	
5	Entergy Corporation	Stanley M Jaskot	Affirmative	
5	Exelon Nuclear	Michael Korchynsky	Affirmative	
5	FirstEnergy Solutions	Kenneth Dresner	Negative	<a href="#">View</a>
5	Great River Energy	Cynthia E Sulzer	Affirmative	
5	JEA	Donald Gilbert	Affirmative	
5	Kansas City Power & Light Co.	Scott Heidtbrink	Negative	
5	Lakeland Electric	Thomas J Trickey	Affirmative	
5	Liberty Electric Power LLC	Daniel Duff	Affirmative	
5	Lincoln Electric System	Dennis Florom	Affirmative	
5	Louisville Gas and Electric Co.	Charlie Martin	Affirmative	
5	Manitoba Hydro	Mark Aikens	Abstain	
5	Michigan Public Power Agency	James R. Nickel	Negative	<a href="#">View</a>
5	MidAmerican Energy Co.	Christopher Schneider	Abstain	
5	New York Power Authority	Gerald Mannarino	Affirmative	
5	Northern Indiana Public Service Co.	Michael K Wilkerson	Negative	
5	Northern States Power Co.	Liam Noailles	Affirmative	
5	Orlando Utilities Commission	Richard Kinan	Affirmative	
5	Pacific Gas and Electric Company	Richard J. Padilla		
5	PacifiCorp Energy	David Godfrey	Affirmative	
5	Portland General Electric Co.	Gary L Tingley	Affirmative	
5	PPL Generation LLC	Mark A. Heimbach	Affirmative	
5	Progress Energy Carolinas	Wayne Lewis	Affirmative	
5	PSEG Power LLC	Thomas Piascik		
5	RRI Energy	Thomas J. Bradish	Affirmative	
5	Salt River Project	Glen Reeves	Affirmative	
5	Seattle City Light	Michael J. Haynes	Affirmative	
5	South California Edison Company	Ahmad Sanati		
5	South Carolina Electric & Gas Co.	Richard Jones	Negative	<a href="#">View</a>
5	Tampa Electric Co.	Frank L Busot	Affirmative	
5	Tenaska, Inc.	Scott M. Helyer	Abstain	
5	TransAlta Centralia Generation, LLC	Joanna Luong-Tran	Affirmative	
5	Tri-State G & T Association Inc.	Barry Ingold	Affirmative	
5	U.S. Army Corps of Engineers Northwestern Division	Karl Bryan	Affirmative	
5	U.S. Bureau of Reclamation	Martin Bauer	Affirmative	
5	Wisconsin Electric Power Co.	Linda Horn	Negative	
6	AEP Marketing	Edward P. Cox	Affirmative	
6	Ameren Energy Marketing Co.	Jennifer Richardson	Affirmative	
6	Bonneville Power Administration	Brenda S. Anderson	Affirmative	
6	Consolidated Edison Co. of New York	Nickesha P Carrol	Affirmative	
6	Constellation Energy Commodities Group	Chris Lyons	Affirmative	
6	Dominion Resources, Inc.	Louis S Slade	Affirmative	
6	Duke Energy Carolina	Walter Yeager	Affirmative	
6	Entergy Services, Inc.	Terri F Benoit		
6	Eugene Water & Electric Board	Daniel Mark Bedbury	Affirmative	



6	Exelon Power Team	Pulin Shah	Affirmative	
6	FirstEnergy Solutions	Mark S Travaglianti	Negative	<a href="#">View</a>
6	Great River Energy	Donna Stephenson	Affirmative	
6	Kansas City Power & Light Co.	Thomas Saitta	Negative	<a href="#">View</a>
6	Lincoln Electric System	Eric Ruskamp	Affirmative	
6	Louisville Gas and Electric Co.	Daryn Barker	Affirmative	
6	Luminant Energy	Thomas Burke		
6	Manitoba Hydro	Daniel Prowse	Abstain	
6	New York Power Authority	Thomas Papadopoulos	Affirmative	
6	Northern Indiana Public Service Co.	Joseph O'Brien	Negative	
6	PacifiCorp	Gregory D Maxfield	Negative	<a href="#">View</a>
6	Portland General Electric Co.	John Jamieson		
6	Progress Energy	James Eckelkamp	Affirmative	
6	PSEG Energy Resources & Trade LLC	James D. Hebson	Affirmative	
6	Public Utility District No. 1 of Chelan County	Hugh A. Owen	Affirmative	
6	RRI Energy	Trent Carlson	Negative	<a href="#">View</a>
6	Salt River Project	Mike Hummel		
6	Santee Cooper	Suzanne Ritter	Affirmative	
6	Seattle City Light	Dennis Sismaet	Affirmative	
6	Seminole Electric Cooperative, Inc.	Trudy S. Novak		
6	Southern California Edison Co.	Marcus V Lotto	Affirmative	
6	Tampa Electric Co.	Joann Wehle		
6	Western Area Power Administration - UGP Marketing	John Stonebarger	Affirmative	
6	Xcel Energy, Inc.	David F. Lemmons	Affirmative	
8	Edward C Stein	Edward C Stein	Negative	
8	James A Maenner	James A Maenner	Affirmative	
8	JDRJC Associates	Jim D. Cyrulewski	Affirmative	
8	Network & Security Technologies	Nicholas Lauriat	Negative	
8	Power Energy Group LLC	Peggy Abbadini		
8	Roger C Zaklukiewicz	Roger C Zaklukiewicz	Affirmative	
8	Volkman Consulting, Inc.	Terry Volkman	Negative	
8	Wally Magda	Wally Magda	Affirmative	
9	Commonwealth of Massachusetts Department of Public Utilities	Donald E. Nelson	Affirmative	
9	Maine Public Utilities Commission	Jacob A McDermott	Affirmative	
9	National Association of Regulatory Utility Commissioners	Diane J. Barney	Affirmative	
9	New York State Department of Public Service	Thomas G Dvorsky		
9	Oregon Public Utility Commission	Jerome Murray	Abstain	
9	Public Service Commission of South Carolina	Philip Riley	Affirmative	
9	Public Utilities Commission of Ohio	Klaus Lambeck	Affirmative	
9	Utah Public Service Commission	Ric Campbell	Affirmative	
10	Electric Reliability Council of Texas, Inc.	Kent Saathoff	Affirmative	
10	Midwest Reliability Organization	Dan R Schoenecker	Affirmative	
10	Northeast Power Coordinating Council, Inc.	Guy V. Zito	Affirmative	
10	ReliabilityFirst Corporation	Jacque Smith	Affirmative	
10	SERC Reliability Corporation	Carter B Edge	Affirmative	
10	Western Electricity Coordinating Council	Louise McCarren	Negative	<a href="#">View</a>

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## **Exhibit D**

### **Roster of the Interpretation Development Team**

**Request for Interpretation of CIP-006-01 by PacifiCorp Drafting Team**

**Project 2009-13**

	David L. Norton (Chair)	Entergy
	Jackie Collett	Manitoba Hydro
	Jeri Domingo Brewer	U.S. Bureau of Reclamation
	Gerald Freese	American Electric Power
	John Lim	Con Edison
	Robert Mathews	PG&E
	Kevin B. Perry	SPP
<b>NERC Staff</b>	Scott Mix — Manager Infrastructure Security	North American Electric Reliability Corporation
<b>NERC Staff</b>	Harry Tom — Standards Development Coordinator	North American Electric Reliability Corporation