

**Fred James**

Chief Regulatory Officer

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Via NEB Website

January 30, 2018

Sherri Young  
Secretary of the Board  
National Energy Board  
Electricity Reliability  
Suite 210  
517 - Tenth Avenue SW  
Calgary, Alberta T2R 0A8

Dear Ms. Young:

**RE: National Energy Board (NEB)  
British Columbia Hydro and Power Authority (BC Hydro)  
Compliance with NEB Order MO-036-2012, Order for Electricity Reliability  
Standards  
File OF-Fac-ElecGen-Rel-IPL 05**

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BC Hydro is writing to the NEB in compliance with Order MO-036-2012 (**Order**) to provide its declaration that it is maintaining the record required under subsection 6(1) of the Order and to provide a copy of the record.

BC Hydro holds authorizations, in the form of International Power Line (**IPL**) Certificates, for NEB regulated IPLs that BC Hydro owns and operates for exporting electricity to the United States (**U.S.**). These authorizations are identified in the Order Appendix as Certificate Nos. EC-III-12, EC-III-04 and EC-III-10 for IPLs designated as 5L51, 5L52 and 2L112 respectively.

BC Hydro declares that it is maintaining a record in the form of Attachment 1 that lists:

- (a) The identity of the provincial authority or standards development authority whose reliability standards the holder of the certificate is complying with for the purposes of sections 3 and 5 of the Order;
- (b) The names and reference numbers of the reliability standards that are applicable to the IPLs listed above for which BC Hydro is the certificate holder; and
- (c) The reasons why BC Hydro is complying with those reliability standards.

BC Hydro proposes that reliability standards applicable to IPLs are those that meet the following criteria (**Criteria**):

1. They are mandatory within a provincial authority framework; and
2. They are applicable to Transmission Owner (**TO**), Transmission Operator (**TOP**), Transmission Planner (**TP**) and Transmission Service Provider (**TSP**) reliability standard functional registrations within that provincial authority framework.

The British Columbia Utilities Commission (**BCUC**) has exclusive authority within British Columbia (**B.C.**), pursuant to section 125.2 of the B.C. *Utilities Commission Act*, to adopt and enforce reliability standards that are developed by the North American Electric Reliability Corporation (**NERC**), Western Electricity Coordinating Council (**WECC**), or other prescribed standard making body. If the BCUC determines that a reliability standard is required to maintain or achieve consistency between B.C. and other jurisdictions that have adopted the reliability standard, these same standards must be adopted in B.C. In order to reject a standard, the BCUC must determine that the standard is not in the public interest in B.C. Further, the BCUC cannot amend any reliability standard developed by the above standard making bodies nor can it, without the approval of the Provincial Government, set a standard or rule pertaining to a matter addressed by a reliability standard that has been assessed. The BCUC generally conducts this standards assessment annually. As a result of this assessment and approval process, there is normally a delay from the date a standard is approved in the U.S. to the date on which it is adopted in B.C.

On March 6, 2013 and subsequently each year by January 30, BC Hydro provided to the NEB its record of the names and reference numbers of the reliability standards that are effective in B.C. as of January 30 and applicable to the IPLs. Attachment 1 outlines the changes to the applicable reliability standards since the January 30 list was last filed. The reliability standards listed in Attachment 1 are approved by the BCUC and effective in B.C. as of January 30, 2018.

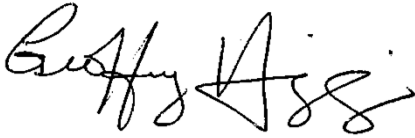
BC Hydro is complying with the reliability standards listed in Attachment 1 for the following reasons:

1. The identified reliability standard has been determined by the BCUC to be required to maintain or achieve consistency between B.C. and other jurisdictions that have adopted the reliability standard and has been adopted by the BCUC as a mandatory reliability standard in B.C. under the British Columbia Mandatory Reliability Standard Program (**B.C. MRS Program**);
2. The identified reliability standard applies to one or more of the TO, TOP, TP and TSP functional registrations under the B.C. MRS Program and therefore is applicable to the IPLs for which BC Hydro is the certificate holder; and
3. BC Hydro is registered for each of the TO, TOP, TP and TSP functions under the B.C. MRS Program and is therefore required to comply with each of the reliability standards for the IPLs for which BC Hydro is the certificate holder.

January 30, 2018  
Sherri Young  
Secretary of the Board  
National Energy Board  
Electricity Reliability

For further information, please contact Geoff Higgins at 604-623-4121 or by email at [bchydroregulatorygroup@bchydro.com](mailto:bchydroregulatorygroup@bchydro.com).

Yours sincerely,



(for) Fred James  
Chief Regulatory Officer

st/ma

Enclosure (1)

Copy to: **BCUC**  
Attention: Patrick Wruck  
[commission.secretary@bcuc.com](mailto:commission.secretary@bcuc.com)

**Teck Cominco Metals Ltd.**  
Attention: Peter Rozee  
[peter.rozee@teckcominco.com](mailto:peter.rozee@teckcominco.com)

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**BC Hydro Compliance with NEB Order MO-036-2012  
for Electricity Reliability Standards**

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**Attachment 1**

**BC Hydro's IPLs (International Power Lines)  
Standards List Adopted as of January 30, 2018**

# Introduction

## NEB Order MO-036-2012 – Directive 6(1)

- |      |  |   |
|------|--|---|
| 6(1) | <b>The holder of a certificate shall maintain a record, in the form of a spreadsheet, that contains:</b>   | <b>NEB Certificate Holder: BC Hydro Certificate Nos. EC-III-12, EC-III-04 and EC-III-10.</b>  |
| (a)  | <b>The identity of the provincial authority or standards development authority whose reliability standards the holder of the certificate is complying with for the purposes of sections 3 and 5;</b> | <b>BCUC has authority under the <i>B.C. Utilities Commission Act</i> to adopt and enforce reliability standards developed by NERC and WECC.</b>   |
| (b)  | <b>The names and any reference numbers of the reliability standards applicable to the IPL; and</b>   | <b>The reliability standard reference numbers that are applicable to the IPL regulated by the certificates referenced above are as listed in Table 1 below.</b>   |
| (c)  | <b>The reasons why the holder is complying with those reliability standards.</b>   | <b>The certificate holder is complying with the standards listed in Table 1 because the identified version of the reliability standard is mandatory in B.C. and applies to one or more of the following reliability standard functional registrations:<br/>The Certificate holder is registered as TO, TOP, TP and TSP with the BCUC.</b> |

# BC Hydro's IPLs Standards List

**Table 1: Names and Reference Numbers of Reliability Standards Applicable to BC Hydro IPLs  
(as of January 30, 2018)**

Reference Number	Reliability Standard Name	BCUC Order Adopting	Applies to			
			TO	TOP	TP	TSP
<b>BAL</b>	<b>Resource and Demand Balancing</b>					
BAL-005-0.2b <sup>1</sup>	Automatic Generation Control	R-41-13		X		
<b>CIP</b>	<b>Critical Infrastructure Protection</b>					
CIP-002-3 <sup>2</sup>	Critical Cyber Asset Identification	G-162-11	X	X		X
CIP-002-5.1 <sup>3</sup>	Cyber Security – BES Cyber System Categorization	R-38-15	X	X		
CIP-003-3 <sup>4</sup>	Security Management Controls	G-162-11	X	X		X
CIP-004-3a	Personnel & Training	R-32-14	X	X		X
CIP-005-3a <sup>5</sup>	Electronic Security Perimeter(s)	R-1-13	X	X		X
CIP-006-3c	Physical Security of Critical Cyber Assets	G-162-11	X	X		X
CIP-007-3a <sup>6</sup>	Systems Security Management	R-32-14	X	X		X
CIP-008-3	Incident Reporting and Response Planning	G-162-11	X	X		X
CIP-009-3	Recovery Plans for Critical Cyber Assets	G-162-11	X	X		X
<b>COM</b>	<b>Communications</b>					
<del>COM-001-1.1<sup>7</sup></del>	<del>Telecommunications</del>	<del>G-167-10</del>		<del>X</del>		
COM-001-2.1 <sup>8</sup>	Communications	R-32-16		X		
<del>COM-002-2<sup>9</sup></del>	<del>Communications and Coordination</del>	<del>G-67-09</del>		<del>X</del>		
COM-002-4 <sup>10</sup>	Operating Personnel Communications Protocols	R-32-16		X		
<b>EOP</b>	<b>Emergency Preparedness and Operations</b>					
EOP-001-2.1b	Emergency Operations Planning	R-32-14		X		
EOP-003-1	Load Shedding Plans	G-67-09		X		
<del>EOP-004-2<sup>11</sup></del>	<del>Event Reporting</del>	<del>R-32-14</del>	<del>X</del>	<del>X</del>		

<sup>1</sup> R2 retired on January 21, 2014.

<sup>2</sup> CIP-002-3 will be superseded by CIP-002-5.1.

<sup>3</sup> Preceded by CIP-002-3. CIP-002-5.1 will be effective on Oct. 1, 2018 and BC Hydro transitioned to CIP-002-5.1 on December 16, 2016.

<sup>4</sup> R1.2, R3, R3.1, R3.2, R3.3, and R4.2 retired on January 21, 2014.

<sup>5</sup> R2.6 retired on January 21, 2014.

<sup>6</sup> R7.3 retired on January 21, 2014.

<sup>7</sup> COM-001-1.1 retired on September 30, 2017. COM-001-1.1 is superseded by COM-002-2.1.

<sup>8</sup> Preceded by COM-001-1.1. COM-001-2.1 is effective as of October 1, 2017.

<sup>9</sup> COM-002-2 retired on March 31, 2017. COM-002-2 is superseded by COM-002-4.

<sup>10</sup> Preceded by COM-001-1.1 R4 and COM-002-2. COM-002-4 is effective as of April 1, 2017.

Reference Number	Reliability Standard Name	BCUC Order Adopting	Applies to			
			TO	TOP	TP	TSP
EOP-004-3 <sup>12</sup>	Event Reporting	R-39-17	X	X		
EOP-005-2 <sup>13</sup>	System Restoration and Blackstart Resources	R-32-14	X	X		
EOP-008-1	Loss of Control Center Functionality	R-32-14		X		
EOP-010-1 <sup>14</sup>	Geomagnetic Disturbance Operations	R-38-15		X		
<b>FAC</b>	<b>Facilities Design, Connections, and Maintenance</b>					
FAC-001-2	Facility Interconnection Requirements	R-38-15	X			
FAC-002-2	Facility Interconnection Studies	R-38-15	X		X	
<del>FAC-003-3<sup>15</sup></del>	<del>Transmission Vegetation Management</del>	<del>R-32-14</del>	<del>X</del>			
FAC-003-4 <sup>16</sup>	Transmission Vegetation Management	R-39-17	X			
FAC-008-3 <sup>17</sup>	Facility Ratings	R-32-14	X			
FAC-014-2 <sup>18</sup>	Establish and Communicate System Operating Limits	G-167-0		X	X	
FAC-501-WECC-1	Transmission Maintenance	R-1-13	X			
<b>INT</b>	<b>Interchange Scheduling and Coordination</b>					
INT-006-4	Evaluation of Interchange Transactions	R-38-15				X
<b>IRO</b>	<b>Interconnection Reliability Operations and Coordination</b>					
<del>IRO-001-1.1<sup>19</sup></del>	<del>Reliability Coordination — Responsibilities and Authorities</del>	<del>G-167-10</del>		<del>X</del>		<del>X</del>
IRO-001-4 <sup>20</sup>	Reliability Coordination – Responsibilities	R-39-17		X		
<del>IRO-004-2<sup>21</sup></del>	<del>Reliability Coordination — Operations Planning</del>	<del>R-1-13</del>		<del>X</del>		<del>X</del>
IRO-005-3.1a <sup>22</sup>	Reliability Coordination — Current Day Operations	R-32-14		X		X
IRO-010-1a	Reliability Coordinator Data Specification and Collection	R-1-13	X	X		

<sup>11</sup> EOP-004-2 retired on September 30, 2017. EOP-004-2 is superceded by EOP-004-3.

<sup>12</sup> Preceded by EOP-004-2. EOP-004-3 is effective as of October 1, 2017.

<sup>13</sup> R3.1 retired on January 21, 2014.

<sup>14</sup> R1 & R2 are not applicable to BC Hydro.

<sup>15</sup> FAC-003-3 retired on September 30, 2017. FAC-003-3 is superceded by FAC-003-4.

<sup>16</sup> Preceded by FAC-003-3. FAC-003-4 is effective as of October 1, 2017.

<sup>17</sup> R4 and R5 retired on January 21, 2014.

<sup>18</sup> R1 and R5.1 are not applicable to BC Hydro.

<sup>19</sup> IRO-001-1.1 retired on September 30, 2017. IRO-001-1.1 is superceded by IRO-001-4.

<sup>20</sup> Preceded by IRO-001-1.1, IRO-004-2 and IRO-005-3.1a. IRO-001-4 is effective as of October 1, 2017.

<sup>21</sup> IRO-004-2 retired on September 30, 2017. IRO-004-2 is superceded by IRO-001-4 and IRO-008-2.

<sup>22</sup> R1-R6, R8 and R12 retired on September 30, 2017.

Reference Number	Reliability Standard Name	BCUC Order Adopting	Applies to			
			TO	TOP	TP	TSP
<b>MOD</b>	<b>Modeling, Data, and Analysis</b>					
MOD-001-1a	Available Transmission System Capability	G-175-11		X		X
MOD-004-1	Capacity Benefit Margin	G-175-11			X	X
MOD-008-1	Transmission Reliability Margin Calculation Methodology	G-175-11		X		
MOD-010-0	Steady-State Data for Modeling and Simulation of the Interconnected Transmission System	G-67-09	X		X	
MOD-012-0	Dynamics Data for Modeling and Simulation of the Interconnected Transmission System	G-67-09	X		X	
MOD-020-0	Providing Interruptible Demands and Direct Control Load Management Data to System Operators and Reliability Coordinators	G-67-09			X	
<del>MOD-025-2<sup>23</sup></del>	<del>Verification and Data Reporting of Generator Real and Reactive Power Capability and Synchronous Condenser Reactive Power Capability</del>	<del>R-38-15</del>	<del>X</del>			
<del>MOD-026-1<sup>24</sup></del>	<del>Verification of Models and Data for Generator Excitation Control System or Plant Volt/Var Control Functions</del>	<del>R-38-15</del>			<del>X</del>	
<del>MOD-027-1<sup>25</sup></del>	<del>Verification of Models and Data for Turbine/Governor and Load Control or Active Power/Frequency Control Function</del>	<del>R-38-15</del>			<del>X</del>	
MOD-028-2	Area Interchange Methodology	R-32-14		X		X
<del>MOD-029-1a<sup>26</sup></del>	<del>Rated System Path Methodology</del>	<del>G-175-11</del>		<del>X</del>		<del>X</del>
MOD-029-2a <sup>27</sup>	Rated System Path Methodology	R-39-17		X		X
<del>MOD-030-2<sup>28</sup></del>	<del>Flowgate Methodology</del>	<del>G-175-11</del>		<del>X</del>		<del>X</del>
MOD-030-3 <sup>29</sup>	Flowgate Methodology	R-39-17		X		X
MOD-031-1	Demand and Energy Data	R-32-16			X	
<b>PER</b>	<b>Personnel Performance, Training, and Qualifications</b>					
PER-001-0.2	Operating Personnel Responsibility and Authority	R-41-13		X		
PER-003-1	Operating Personnel Credentials	R-41-13		X		
PER-005-2 <sup>30</sup>	Operations Personnel Training	R-38-15	X	X		

<sup>23</sup> . Removed from list as not applicable to IPL.

<sup>24</sup> . Removed from list as not applicable to IPL.

<sup>25</sup> . Removed from list as not applicable to IPL.

<sup>26</sup> MOD-029-1a retired on September 30, 2017. MOD-029-1a is superceded by MOD-029-2a.

<sup>27</sup> Preceded by MOD-029-1a. MOD-029-2a is effective as of October 1, 2017.

<sup>28</sup> MOD-030-2 retired on September 30, 2017. MOD-030-2 is superceded by MOD-030-3.

<sup>29</sup> Preceded by MOD-030-2. MOD-030-3 is effective as of October 1, 2017.

<sup>30</sup> Preceded by PER-005-1. R1-R4 & R6 are effective on October 1, 2016. R5 is effective on October 1, 2017.



Reference Number	Reliability Standard Name	BCUC Order Adopting	Applies to			
			TO	TOP	TP	TSP
<b>PRC</b>	<b>Protection and Control</b>					
PRC-001-1.1 (ii)	System Protection Coordination	R-32-16		X		
PRC-002-2 <sup>31</sup>	Disturbance Monitoring and Reporting Requirements	R-32-16	X			
<del>PRC-004-WECC-1<sup>32</sup></del>	<del>Protection System and Remedial Action Scheme Misoperation</del>	<del>R-1-13</del>	<del>X</del>	<del>X</del>		
PRC-004-2.1a	Analysis and Mitigation of Transmission and Generation Protection System Misoperations	R-32-14	X			
PRC-004-5(i) <sup>33</sup>	Protection System Misoperation Identification and Correction	R-32-16	X			
PRC-004-WECC-2 <sup>34</sup>	Protection System and Remedial Action Scheme Misoperation	R-39-17	X	X		
PRC-005-1.1b	Transmission and Generation Protection System Maintenance and Testing	R-32-14	X			
PRC-005-2(i) <sup>35</sup>	Protection System Maintenance	R-38-15	X			
PRC-007-0	Assuring Consistency of Entity Underfrequency Load Shedding Programs with Regional Reliability Organization's Underfrequency Load Shedding Program Requirements	G-67-09	X	X		
PRC-008-0	Implementation and Documentation of Underfrequency Load Shedding Equipment Maintenance Program	G-67-09	X			
PRC-009-0	Analysis and Documentation of Underfrequency Load Shedding Performance Following an Underfrequency Event	G-67-09	X	X		
PRC-010-0 <sup>36</sup>	Technical Assessment of the Design and Effectiveness of Undervoltage Load Shedding Program	G-67-09	X	X		
PRC-011-0	Undervoltage Load Shedding System Maintenance and Testing	G-67-09	X			
<del>PRC-015-0<sup>37</sup></del>	<del>Special Protection System Data and Documentation</del>	<del>G-67-09</del>	<del>X</del>			

<sup>31</sup> The effective dates are as follows: R1 & R5 are effective on April 1, 2017; R12 is effective on June 1, 2017; and R2-R4 & R6-R11: 50% completion on April 1, 2021 and 100% completion on April 1, 2023. R5 is not applicable to BC Hydro.

<sup>32</sup> PRC-004-WECC-1 is superceded by PRC-004-WECC-2.

<sup>33</sup> PRC-004-5(i) is effective on October 1, 2017.

<sup>34</sup> Preceded by PRC-004-WECC-1. PRC-004-WECC-2 is effective on October 1, 2017.

<sup>35</sup> Preceded by PRC-005-2. R1, R2 & R5 of PRC-005-2(i) is effective on October 1, 2017; R3 & R4 will be effective on April 1, 2018.

<sup>36</sup> R2 retired on January 21, 2014.

<sup>37</sup> PRC-015-0 retired on September 30, 2017. PRC-015-0 is superceded by PRC-015-1.

Reference Number	Reliability Standard Name	BCUC Order Adopting	Applies to			
			TO	TOP	TP	TSP
PRC-015-1 <sup>38</sup>	Remedial Action Scheme Data and Documentation	R-39-17	X			
<del>PRC-016-0.1<sup>39</sup></del>	<del>Special Protection System Misoperations</del>	<del>G-167-10</del>	<del>X</del>			
PRC-016-1 <sup>40</sup>	Remedial Action Scheme Misoperations	R-39-17	X			
<del>PRC-017-0<sup>41</sup></del>	<del>Special Protection System Maintenance and Testing</del>	<del>G-67-09</del>	<del>X</del>			
PRC-017-1 <sup>42</sup>	Remedial Action Scheme Maintenance and Testing	R-39-17	X			
PRC-018-1	Disturbance Monitoring Equipment Installation and Data Reporting	G-67-09	X			
<del>PRC-019-1<sup>43</sup></del>	<del>Coordination of Generating Unit or Plant Capabilities, Voltage Regulating Controls, and Protection</del>	<del>R-38-15</del>	<del>X</del>			
PRC-019-2 <sup>44</sup>	Coordination of Generating Unit or Plant Capabilities, Voltage Regulating Controls, and Protection	R-32-16	X			
PRC-021-1	Under-Voltage Load Shedding Program Data	G-67-09	X			
PRC-022-1 <sup>45</sup>	Under-Voltage Load Shedding Program Performance	G-67-09		X		
<del>PRC-023-3<sup>46</sup></del>	<del>Transmission Relay Loadability</del>	<del>R-38-15</del>	<del>X</del>			
PRC-023-4 <sup>47</sup>	Transmission Relay Loadability	R-39-17	X			
<del>PRC-025-1<sup>48</sup></del>	<del>Generator Relay Loadability</del>	<del>R-38-15</del>	<del>X</del>			
<b>TOP</b>	<b>Transmission Operations</b>					
TOP-001-1a	Reliability Responsibilities and Authorities	R-1-13		X		
TOP-002-2.1b	Normal Operations Planning	R-41-13		X		X
TOP-003-1	Planned Outage Coordination	R-1-13		X		
TOP-004-2	Transmission Operations	G-167-10		X		
TOP-005-2a	Operational Reliability Information	R-1-13		X		
TOP-006-2	Monitoring System Conditions	R-1-13		X		
TOP-007-0	Reporting System Operating Limit (SOL) and Interconnection Reliability Operating	G-67-09		X		

<sup>38</sup> Preceded by PRC-015-0. PRC-015-1 is effective on October 1, 2017.

<sup>39</sup> PRC-016-0.1 retired on September 30, 2017. PRC-016-0.1 is superceded by PRC-016-1.

<sup>40</sup> Preceded by PRC-016-0.1. PRC-016-1 is effective on October 1, 2017.

<sup>41</sup> PRC-017-0 retired on September 30, 2017. PRC-017-0 is superceded by PRC-005-2 & PRC-017-1.

<sup>42</sup> Preceded by PRC-017-0. PRC-017-1 is effective on October 1, 2017.

<sup>43</sup> PRC-019-1 retired on September 30, 2017. PRC-019-1 is superceded by PRC-019-2.

<sup>44</sup> Preceded by PRC-019-1. The effective dates are as follows: R1-R2: 40% completion on October 1, 2017, 60% completion on October 1, 2018, 80% completion on October 1, 2019 and 100% completion on October 1, 2020.

<sup>45</sup> R2 retired on January 21, 2014.

<sup>46</sup> PRC-023-3 retired on September 30, 2017. PRC-023-3 is superceded by PRC-023-4.

<sup>47</sup> Preceded by PRC-023-3. PRC-023-4 is effective on October 1, 2017, and will be superceded by PRC-025-1.

<sup>48</sup> Removed from list as not applicable to IPL.

Reference Number	Reliability Standard Name	BCUC Order Adopting	Applies to			
			TO	TOP	TP	TSP
	Limit (IROL) Violations					
TOP-007-WECC-1a	System Operating Limits	R-38-15		X		
TOP-008-1	Response to Transmission Limit Violations	G-67-09		X		
<b>TPL</b>	<b>Transmission Planning</b>					
TPL-001-0.1	System Performance Under Normal (No Contingency) Conditions (Category A)	G-167-10			X	
TPL-002-0b	System Performance Following Loss of a Single Bulk Electric System Element (Category B)	R-1-13			X	
TPL-003-0b	System Performance Following Loss of Two or More Bulk Electric System Elements (Category C)	R-32-14			X	
TPL-004-0a	System Performance Following Extreme Events Resulting in the Loss of Two or More Bulk Electric System Elements (Category D)	R-32-14			X	
<b>VAR</b>	<b>Voltage and Reactive</b>					
VAR-001-4.1	Voltage and Reactive Control	R-32-16		X		
<del>VAR-002-WECC-2<sup>49</sup></del>	<del>Automatic Voltage Regulators</del>	<del>R-32-16</del>		<del>X</del>		

<sup>49</sup> Removed from list as not applicable to IPL.