

**ARC Operations Work Group Assessment and Conversion of NERC EOP-001-1 to  
Alberta Standard EOP-001-AB-1 Emergency Operations Planning**

Section	NERC EOP-001-1	Alberta EOP-001-AB-1	Reason for Difference <sup>1</sup>
<b>Purpose</b>	Each Transmission Operator and Balancing Authority needs to develop, maintain, and implement a set of plans to mitigate operating emergencies. These plans need to be coordinated with other Transmission Operators and Balancing Authorities, and the Reliability Coordinator.	<del>Each</del> <u>The purpose of this reliability standard is to define requirements for Transmission Operator and Balancing Authority needs to development, maintenance, and implementation and coordination of a set of plans to mitigate operating emergencies. These plans need to be coordinated with other Transmission Operators and Balancing Authorities, and the Reliability Coordinator.</u>	
<b>Applicability</b>	<p>4.1. Balancing Authorities.</p> <p>4.2. Transmission Operators.</p>	<p><u>This reliability standard applies to:</u></p> <p><del>4.1. Balancing Authorities.</del></p> <p><del>4.2. Transmission Operators.</del></p> <p><u>- ISO</u></p> <p><u>- TFOs</u></p>	

<sup>1</sup> The following revisions have been made throughout this proposed reliability standard:

- Identified the responsible entities in Alberta.
- Applied a consistent writing style and added clarity.
- Changed passive terms such as “shall” to “must”.
- Developed measures specific to the requirements

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<b>Proposed Effective Dates</b>	<p>In those jurisdictions where no regulatory approval is required, the standard shall become effective on the latter of either April 1, 2009 or the first day of the first calendar quarter, three months after Board of Trustee adoption.</p> <p>In those jurisdictions where regulatory approval is required, the standard shall become effective on the latter of either April 1, 2009 or the first day of the first calendar quarter, three months after applicable regulatory approval.</p>	<p><del>In those jurisdictions where no regulatory approval is required, the standard shall become effective on the latter of either April 1, 2009 or the first day of the first calendar quarter, three months after Board of Trustee adoption.</del></p> <p><del>In those jurisdictions where regulatory approval is required, the standard shall become effective on the latter of either April 1, 2009 or the first day of the first calendar quarter, three months after applicable regulatory approval.</del></p> <p><u>10 calendar days after the date of approval by the Commission.</u></p>	
<b>Definitions</b>		<p>Italicized terms used in this reliability standard have the meanings as set out in the Alberta Reliability Standards Glossary of Terms and Part 1 of the ISO rules.<sup>2</sup></p>	
<b>Requirement</b>	<p><b>R1.</b> Balancing Authorities shall have operating agreements with adjacent Balancing Authorities that shall, at a minimum, contain provisions for emergency assistance, including provisions to obtain emergency assistance from remote Balancing Authorities.</p>	<p><b>R1</b> <u>The ISO Balancing Authorities shall must</u> have operating agreements with adjacent balancing authorities that <del>shall, at a minimum,</del> contain provisions for emergency <del>assistance</del><u>energy</u>, including provisions to obtain emergency <del>assistance</del><u>energy</u> from remote balancing <del>A</del><u>authorities</u>.</p>	<p>Emergency assistance changed to emergency energy based on the NERC interpretation - Project 2008-09 Interpretation - EOP-001-0 - Emergency Operations Planning.</p>

<sup>2</sup> Defined terms are not italicized in this document, but will appear in the Alberta reliability standards document when it is developed.

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<b>Measure</b>		<u>MR1 Provisions for emergency energy exist between the ISO and at least one adjacent balancing authority. A reserve sharing agreement or an agreement for emergency energy exists with a remote balancing authority.</u>	This measure was developed based on the NERC interpretation - Project 2008-09 Interpretation - EOP-001-0 - Emergency Operations Planning.
<b>Requirement</b>	<b>R2.</b> Each Transmission Operator and Balancing Authority shall:	<del>R2.4 Each Transmission Operator TFO and Balancing Authority the ISO shall must:</del>	Not all sub-requirements apply to the entities identified in NERC R2. Responsible entities have been identified in the individual requirements.
<b>Measure</b>			
<b>Requirement</b>	<b>R2.1.</b> Develop, maintain, and implement a set of plans to mitigate operating emergencies for insufficient generating capacity.	<del>R3R2.4. The ISO must D</del> develop, maintain, and implement a set of plans to mitigate <del>operating emergencies for</del> insufficient generating capacity.	
<b>Measure</b>		<u>MR2 Plans exist for mitigating insufficient generating capacity.</u>	

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<b>Requirement</b>	<b>R2.2.</b> Develop, maintain, and implement a set of plans to mitigate operating emergencies on the transmission system.	<p><del>R2-23.</del> <u>The ISO must develop, and maintain, and implement</u> a set of plans to <u>meet ISO transmission reliability operating criteria and</u> mitigate operating emergencies on the transmission system.</p> <p><del>R2-2.4</del> <u>The ISO must Develop, maintain, and implement</u> a set of plans <u>to meet ISO transmission reliability operating criteria and</u> to mitigate operating emergencies on the transmission system.</p>	Added clarity that emergency plans for mitigating operating emergencies on the transmission system are based on the ISO transmission reliability operating criteria.
<b>Measure</b>		<p><u>MR3 Plans exist to meet ISO transmission reliability criteria and mitigate operating emergencies on the transmission system.</u></p> <p><u>MR4 Plans were followed, ISO reliability criteria were met and operating emergencies were mitigated when system conditions required the plans to be followed.</u></p>	
<b>Requirement</b>	<b>R2.3.</b> Develop, maintain, and implement a set of plans for load shedding.	<del>R2-35.</del> <u>The ISO and TFOs must each</u> develop, maintain, and implement a set of plans for load shedding.	
<b>Measure</b>		<u>MR5 Plans exist for implementing a set of plans for load shedding.</u>	
<b>Requirement</b>	<b>R2.4.</b> Develop, maintain, and implement a set of plans for system restoration.	<del>R3R46-43.</del> <u>The ISO and TFOs must each develop</u> <del>Develop</del> , maintain, and implement a set of plans for system restoration.	
<b>Measure</b>		<u>MR6 Plans exist for implementing a set of plans for system restoration.</u>	

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<b>Requirement</b>	R3. Each Transmission Operator and Balancing Authority shall have emergency plans that will enable it to mitigate operating emergencies. At a minimum, Transmission Operator and Balancing Authority emergency plans shall include:	<del>R4R57. The ISO and Transmission Operator TFOs must each shall include the following in each plan it must develop, maintain and implement as required by this reliability standard its have emergency plans that will enable it to mitigate operating emergencies.</del> At a minimum, Transmission Operator and Balancing Authority emergency plans shall <u>must</u> include:	
<b>Measure</b>			
<b>Requirement</b>	R3.1. Communications protocols to be used during emergencies.	<del>R574.1.</del> Communications protocols to be used during emergencies.	
<b>Measure</b>		<u>MR57.1 Communication protocols exist as per requirement R7.</u> <del>are included1.</del>	
<b>Requirement</b>	R3.2. A list of controlling actions to resolve the emergency. Load reduction, in sufficient quantity to resolve the emergency within NERC-established timelines, shall be one of the controlling actions.	<del>R4R57.2.</del> A list of controlling actions to resolve the <u>operating emergency, including a controlling action to reduce load if required, within the NERC established timelines</u> <del>established. in R3. Load reduction, in sufficient quantity to resolve the emergency within NERC-established timelines, shall be one of the controlling actions.</del>	Shedding of load is not the appropriate action for all emergencies.
<b>Measure</b>		<u>MR7.2 Controlling actions to resolve emergencies within the required timelines</u> <del>are exist as per requirement R57. included in emergency plans2.</del>	
<b>Requirement</b>	R3.3. The tasks to be coordinated with and among adjacent Transmission Operators and	<del>R4R57.365.3.</del> The tasks to be <u>The ISO's emergency plans involving interconnected</u>	

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	Balancing Authorities.	<del>operations must</del> <u>The tasks</u> coordinated, as applicable, with and among <u>adjacent TFOs, interconnected Transmission-transmission Operators-operators</u> and adjacent <u>Balancing balancing Authoritiesauthorities</u> .	
<b>Measure</b>		<del>MR57.36 operating polic</del> <u>Coordinated tasks to resolve emergencies within the required timelines are exist as per requirement R57.included in emergency plans3.</u>	
<b>Requirement</b>	<b>R3.4.</b> Staffing levels for the emergency.	<del>R4R7.443. A procedure for adjusting s</del> <u>Staffing levels for the needed for the operating</u> emergency.	<b>Alberta Variance<sup>3</sup>:</b> The NERC requirement R3.4 states “emergency plans shall include staffing levels for the emergency”, however specific staffing levels are difficult to specify as it depends on the event. The -Alberta requirement was modified to state “emergency plans shall include a procedure for adjusting staffing levels needed for the emergency.”
<b>Measure</b>		<del>MR7.4</del> <u>Callout procedures exist to obtain additional staff during an emergency.</u>	

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

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<b>Requirement</b>	R4. Each Transmission Operator and Balancing Authority shall include the applicable elements in Attachment 1-EOP-001-0 when developing an emergency plan.	<del>R5-687 Each Transmission Operator and Balancing Authority shall include the applicable elements in Attachment 1-EOP-001-0 when developing an emergency plan.</del> <u>The ISO and TFOs shall must each consider include including the applicable elements in Attachment 1-EOP-001-0 when developing an emergency plans.</u>	Reworded to align with Attachment 1.
<b>Measure</b>		<u>MR768 Documentation exists and shows the elements from Attachment 1 were considered.</u>	
<b>Requirement</b>	R5. The Transmission Operator and Balancing Authority shall annually review and update each emergency plan. The Transmission Operator and Balancing Authority shall provide a copy of its updated emergency plans to its Reliability Coordinator and to neighboring Transmission Operators and Balancing Authorities.	<del>R6R79. The Transmission Operator and Balancing Authority shall TFO and the ISO and TFOs must each annually review and update, as required, each emergency plan annually within 12 months of the last review.</del> <u>R8109 The Transmission Operator and Balancing Authority shall ISO and TFOs must each provide a copy of its updated emergency plans to its Reliability Coordinator the as applicable, to adjacent TFOs, the VRC and to its neighboring interconnected Transmission Operators and adjacent Balancing Authorities.</u>	Split into 2 requirements for annual review of plans and sharing plans with others as applicable.
<b>Measure</b>		<u>MR79 Evidence exists that each emergency plan was reviewed and updated, as per requirement R9 within.</u> <u>MR810 Evidence Confirmation exists that the ISO and TFOs sent updated emergency plans as per requirement R10 to the VRC and to its interconnected transmission operators and adjacent balancing authorities.</u>	

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<b>Requirement</b>	<p><b>R6.</b> The Transmission Operator and Balancing Authority shall coordinate its emergency plans with other Transmission Operators and Balancing Authorities as appropriate. This coordination includes the following steps, as applicable:</p>	<p><del><b>R7.</b> The Transmission Operator and Balancing Authority shall coordinate its emergency plans with other Transmission Operators and Balancing Authorities as appropriate. This coordination includes the following steps, as applicable:</del></p>	<p>Omitted NERC requirement R6 from the Alberta reliability standard to remove redundancy. NERC requirement R6 to coordinate its emergency plans with other Transmission Operators and Balancing Authorities as appropriate is redundant with the Alberta requirement R7.3 to coordinate emergency plans with and among interconnected transmission operators and adjacent balancing authorities.</p>
<b>Measure</b>			
<b>Requirement</b>	<p><b>R6.1.</b> The Transmission Operator and Balancing Authority shall establish and maintain reliable communications between interconnected systems.</p>	<p><del><b>R11 6.1.</b> The Transmission Operator and Balancing Authority shall</del> <u>ISO and TFOs must each establish, and maintain maintain and test to ensure</u> reliable communications, <u>as applicable, between adjacent TFOs, interconnected transmission operators and adjacent balancing authorities when coordinating emergency plans</u> <del>interconnected systems.</del></p>	<p>Added that reliable communications are to be maintained between entities as it applies to the entity.</p>
<b>Measure</b>		<p><b>MR11</b> Evidence exists that <u>tests</u> have been</p>	

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<b>Requirement</b>	<b>R6.2.</b> The Transmission Operator and Balancing Authority shall arrange new interchange agreements to provide for emergency capacity or energy transfers if existing agreements cannot be used.	<u>conducted as per requirement R11.</u>  <del><b>R6.2</b> The Transmission Operator and Balancing Authority shall <u>ISO must consider</u> arrange arranging new interchange agreements to provide for emergency capacity or energy transfers if existing agreements cannot be used.</del>	<b>Alberta Variance<sup>4</sup>:</b> The NERC requirement for arranging new interchange agreements to provide for emergency capacity or energy transfers was not adopted as the ISO uses market mechanism to obtain energy from market participants during emergencies.
<b>Measure</b>		<b>MR10.2</b>	
<b>Requirement</b>	<b>R6.3.</b> The Transmission Operator and Balancing Authority shall coordinate transmission and generator maintenance schedules to maximize capacity or conserve the fuel in short supply. (This includes water for hydro generators.)	<del><b>R7R10.3.</b> The Transmission Operator and Balancing Authority <u>must</u> shall coordinate transmission and generator maintenance schedules to maximize capacity, <u>or conserve the fuel in short supply.</u> (This includes water for hydro generators.)</del>	<b>Alberta Variance<sup>5</sup>:</b> The NERC requirement to coordinate transmission and generator maintenance schedules to maximize capacity or conserve the fuel in short supply was not adopted for Alberta as it goes against market structure in Alberta.
<b>Measure</b>			

<sup>4</sup> An Alberta variance is a change from the US Reliability Standard that the AESO has determined is material.

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<b>Requirement</b>	<b>R6.4.</b> The Transmission Operator and Balancing Authority shall arrange deliveries of electrical energy or fuel from remote systems through normal operating channels.	<del><b>R6.4</b> The Transmission Operator and Balancing Authority must shall arrange deliveries of electrical energy or fuel from remote systems through normal operating channels.</del>	<b>Alberta Variance<sup>6</sup>:</b> The NERC requirement to arrange deliveries of electrical energy or fuel from remote systems through normal operating channels was not adopted for Alberta as it goes against market structure in Alberta.
<b>Measure</b>	<b>M1.</b> The Transmission Operator and Balancing Authority shall have its emergency plans available for review by the Regional Reliability Organization at all times. <b>M2.</b> The Transmission Operator and Balancing Authority shall have its two most recent annual self assessments available for review by the Regional Reliability Organization at all times.	<del><b>M1.</b> The Transmission Operator and Balancing Authority must shall have its emergency plans available for review by the Regional Reliability Organization (RRO) at all times. <b>M2.</b> The Transmission Operator and Balancing Authority must shall have its two most recent annual self assessments available for review by the RRO Regional Reliability Organization at all times.</del>	
<b>Requirement</b>			
<b>Measure</b>			
<b>Procedures</b>			
<b>Compliance</b>	<b>D. Compliance</b> To see the compliance section please refer to this NERC reliability standard at:		There is no compliance section currently proposed in the Alberta reliability

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	<a href="http://www.nerc.com/files/EOP-001-1.pdf">http://www.nerc.com/files/EOP-001-1.pdf</a>		standards.  A compliance program will be developed at a later date for Alberta reliability standards that recognizes the compliance monitoring and enforcement structure in Alberta.  This approach is deemed consistent with the existing ISO Rules.
<b>Regional Differences</b>	None identified.	None identified.	Not applicable in Alberta

## Attachment 1<sup>7</sup>-EOP-001-0

### Elements for Consideration in Development of Emergency Plans

- ~~1. Fuel supply and inventory — An adequate fuel supply and inventory plan that recognizes reasonable delays or problems in the delivery or production of fuel.~~
- ~~2. Fuel switching — Fuel switching plans for units for which fuel supply shortages may occur, (e.g., gas and light oil).~~
- ~~3. Environmental constraints — Plans to seek removal of environmental constraints for generating units and plants.~~
1. System energy use — The reduction of the system's own energy use to a minimum.
2. Public appeals — Appeals to the public through all media for voluntary load reductions and energy conservation including educational messages on how to accomplish such load reduction and conservation.
3. Load management — Implementation of load management and voltage reductions, if appropriate.
- ~~7. Optimize fuel supply — The operation of all generating sources to optimize the availability.~~
- ~~8. Appeals to customers to use alternate fuels — In a fuel emergency, appeals to large industrial and commercial customers to reduce non-essential energy use and maximize the use of customer-owned generation that rely on fuels other than the one in short supply.~~
4. Interruptible and curtailable loads — Use of interruptible and curtailable customer load to reduce capacity requirements or to conserve the fuel in short supply.

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<sup>7</sup> Alberta Variance – Deleted some elements in Attachment 1 that are to be considered when developing an emergency plan as these elements (fuel supply and inventory, fuel switching, optimize fuel supply and appeals to customers to use alternate fuels) are managed through the market structure in Alberta. (An Alberta variance is a change from the US Reliability Standard that the AESO has determined is material.)



5. Maximizing generator output and availability — The operation of all generating sources to maximize output and availability. This should include plans to winterize units and plants during extreme cold weather.
6. Notifying independent power producers (IPP) — Notification of cogeneration and independent power producers to maximize output and availability.
7. Requests of government — Requests to appropriate government agencies to implement programs to achieve necessary energy reductions.
8. Load curtailment — A mandatory load curtailment plan to use as a last resort. This plan should address the needs of critical loads essential to the health, safety, and welfare of the community. Address firm load curtailment.
9. Notification of government agencies — Notification of appropriate government agencies as the various steps of the emergency plan are implemented.
10. Notifications to operating entities — Notifications to other operating entities as steps in emergency plan are implemented.



## Proposed Terms for the ARS Glossary:

### Defined Terms Used in this Standard:

(As included in the ISO Rules Definitions or Alberta Reliability Standards Glossary)

- *adjacent balancing authorities*
- *balancing authorities*
- *Independent System Operator (ISO)*
- *interconnected transmission operators*
- *interconnection reliability operating limits (IROL)*
- *load*
- *reliability standard*
- *schedule*
- *system<sup>♦</sup>*
- *transmission facility owner (TFO)*
- *Vancouver Reliability Council (VRC)*

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<sup>♦</sup> Term appears in the Alberta Reliability Standards Glossary of Terms – April 2009 rules cycle