

NERC COM-002-4	Alberta COM-002-AB-4 (proposed)	AESO Reason for Difference and Alberta Variances
<p>Purpose To improve communications for the issuance of Operating Instructions with predefined communications protocols to reduce the possibility of miscommunication that could lead to action or inaction harmful to the reliability of the Bulk Electric System (BES).</p>	<p>Purpose The purpose of this reliability standard is to improve communications for the issuance of operating instructions¹, including directives, with predefined communications protocols to reduce the possibility of miscommunication that could lead to action or inaction harmful to the reliability of the interconnected electric system.</p>	<p>Note: NERC COM-002-4 is fundamentally and extensively different than NERC COM-002-2a. Consequently, it was decided to leave the previous version of COM-002-AB1-2a, which aligned with NERC COM-002-2a, out of this comparison matrix. The proposed new COM-002-AB-4 aligns with the NERC COM-002-4. For further information regarding the changes between NERC COM-002-2a and NERC COM-002-4, please see the blacklined version of the standard on PDF page 90 of the NERC’s FERC filing document.</p> <p>Reason for Difference:² NERC’s definition of the term Operating Instruction includes what the AESO defines as directives. To ensure clarity, the AESO is proposing to replace “Operating Instructions” with “operating instructions, including directives” as defined in the AESO’s <i>Consolidated Authoritative Document Glossary</i>. Because the term operating instructions is currently only used in COM-002-AB-4. The AESO is proposing to add a footnote that defines the term using AESO terminology.</p>
<p>Applicability 4.1. Functional Entities 4.1.1 Balancing Authority 4.1.2 Distribution Provider 4.1.3 Reliability Coordinator 4.1.4 Transmission Operator</p>	<p>Applicability This reliability standard applies to: (a) the operator of a transmission facility; (b) the operator of a generating unit that is part of the bulk electric system ;</p>	<p>Reason for Difference: In Alberta, the operator of an electric distribution system performs the function of receiving operating instructions that are received by Distribution Providers, as defined by NERC.</p>

¹ For the purposes of COM-002-AB-4, “operating instruction” means a command by operating personnel responsible for the real-time operation of the **interconnected electric system** to change or preserve the state, status, output, or input of a **system element**. A **directive** is a type of an **operating instruction**. (a discussion of general information and of potential options or alternatives to resolve **interconnected electric system** operating concerns is not a command and is not considered an operating instruction.)

² A “Reason for Difference” is a change from the US Reliability Standards to align with AESO terminology.

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<p>4.1.5 Generator Operator</p>	<p>(c) the operator of an aggregated generating facility that is part of the bulk electric system ;</p> <p>(d) the operator of an electric distribution system that is directly connected to the transmission system or to transmission facilities within the City of Medicine Hat; and</p> <p>(e) the ISO.</p>	<p>Alberta Variance³: the AESO applied this standard to each operator of a transmission facility rather than just to those that are part of the bulk electric system to help ensure the overall reliable operation of the interconnected electric system and not just the bulk electric system in Alberta.</p> <p>Reason for Difference: The AESO has applied this standard to generators that are part of the bulk electric system in alignment with NERC. NERC defines Generator Operators as those that operate generators that meet the bulk electric system definition. In Alberta, the definition generating units and aggregated generating facility encompass sub-BES generators.</p> <p>Reason for Difference: In Alberta, the AESO performs the duties of the Balancing Authority and the Reliability Coordinator, and some duties of the Transmission Operator, as defined by NERC; therefore, the ISO replaces Balancing Authority and Reliability Coordinator throughout the standard.</p>
<p>Effective Date: July 1, 2016 The standard shall become effective on the first day of the first calendar quarter that is twelve (12) months after the date that the standard is approved by an applicable governmental authority or as otherwise provided for in a jurisdiction where approval by an applicable governmental authority is required for a standard to go into effect. Where approval by an applicable governmental authority is not</p>	<p>Effective Date The first day of the calendar quarter that follows four full calendar quarters after approval by the Commission.</p>	

³ An Alberta variance is a change from the US Reliability Standard that the AESO has determined is material.

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<p>required, the standard shall become effective on the first day of the first calendar quarter that is twelve (12) months after the date the standard is adopted by the NERC Board of Trustees or as otherwise provided for in that jurisdiction.</p>		
<p>R1. Each Balancing Authority, Reliability Coordinator, and Transmission Operator shall develop documented communications protocols for its operating personnel that issue and receive Operating Instructions. The protocols shall, at a minimum:</p> <p>1.1. Require its operating personnel that issue and receive an oral or written Operating Instruction to use the English language, unless agreed to otherwise. An alternate language may be used for internal operations.</p> <p>1.2. Require its operating personnel that issue an oral two-party, person-to-person Operating Instruction to take one of the following actions:</p> <ul style="list-style-type: none"> • Confirm the receiver’s response if the repeated information is correct. • Reissue the Operating Instruction if the repeated information is incorrect or if requested by the receiver. • Take an alternative action if a response is not received or if the Operating Instruction was not understood by the receiver. <p>1.3. Require its operating personnel that receive an oral two-party, person-to-person Operating Instruction to take one of the following actions:</p> <ul style="list-style-type: none"> • Repeat, not necessarily verbatim, the Operating Instruction and receive confirmation from the issuer that the response was correct. 	<p>R1 The ISO and each operator of a transmission facility shall develop documented communication protocols for its operating personnel that issue or receive operating instructions, including directives. The protocols shall, at a minimum:</p> <p>R1.1 require its operating personnel that issues or receives an oral or written operating instruction to use the English language;</p> <p>R1.2 require its operating personnel that issues an oral two-party, person-to-person operating instruction to take one of the following actions:</p> <ul style="list-style-type: none"> (a) confirm the receiver’s response if the repeated information is correct; (b) reissue the operating instruction if the repeated information is incorrect or if requested by the receiver; or (c) take an alternative action if a response is not received or if the operating instruction was not understood by the receiver. <p>R1.3 require its operating personnel that receives an oral two-party, person-to-person operating instruction to take one of the following actions:</p> <ul style="list-style-type: none"> (a) repeat, not necessarily verbatim, the operating instruction and receive confirmation from the issuer that the response was correct; or 	<p>Reason for Difference: The phrase “issue and receive” has been modified to “issue or receive” to clarify that the requirement applies when both the operating instructions are issued or when they are received.</p> <p>Alberta Variance: No exception will be given for the issuing or receiving of oral or written instruction or directive in English as English is the only language used for operator-to-operator communication in the Alberta electric industry. Recordings of these communications need to be understood by all relevant entities in Alberta.</p>

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<p>• Request that the issuer reissue the Operating Instruction.</p> <p>1.4. Require its operating personnel that issue a written or oral single-party to multiple-party burst Operating Instruction to confirm or verify that the Operating Instruction was received by at least one receiver of the Operating Instruction.</p> <p>1.5. Specify the instances that require time identification when issuing an oral or written Operating Instruction and the format for that time identification.</p> <p>1.6. Specify the nomenclature for Transmission interface Elements and Transmission interface Facilities when issuing an oral or written Operating Instruction.</p>	<p>(b) request that the issuer reissue the operating instruction;</p> <p>R1.4 require its operating personnel that issues a written or oral single-party to multiple-party burst operating instruction to confirm or verify that the operating instruction was received by at least one receiver of the operating instruction;</p> <p>R1.5 specify the instances that require time identification when issuing an oral or written operating instruction and the format for that time identification; and</p> <p>R1.6 specify the nomenclature for transmission interface system elements and interface transmission facilities when issuing an oral or written operating instruction.</p>	
<p>M1. Each Balancing Authority, Reliability Coordinator, and Transmission Operator shall provide its documented communications protocols developed for Requirement R1.</p>	<p>MR1 Evidence of having developed documented communication protocols for operating personnel that issue or receive operating instructions, including directives, as required in requirement R1 exists. Evidence may include documented communication protocols or other equivalent evidence.</p>	
<p>R2. Each Balancing Authority, Reliability Coordinator, and Transmission Operator shall conduct initial training for each of its operating personnel responsible for the Real-time operation of the interconnected Bulk Electric System on the documented communications protocols developed in Requirement R1 prior to that individual operator issuing an Operating Instruction. <i>[Violation Risk Factor: Low][Time Horizon: Long-term Planning]</i></p>	<p>R2 The ISO and each operator of a transmission facility shall conduct initial training for each of its operating personnel responsible for the real-time operation of the interconnected electric system on the documented communications protocols developed in accordance with requirement R1 prior to that individual operator issuing an operating instruction, including directives.</p>	<p>Alberta Variance: The requirement is expanded to ensure the reliability of the real-time operation of the interconnected electric system, not just the bulk electric system, which aligns with the AESO’s mandate to ensure the overall reliable operation of the interconnected electric system and not just the bulk electric system in Alberta.</p>

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<p>M2. Each Balancing Authority, Reliability Coordinator, and Transmission Operator shall provide its initial training records related to its documented communications protocols developed for Requirement R1 such as attendance logs, agendas, learning objectives, or course materials in fulfillment of Requirement R2.</p>	<p>MR2 Evidence of conducting initial training for each of its operating personnel for the real-time operation of the interconnected electric system as required in requirement R2 exists. Evidence may include initial training records, such as dated class rosters, training certificates, lesson plans, course materials, or other equivalent evidence.</p>	
<p>R3. Each Distribution Provider and Generator Operator shall conduct initial training for each of its operating personnel who can receive an oral two-party, person-to-person Operating Instruction prior to that individual operator receiving an oral two-party, person-to-person Operating Instruction to either: <i>[Violation Risk Factor: Low][Time Horizon: Long-term Planning]</i></p> <ul style="list-style-type: none"> <input type="checkbox"/> Repeat, not necessarily verbatim, the Operating Instruction and receive confirmation from the issuer that the response was correct, or <input type="checkbox"/> Request that the issuer reissue the Operating Instruction. 	<p>R3 Each operator of an electric distribution system, operator of a generating unit, and the operator of an aggregated generating facility shall conduct initial training for each of its operating personnel who can receive an oral two-party, person-to-person operating instruction prior to that individual operator receiving an oral two-party, person-to-person operating instruction, including directives, to either:</p> <ul style="list-style-type: none"> (a) repeat, not necessarily verbatim, the operating instruction and receive confirmation from the issuer that the response was correct; or (b) request that the issuer reissue the operating instruction. 	
<p>M3. Each Distribution Provider and Generator Operator shall provide its initial training records for its operating personnel such as attendance logs, agendas, learning objectives, or course materials in fulfillment of Requirement R3.</p>	<p>MR3 Evidence of conducting initial training for operating personnel who can receive an oral two-party, person-to-person operating instruction, including directives, as required in requirement R3 exists. Evidence may include initial training records, such as dated class rosters, training certificates, lesson plans, course materials, or other equivalent evidence.</p>	

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<p>R4. Each Balancing Authority, Reliability Coordinator, and Transmission Operator shall at least once every twelve (12) calendar months: <i>[Violation Risk Factor: Medium][Time Horizon: Operations Planning]</i></p> <p>4.1. Assess adherence to the documented communications protocols in Requirement R1 by its operating personnel that issue and receive Operating Instructions, provide feedback to those operating personnel and take corrective action, as deemed appropriate by the entity, to address deviations from the documented protocols.</p> <p>4.2. Assess the effectiveness of its documented communications protocols in Requirement R1 for its operating personnel that issue and receive Operating Instructions and modify its documented communication protocols, as necessary.</p>	<p>R4 The ISO and each operator of a transmission facility shall at least once every 12 months:</p> <p>R4.1 assess adherence to the documented communications protocols in requirement R1 by its operating personnel that issue or receive operating instructions, including directives, provide feedback to those operating personnel, and take corrective action, as deemed appropriate by the entity, to address deviations from the documented protocols; and</p> <p>R4.2 assess the effectiveness of its documented communications protocols in requirement R1 for its operating personnel that issue or receive operating instructions, include directives, and modify its documented communication protocols, as necessary.</p>	<p>Reason for Difference: The term “month” is defined as a “calendar month” in the <i>Consolidated Authoritative Document Glossary</i>.</p>
<p>M4. Each Balancing Authority, Reliability Coordinator, and Transmission Operator shall provide evidence of its assessments, including spreadsheets, logs or other evidence of feedback, findings of effectiveness and any changes made to its documented communications protocols developed for Requirement R1 in fulfillment of Requirement R4. The entity shall provide, as part of its assessment, evidence of any corrective actions taken where an operating personnel’s non-adherence to the protocols developed in Requirement R1 is the sole or partial cause of an Emergency and for all other instances where the entity determined that it was appropriate to take a corrective action to address deviations from the documented protocols developed in Requirement R1.</p>	<p>MR4 Evidence of assessing the adherence to and effectiveness of the documented communication protocols in requirement R1 as required in requirement R4 exists. Evidence may include documented assessments, dated operator logs or other evidence of feedback, corrective actions taken, modified documented communication protocols, or other equivalent evidence.</p>	

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<p>R5. Each Balancing Authority, Reliability Coordinator, and Transmission Operator that issues an oral two-party, person-to-person Operating Instruction during an Emergency, excluding written or oral single-party to multiple-party burst Operating Instructions, shall either: <i>[Violation Risk Factor: High][Time Horizon: Real-time Operations]</i></p> <ul style="list-style-type: none"> <input type="checkbox"/> Confirm the receiver’s response if the repeated information is correct (in accordance with Requirement R6). <input type="checkbox"/> Reissue the Operating Instruction if the repeated information is incorrect or if requested by the receiver, or <input type="checkbox"/> Take an alternative action if a response is not received or if the Operating Instruction was not understood by the receiver. 	<p>R5 The ISO and each operator of a transmission facility, that issues an oral two-party, person-to-person operating instruction during an emergency, excluding written or oral single-party to multiple-party burst operating instruction, shall either:</p> <ul style="list-style-type: none"> (a) confirm the receiver’s response if the repeated information is correct (in accordance with requirement R6); (b) reissue the operating instruction if the repeated information is incorrect or if requested by the receiver; or (c) take an alternative action, if a response is not received or if the operating instruction was not understood by the receiver. 	
<p>M5. Each Reliability Coordinator, Transmission Operator, and Balancing Authority that issued an oral two-party, person-to-person Operating Instruction during an Emergency, excluding oral single-party to multiple-party burst Operating Instructions, shall have evidence that the issuer either: 1) confirmed that the response from the recipient of the Operating Instruction was correct; 2) reissued the Operating Instruction if the repeated information was incorrect or if requested by the receiver; or 3) took an alternative action if a response was not received or if the Operating Instruction was not understood by the receiver. Such evidence could include, but is not limited to, dated and time-stamped voice recordings, or dated and time-stamped transcripts of voice recordings, or dated operator logs in fulfillment of Requirement R5.</p>	<p>MR5 Evidence of confirming receiver’s response, issuing the operating instruction during an emergency, or taking an alternative action as required in requirement R5 exists. Evidence may include dated and time-stamped voice recordings, dated and time-stamped transcripts of voice recordings, dated operator logs, or other equivalent evidence.</p>	

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<p>R6. Each Balancing Authority, Distribution Provider, Generator Operator, and Transmission Operator that receives an oral two-party, person-to-person Operating Instruction during an Emergency, excluding written or oral single-party to multiple-party burst Operating Instructions, shall either: <i>[Violation Risk Factor: High][Time Horizon: Real-time Operations]</i></p> <ul style="list-style-type: none"> <input type="checkbox"/> Repeat, not necessarily verbatim, the Operating Instruction and receive confirmation from the issuer that the response was correct, or <input type="checkbox"/> Request that the issuer reissue the Operating Instruction. 	<p>R6 The ISO and each operator of an electric distribution system, operator of a generating unit, operator of an aggregated generating facility, and operator of transmission facility that receives an oral two-party, person-to-person operating instruction during an emergency, excluding written or oral single-party to multiple-party burst operating instructions, shall either:</p> <ul style="list-style-type: none"> (a) repeat, not necessarily verbatim, the operating instruction and receive confirmation from the issuer that the response was correct, or (b) request that the issuer reissue the operating instruction . 	
<p>M6. Each Balancing Authority, Distribution Provider, Generator Operator, and Transmission Operator that was the recipient of an oral two-party, person-to-person Operating Instruction during an Emergency, excluding oral single-party to multiple-party burst Operating Instructions, shall have evidence to show that the recipient either repeated, not necessarily verbatim, the Operating Instruction and received confirmation from the issuer that the response was correct, or requested that the issuer reissue the Operating Instruction in fulfillment of Requirement R6. Such evidence may include, but is not limited to, dated and time-stamped voice recordings (if the entity has such recordings), dated operator logs, an attestation from the issuer of the Operating Instruction, memos or transcripts.</p>	<p>MR6 Evidence of repeating the operating instruction during an emergency or requesting that the issuer reissue the operating instruction as required in requirement R6 exists. Evidence may include dated and time-stamped voice recordings, dated and time-stamped transcripts of voice recordings, dated operator logs, or other equivalent evidence.</p>	
<p>R7. Each Balancing Authority, Reliability Coordinator, and Transmission Operator that issues a written or oral single-party to multiple-party burst Operating Instruction during an Emergency shall confirm or verify that the Operating Instruction was received by at least one receiver of the</p>	<p>R7. The ISO and each operator of a transmission facility that issues a written or oral single-party to multiple-party burst operating instruction during an emergency shall confirm or verify that the operating instruction was received by at least one receiver of the operating instruction.</p>	

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Operating Instruction. <i>[Violation Risk Factor: High][Time Horizon: Real-time Operations]</i>		
<p>M7. Each Balancing Authority, Reliability Coordinator and Transmission Operator that issued a written or oral single or multiple-party burst Operating Instruction during an Emergency shall provide evidence that the Operating Instruction was received by at least one receiver. Such evidence may include, but is not limited to, dated and time-stamped voice recordings (if the entity has such recordings), dated operator logs, electronic records, memos or transcripts.</p>	<p>MR7 Evidence of confirming or verifying that a written or oral multiple-party operating instruction during an emergency was received by at least one receiver as required in requirement R7 exists. Evidence may include dated and time-stamped voice recordings, dated and time-stamped transcripts of voice recordings, dated operator logs, or other equivalent evidence.</p>	
<p>Compliance To view the compliance section D of the NERC reliability standard follow this link: http://www.nerc.com/pa/Stand/Reliability%20Standards/COM-002-4.pdf</p>		
<p>Regional Differences None identified.</p>		

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<p>Definition: Operating Instruction — A command by operating personnel responsible for the Real-time operation of the interconnected Bulk Electric System to change or preserve the state, status, output, or input of an Element of the Bulk Electric System or Facility of the Bulk Electric System. (A discussion of general information and of potential options or alternatives to resolve Bulk Electric System operating concerns is not a command and is not considered an Operating Instruction.)</p>	<p>Defined in footnote 1: “operating instruction” means a command by operating personnel responsible for the real-time operation of the interconnected electric system to change or preserve the state, status, output, or input of a system element. A directive is a type of an operating instruction. (a discussion of general information and of potential options or alternatives to resolve interconnected electric system operating concerns is not a command and is not considered an operating instruction.)”</p>	<p>Alberta Variance: The AESO will define this term as a footnote to mean the following: “operating instruction” means a command by operating personnel responsible for the real-time operation of the interconnected electric system to change or preserve the state, status, output, or input of a system element. A directive is a type of an operating instruction. (a discussion of general information and of potential options or alternatives to resolve interconnected electric system operating concerns is not a command and is not considered an operating instruction.)</p> <p>The definition mostly aligns with the NERC definition of “operating instruction”. However, it differs from the NERC definition of the term operating instruction in that, AESO’s definition applies to instructions given for the real-time operation of the interconnected electric system, not just the bulk electric system, as is the case in the NERC definition. In addition, the AESO’s definition clarifies that directives are considered a type of operating instruction. NERC has retired the term “directive”, so this does not apply to NERC.</p>