



**Stakeholder Comparison Comment Rationale Matrix**

**2010-08-05**

**AESO AUTHORITATIVE DOCUMENT PROCESS**

**Alberta Reliability Standard – PER-005-AB-1 System Personnel Training**

*NOTE: The AESO is asking market participants to give an initial indication of their support for, or opposition to, the specific Alberta Reliability Standard variances to the NERC requirements referenced below. Such an initial indication assists in the AESO's practical understanding of the receptivity of the industry to the proposed changes, and in that regard the AESO thanks, in advance, all market participants who choose to respond. With regard to the specific standard changes and their implications, such responses are without prejudice to the rights of market participants under the Act, any regulations, or related decisions of the Commission.*

Date of Request for Comment [yyyy/mm/dd]: 2010/08/05  
Period of Consultation [yyyy/mm/dd]: 2010/08/05 through 2010/09/02  
Comments From: ENMAX Power Corporation  
Date [yyyy/mm/dd]: 2010/09/01

Contact: Doug Hincks  
Phone: 403-705-5207  
E-mail: [ars\\_comments@aes0.ca](mailto:ars_comments@aes0.ca)

*Listed below is the summary of changes for the proposed new, removed or amended sections of the standard. Please refer back to the Letter of Notice under the "Attachments to Letter of Notice" section to view the proposed content changes to the standard. Please double-click on the check box for either "Support" or "Oppose" and/or place your comments, reasons for position, and alternate proposals underneath (if any).*

**COMPARISON BETWEEN NERC PER-005-1 AND ALBERTA PER-005-AB-1**  
**SYSTEM PERSONNEL TRAINING**

| NERC PER-005-1   | Alberta PER-005-AB-1  | AESO Reason for Difference   | Stakeholder Comments   | AESO Replies |
|--|---|--|--|--------------|
| <p><b>Purpose</b><br/>To ensure that System Operators performing real-time, reliability-related tasks on the North American Bulk Electric System (BES) are competent to perform those reliability-related tasks. The competency of System Operators is critical to the reliability of the North American Bulk Electric System.</p>   | <p><b>Purpose</b><br/>The purpose of this <b>reliability standard</b> is to ensure that any <b>person</b> performing real-time, <b>reliability</b>-related tasks on the <b>bulk electric system</b> has the requisite skills and training and is competent to perform those reliability-related tasks.</p>  | <p>Clarified the purpose to align with the content of the reliability standard.</p>  |  |              |
| <p><b>Applicability</b><br/>4.1.1 Reliability Coordinator.<br/>4.1.2 Balancing Authority.<br/>4.1.3 Transmission Operator.</p>   | <p><b>Applicability</b><br/>This <b>reliability standard</b> applies to:</p> <ul style="list-style-type: none"> <li>• the <b>operator</b> of a <b>transmission facility</b>; and</li> <li>• the <b>ISO</b>.</li> </ul>  | <p><input type="checkbox"/> New<br/><input checked="" type="checkbox"/> Amended<br/><input type="checkbox"/> Deleted</p> <p>Amended to identify the responsible entities in Alberta.</p> | <p><input checked="" type="checkbox"/> Support<br/><input type="checkbox"/> Support with language suggestions<br/><input type="checkbox"/> Oppose</p> <p><i>Insert comments, reason for position, and alternate proposal (if any).</i></p> |              |
| <p><b>Effective Date</b><br/>5.1. In those jurisdictions where regulatory approval is required, Requirement R1 and Requirement R2 shall become effective on the first day of the first calendar quarter, 24 months after applicable regulatory approval. In those jurisdictions where no regulatory approval is required, Requirement R1 and Requirement R2 shall become effective on the first day of the first calendar quarter, 24 months after Board of Trustees</p> | <p><b>Effective Date</b><br/>Requirement R1 and requirement R2 are effective twenty-four (24) <b>months</b> after the date the <b>Commission</b> approves this <b>reliability standard</b>.</p> <p>Requirement R3 is effective twelve (12) <b>months</b> after the date the <b>Commission</b> approves this <b>reliability standard</b>.</p> <p>Sub-requirement R3.1 is effective</p> | <p>Effective date to allow a reasonable amount of time for Alberta entities to implement this Alberta Reliability Standard.</p>  | <p><input checked="" type="checkbox"/> Support<br/><input type="checkbox"/> Support with language suggestions<br/><input type="checkbox"/> Oppose</p> <p><i>Insert comments, reason for position, and alternate proposal (if any).</i></p> |              |

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| <p>adoption.<br/> <b>5.2.</b> In those jurisdictions where regulatory approval is required, Requirement R3 shall become effective on the first day of the first calendar quarter after applicable regulatory approval. In those jurisdictions where no regulatory approval is required, Requirement R3 shall become effective on the first day of the first calendar quarter after Board of Trustees adoption.<br/> <b>5.3.</b> In those jurisdictions where regulatory approval is required Sub-requirement R3.1 shall become effective on the first day of the first calendar quarter, 36 months after applicable regulatory approval. In those jurisdictions where no regulatory approval is required, the Sub-requirement R3.1 shall become effective on the first day of the first calendar quarter, 36 months after Board of Trustees adoption.</p> | <p>thirty-six (36) <b>months</b> after the date the <b>Commission</b> approves this <b>reliability standard</b>.</p>   |  |  |              |
| <p><b>R1.</b> Each Reliability Coordinator, Balancing Authority and Transmission Operator shall use a systematic approach to training to establish a training program for the BES company-specific reliability-related tasks performed by its System Operators and shall</p>  | <p><b>R1 Each of the ISO and the operator of a transmission facility</b> must use a systematic approach to training to establish and implement a training program for real-time operating personnel for the <b>bulk electric system</b> company-specific <b>reliability-related</b> tasks performed by</p> | <p><input type="checkbox"/> New<br/> <input checked="" type="checkbox"/> Amended<br/> <input type="checkbox"/> Deleted</p> <p>Amended for clarity and consistency.</p> <p>Included in requirement R1 from NERC requirement R1.1.1 that the</p> | <p><input checked="" type="checkbox"/> Support<br/> <input type="checkbox"/> Support with language suggestions<br/> <input type="checkbox"/> Oppose</p> <p><i>Insert comments, reason for position, and alternate proposal (if any).</i></p> |              |

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| <p>implement the program. <i>[Violation Risk Factor: Medium] [Time Horizon: Long-term Planning]</i></p> <p><b>R1.1.</b> Each Reliability Coordinator, Balancing Authority and Transmission Operator shall create a list of BES company-specific reliability-related tasks performed by its System Operators.</p> <p><b>R1.1.1.</b> Each Reliability Coordinator, Balancing Authority and Transmission Operator shall update its list of BES company-specific reliability-related tasks performed by its System Operators each calendar year to identify new or modified tasks for inclusion in training.</p> <p><b>R1.2.</b> Each Reliability Coordinator, Balancing Authority and Transmission Operator shall design and develop learning objectives and training materials based on the task list created in R1.1.</p> <p><b>R1.3.</b> Each Reliability Coordinator, Balancing Authority and Transmission Operator shall deliver the training established in R1.2.</p> <p><b>R1.4.</b> Each Reliability Coordinator,</p> | <p>its real-time operating personnel.</p> <p><b>R1.1</b> Each of the <b>ISO</b> and the <b>operator</b> of a <b>transmission facility</b> must develop, review and maintain at least once per calendar year, a list of <b>bulk electric system</b> company-specific <b>reliability</b>-related tasks performed by its real-time operating personnel.</p> <p><b>R1.2</b> Each of the <b>ISO</b> and the <b>operator</b> of a <b>transmission facility</b> must design and develop learning objectives based on the task list created in requirement R1.1.</p> <p><b>R1.3.</b> Each of the <b>ISO</b> and the <b>operator</b> of a <b>transmission facility</b> must provide the training for each real-time operating personnel to meet the learning objectives established in requirement R1.2.</p> <p><b>R1.4.</b> Each of the <b>ISO</b> and the <b>operator</b> of a <b>transmission facility</b> must conduct an annual evaluation of the training program established in requirement R1, to identify and implement any needed changes identified.</p> | <p>list of bulk electric system-specific reliability-related tasks is to be updated once per calendar year.</p> <p>NERC requirement R1.3 appears to require the responsible entity to deliver the training themselves. The AESO has clarified the wording of this Alberta requirement to permit the use of joint or third party delivery of training.</p> |                      |              |

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| <p>Balancing Authority and Transmission Operator shall conduct an annual evaluation of the training program established in R1, to identify any needed changes to the training program and shall implement the changes identified.</p>   |   |  |  |              |
| <p><b>R2.</b> Each Reliability Coordinator, Balancing Authority and Transmission Operator shall verify each of its System Operator's capabilities to perform each assigned task identified in R1.1 at least one time. <i>[Violation Risk Factor: High]</i><br/><i>[Time Horizon: Long-term Planning]</i></p> <p><b>R2.1.</b> Within six months of a modification of the BES company-specific reliability-related tasks, each Reliability Coordinator, Balancing Authority and Transmission Operator shall verify each of its System Operator's capabilities to perform the new or modified tasks.</p> | <p><b>R2</b> Each of the <b>ISO</b> and the <b>operator</b> of a <b>transmission facility</b> must verify at least one time that each of its real-time operating personnel is capable of performing each task identified in the list in requirement R1.1.</p> <p><b>R2.1.</b> Each of the <b>ISO</b> and the <b>operator</b> of a <b>transmission facility</b> must, within six (6) <b>months</b> of a modification of the list in requirement R1.1, verify that each member of its real-time operating personnel is capable of performing the new or modified tasks.</p> | <p><input type="checkbox"/> New<br/> <input checked="" type="checkbox"/> Amended<br/> <input type="checkbox"/> Deleted</p> <p>Amended for clarity and consistency.</p> | <p><input checked="" type="checkbox"/> Support<br/> <input type="checkbox"/> Support with language suggestions<br/> <input type="checkbox"/> Oppose</p> <p><i>Insert comments, reason for position, and alternate proposal (if any).</i></p> |              |
| <p><b>R3.</b> At least every 12 months each Reliability Coordinator, Balancing Authority and Transmission Operator shall provide each of its System Operators with at least 32 hours of emergency operations training</p>   | <p><b>R3.</b> At least every calendar year, each of the <b>ISO</b> and the <b>operator</b> of a <b>transmission facility</b> must provide each member of its real-time operating personnel with at least thirty-two (32) hours of emergency</p>   | <p><input type="checkbox"/> New<br/> <input checked="" type="checkbox"/> Amended<br/> <input type="checkbox"/> Deleted</p> <p>Amended for clarity and consistency.</p> | <p><input type="checkbox"/> Support<br/> <input checked="" type="checkbox"/> Support with language suggestions<br/> <input type="checkbox"/> Oppose</p> <p><i>The AESO currently does not offer</i></p>                                      |              |

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| <p>applicable to its organization that reflects emergency operations topics, which includes system restoration using drills, exercises or other training required to maintain qualified personnel. <i>[Violation Risk Factor: Medium] [Time Horizon: Long-term Planning]</i></p> <p><b>R3.1.</b> Each Reliability Coordinator, Balancing Authority and Transmission Operator that has operational authority or control over Facilities with established IROs or has established operating guides or protection systems to mitigate IROL violations shall provide each System Operator with emergency operations training using simulation technology such as a simulator, virtual technology, or other technology that replicates the operational behavior of the BES during normal and emergency conditions.</p> | <p>operations training applicable to its organization that reflects emergency operations topics, including: <b>system</b> restoration using drills, exercises and other training required to maintain qualified personnel.</p> <p><b>R3.1.</b> Each of the <b>ISO</b> and the <b>operator</b> of a <b>transmission facility</b> that has: (i) operational authority or control over <b>facilities</b> with established <b>interconnection reliability operating limits</b>; or (ii) that has established operating guides or protection systems to mitigate <b>interconnection reliability operating limit</b> violations, must provide each member of its real-time operating personnel with emergency operations training using simulation technology such as a simulator, virtual technology or other technology that replicates the operational behavior of the <b>bulk electric system</b> during normal and <b>system emergency</b> conditions.</p> |  | <p><i>enough Blackstart training sessions per year to accommodate all EPC System Operators. We therefore recommend that the frequency be changed to once every two years.</i></p> <p><i>Other internal emergency operations training that will be provided to EPC System Operators include UVLS, UFLS, FLS, RAS, Control Centre Evacuation, Security Training.</i></p> <p><i>R3.1 does not apply to EPC.</i></p> |              |
| <p><b>M1.</b> Each Reliability Coordinator, Balancing Authority and Transmission Operator shall have available for inspection evidence of using a systematic approach to training to establish and implement a</p>  | <p><b>MR1</b> Evidence exists and shows that each of the <b>ISO</b> and the <b>operator</b> of a <b>transmission facility</b> took a systematic approach to training to establish and implement a training program as specified in requirement</p>  | <p><input type="checkbox"/> New<br/> <input checked="" type="checkbox"/> Amended<br/> <input type="checkbox"/> Deleted</p> <p>Amended to align with requirement R1 and its sub-requirements.</p> | <p><input checked="" type="checkbox"/> Support<br/> <input type="checkbox"/> Support with language suggestions<br/> <input type="checkbox"/> Oppose</p> <p><i>Insert comments, reason for</i></p>  |              |

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| <p>training program, as specified in R1.</p> <p><b>M1.1</b> Each Reliability Coordinator, Balancing Authority, and Transmission Operator shall have available for inspection its company-specific reliability-related task list, with the date of the last review and/or revision, as specified in R1.1.</p> <p><b>M1.2</b> Each Reliability Coordinator, Balancing Authority, and Transmission Operator shall have available for inspection its learning objectives and training materials, as specified in R1.2.</p> <p><b>M1.3</b> Each Reliability Coordinator, Balancing Authority, and Transmission Operator shall have available for inspection System Operator training records showing the names of the people trained, the title of the training delivered and the dates of delivery to show that it delivered the training, as specified in R1.3.</p> <p><b>M1.4</b> Each Reliability Coordinator, Balancing Authority, and Transmission Operator shall have available for inspection evidence</p> | <p>R1.</p> <p><b>MR1.1</b> Evidence exists that each of the <b>ISO</b> and the <b>operator</b> of a <b>transmission facility</b> have developed, reviewed and maintained a list as required in requirement R1.1.</p> <p><b>MR1.2</b> Evidence exists that each of the <b>ISO</b> and the <b>operator</b> of a <b>transmission facility</b> designed and developed learning objectives as specified in requirement R1.2.</p> <p><b>MR1.3</b> Evidence exists that each of the <b>ISO</b> and the <b>operator</b> of a <b>transmission facility</b> provided training to each real-time operating personnel as specified in requirement R1.3. Evidence may include records showing the names of the people trained and the scheduled date of training.</p> <p><b>MR1.4</b> Evidence exists that each of the <b>ISO</b> and the <b>operator</b> of a <b>transmission facility</b> conducted an annual evaluation of the training program and implemented any needed changes as specified in requirement R1.4. Evidence could</p> |                            | <p><i>position, and alternate proposal (if any).</i></p> |              |

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| (such as instructor observations, trainee feedback, supervisor feedback, course evaluations, learning assessments, or internal audit results) that it performed an annual training program evaluation, as specified in R1.4  | include instructor observations, trainee feedback, supervisor feedback, course evaluations, learning assessments and internal audit results.  |  |  |              |
| <p><b>M2.</b> Each Reliability Coordinator, Balancing Authority and Transmission Operator shall have available for inspection evidence to show that it verified that each of its System Operators is capable of performing each assigned task identified in R1.1, as specified in R2. This evidence can be documents such as training records showing successful completion of tasks with the employee name and date; supervisor check sheets showing the employee name, date, and task completed; or the results of learning assessments.</p> | <p><b>MR2.</b> Evidence exists that each of the ISO and the operator of a transmission facility have verified the capabilities of its real-time operating personnel as specified in requirement R2. Evidence may include:(i) training records showing successful completion of tasks with the real-time operating personnel's name and date; (ii) task assessment check sheets showing the real-time operating personnel's name, date and task(s) completed, signed by the real-time operating personnel's supervisor; and (iii) the results of documented learning assessments.</p> <p><b>MR2.1</b> Evidence exists that verification has occurred as specified in requirement R2.1.</p> | <p><input type="checkbox"/> New<br/> <input checked="" type="checkbox"/> Amended<br/> <input type="checkbox"/> Deleted</p> <p>Amended to align with requirement R2 and its sub-requirements.</p> | <p><input checked="" type="checkbox"/> Support<br/> <input type="checkbox"/> Support with language suggestions<br/> <input type="checkbox"/> Oppose</p> <p><i>Insert comments, reason for position, and alternate proposal (if any).</i></p> |              |
| <p><b>M3.</b> Each Reliability Coordinator, Balancing Authority and Transmission Operator shall have available for inspection training</p>   | <p><b>MR3.</b> Evidence exists that each of the <b>ISO</b> and the <b>operator</b> of a <b>transmission facility</b> has provided emergency operations training as</p>  | <p><input type="checkbox"/> New<br/> <input checked="" type="checkbox"/> Amended<br/> <input type="checkbox"/> Deleted</p>   | <p><input type="checkbox"/> Support<br/> <input checked="" type="checkbox"/> Support with language suggestions<br/> <input type="checkbox"/> Oppose</p>  |              |

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| <p>records that provide evidence that each System Operator has obtained 32 hours of emergency operations training, as specified in R3.</p> <p><b>M3.1</b> Each Reliability Coordinator, Balancing Authority and Transmission Operator shall have available for inspection training records that provide evidence that each System Operator received emergency operations training using simulation technology, as specified in R3.1.</p> | <p>specified in requirement R3. Evidence may include training records.</p> <p><b>MR3.1</b> Evidence exists that each of the <b>ISO</b> and the <b>operator</b> of a <b>transmission facility</b> has provided emergency operations training, as specified in requirement R3.1. Evidence may include training records.</p> | <p>Amended to align with requirement R3 and its sub-requirements.</p>   | <p><i>EPC support this measurement providing the comments under R3 are adopted.</i></p> |              |
| <p><b>Compliance</b><br/>To view the compliance section D of the NERC reliability standard follow this link:<br/><a href="http://www.nerc.com/files/PER-005-1.pdf">http://www.nerc.com/files/PER-005-1.pdf</a>.</p>  |   | <p>The Alberta reliability standards do not contain a compliance section. Compliance with all Alberta reliability standards is completed in accordance with the Alberta Reliability Standards Compliance Monitoring Program, available on the AESO website at:<br/><a href="http://www.aeso.ca/loadsettlement/17189.html">http://www.aeso.ca/loadsettlement/17189.html</a>.</p> |   |              |
| <p><b>Regional Differences</b><br/>None identified.</p>  | <p>None identified.</p>   | <p>Not applicable in Alberta</p>  |   |              |

| Definitions                  | Comments | Rationale and/or Alternate Proposal |
|------------------------------|----------|-------------------------------------|
| <b>(a) New</b><br>NA         |          |                                     |
| <b>(b) Removals</b><br>N/A   |          |                                     |
| <b>(c) Amendments</b><br>N/A |          |                                     |