

Fred James

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Via NEB Website

January 24, 2019

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**

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, 2019.

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 24, 2019
Sherri Young
Secretary of the Board
National Energy Board
Electricity Reliability

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For further information, please contact Geoff Higgins at 604-623-4121 or by email at bchydroregulatorygroup@bchydro.com.

Yours sincerely,



Fred James
Chief Regulatory Officer

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Enclosure (1)

Copy to: **BCUC**
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Teck Cominco Metals Ltd.
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**BC Hydro Compliance with NEB Order MO-036-2012
for Electricity Reliability Standards**

Attachment 1

**BC Hydro's IPLs (International Power Lines)
Standards List Adopted as of January 30, 2019**

Introduction

NEB Order No. MO-036-2012 – Directive 6 (1)

- | | | |
|------|---|---|
| 6(1) | The holder of a certificate shall maintain a record, in the form of a spreadsheet, that contains: | NEB Certificate Holder: BC Hydro Certificates No: EC-III-12, EC-III-04 and EC-III-10. |
| (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; | BCUC has authority under the B.C. <i>Utilities Commission Act</i> to adopt and enforce reliability standards developed by NERC and WECC. |
| (b) | The names and any reference numbers of the reliability standards applicable to the IPL; and | The reliability standard reference numbers that are applicable to the IPL regulated by the certificates referenced above are as listed in Table 1 below. |
| (c) | The reasons why the holder is complying with those reliability standards. | 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:
The Certificate holder is registered as TO, TOP, TP and TSP with the BCUC. |

BC Hydro's IPLs Standards List

Table 1: Names and Reference Numbers of Reliability Standards Applicable to BC Hydro IPLs (as of January 31, 2019)

Reference Number	Reliability Standard Name	BCUC Order Adopting	Applies to			
			TO	TOP	TP	TSP
BAL	Resource and Demand Balancing					
BAL-005-0.2b ¹	Automatic Generation Control	R-41-13		X		
CIP	Critical Infrastructure Protection					
CIP-002-3²	Critical Cyber Asset Identification	G-162-11	X	X		X
CIP-002-5.1a ³	Cyber Security – BES Cyber System Categorization	R-33-18	X	X		
CIP-003-3⁴	Security Management Controls	G-162-11	X	X		X
CIP-003-5 ⁵	Cyber Security – Security Management Controls	R-38-15 R-33-18	X	X		
CIP-004-3a⁶	Personnel & Training	R-32-14	X	X		X
CIP-004-6 ⁷	Cyber Security – Personnel & Training	R-39-17	X	X		
CIP-005-3a⁸	Electronic Security Perimeter(s)	R-1-13	X	X		X
CIP-005-5 ⁹	Cyber Security – Electronic Security Perimeter(s)	R-38-15	X	X		
CIP-006-3c¹⁰	Physical Security of Critical Cyber Assets	G-162-11	X	X		X
CIP-006-6 ¹¹	Cyber Security – Physical Security of BES Cyber Systems	R-39-17	X	X		
CIP-007-3a¹²	Systems Security Management	R-32-14	X	X		X

¹ R2 retired on January 21, 2014.

² CIP-002-3 retired on September 30, 2018. CIP-002-3 is superseded by CIP-002-5.1a.

³ Preceded by CIP-002-3. CIP-002-5.1a is effective as of October 1, 2018 and BC Hydro transitioned to CIP-002-5.1a on December 16, 2016.

⁴ R1.2, R3, R3.1, R3.2, R3.3, and R4.2 retired on January 21, 2014. CIP-003-3 retired on September 30, 2018. CIP-003-3 is superseded by CIP-003-5, CIP-010-2, and CIP-011-2.

⁵ Preceded by CIP-003-3. CIP-003-5 is effective as of Oct. 1, 2018 with the exception of R2.2 and R2.3 which are not adopted.

⁶ CIP-004-3a retired on September 30, 2018. CIP-004-3a is superseded by CIP-004-6.

⁷ Preceded by CIP-003-3 R5, R5.2, R5.3, CIP-004-3a, CIP-006-3c R1, R1.5, and CIP-007-3a R5, R5.1, R5.2, R5.2.1-R5.2.3. CIP-004-6 is effective as of October 1, 2018.

⁸ R2.6 retired on January 21, 2014. CIP-005-3a retired on September 30, 2018. CIP-005-3a is superseded by CIP-005-5.

⁹ Preceded by CIP-005-3a. CIP-005-5 is effective as of October 1, 2018.

¹⁰ CIP-006-3c retired on September 30, 2018. CIP-006-3c is superseded by CIP-006-6.

¹¹ Preceded by CIP-006-3c. CIP-006-6 is effective as of October 1, 2018.

Reference Number	Reliability Standard Name	BCUC Order Adopting	Applies to			
			TO	TOP	TP	TSP
CIP-007-6 ¹³	Cyber Security — System Security Management	R-39-17	X	X		
CIP-008-3¹⁴	Incident Reporting and Response Planning	G-162-11	X	X		X
CIP-008-5 ¹⁵	Cyber Security — Incident Reporting and Response Planning	R-38-15	X	X		
CIP-009-3¹⁶	Recovery Plans for Critical Cyber Assets	G-162-11	X	X		X
CIP-009-6 ¹⁷	Cyber Security — Recovery Plans for BES Cyber Systems	R-39-17	X	X		
CIP-010-2 ¹⁸	Cyber Security — Configuration Change Management and Vulnerability Assessments	R-39-17	X	X		
CIP-011-2 ¹⁹	Cyber Security — Information Protection	R-39-17	X	X		
CIP-014-2 ²⁰	Physical Security	R-32-16	X	X		
COM	Communications					
COM-001-2.4²¹	Communications	R-32-16		X		
COM-001-3 ²²	Communications	R-39-17		X		
COM-002-4	Operating Personnel Communications Protocols	R-32-16		X		
EOP	Emergency Preparedness and Operations					
EOP-001-2.1b²³	Emergency Operations Planning	R-32-14		X		
EOP-003-1	Load Shedding Plans	G-67-09		X		
EOP-004-3	Event Reporting	R-39-17	X	X		

¹² R7.3 retired on January 21, 2014. CIP-007-3a retired on September 30, 2018. CIP-007-3a is superseded by CIP-007-6.

¹³ Preceded by CIP-007-3a. CIP-007-6 is effective as of October 1, 2018.

¹⁴ CIP-008-3 retired on September 30, 2018. CIP-008-3 is superseded by CIP-008-5.

¹⁵ Preceded by CIP-008-3. CIP-008-5 is effective as of October 1, 2018.

¹⁶ CIP-009-3 retired on September 30, 2018. CIP-009-3 is superseded by CIP-009-6.

¹⁷ Preceded by CIP-009-3. CIP-009-6 is effective as of October 1, 2018.

¹⁸ Preceded by CIP-003-3 R6, CIP-005-3a R2, R2.2, R4, R4.1-R4.5, R5, R5.1-R5.3 and CIP-007-3a R1, R1.1-R1.3, R9. CIP-010-2 is effective as of October 1, 2018.

¹⁹ Preceded by CIP-003-3 R4, R4.1 and CIP-007-3a R7, R7.1, R7.2. CIP-011-2 is effective as of October 1, 2018.

²⁰ CIP-014-2 is effective as of October 1, 2017.

²¹ R1 and R2 retired on September 30, 2017; COM-001-2.1 retired on September 30, 2018. COM-001-2.1 is superseded by COM-001-3.

²² Preceded by COM-001-2.1. COM-001-3 R1, R2 is effective as of October 1, 2017; R3-R13 are effective as of October 1, 2018.

²³ EOP-001-2.1b retired on September 30, 2018. EOP-001-2.1b is superseded by EOP-011-1.

Reference Number	Reliability Standard Name	BCUC Order Adopting	Applies to			
			TO	TOP	TP	TSP
EOP-005-2 ²⁴	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 ²⁵	Geomagnetic Disturbance Operations	R-38-15		X		
EOP-011-1 ²⁶	Emergency Operations	R-39-17		X		
FAC	Facilities Design, Connections, and Maintenance					
FAC-001-2	Facility Interconnection Requirements	R-38-15	X			
FAC-002-2	Facility Interconnection Studies	R-38-15	X		X	
FAC-003-4	Transmission Vegetation Management	R-39-17	X			
FAC-008-3 ²⁷	Facility Ratings	R-32-14	X			
FAC-014-2 ²⁸	Establish and Communicate System Operating Limits	G-167-10		X	X	
FAC-501-WECC-1	Transmission Maintenance	R-1-13	X			
INT	Interchange Scheduling and Coordination					
INT-006-4	Evaluation of Interchange Transactions	R-38-15				X
IRO	Interconnection Reliability Operations and Coordination					
IRO-001-4	Reliability Coordination – Responsibilities	R-39-17		X		
IRO-005-3.1a ²⁹	Reliability Coordination — Current Day Operations	R-32-14		X		X
IRO-010-1a	Reliability Coordinator Data Specification and Collection	R-1-13	X	X		
MOD	Modeling, Data, and Analysis					
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		

²⁴ R3.1 retired on January 21, 2014.

²⁵ R1 & R2 are not applicable to BC Hydro.

²⁶ Preceded by EOP-001-2.1b, EOP-002-3.1, and EOP-003-1. EOP-011-1 is effective as of October 1, 2018. R3 and R5 are not applicable to BC Hydro.

²⁷ R4 and R5 retired on January 21, 2014.

²⁸ R1 and R5.1 are not applicable to BC Hydro.

²⁹ R1-R6, R8 and R12 retired on September 30, 2017.

Reference Number	Reliability Standard Name	BCUC Order Adopting	Applies to			
			TO	TOP	TP	TSP
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	
MOD-025-2³⁰	Verification and Data Reporting of Generator Real and Reactive Power Capability and Synchronous Condenser Reactive Power Capability	R-38-15	X			
MOD-026-1³¹	Verification of Models and Data for Generator Excitation Control System or Plant Volt/Var Control Functions	R-38-15			X	
MOD-027-1³²	Verification of Models and Data for Turbine/Governor and Load Control or Active Power/Frequency Control Function	R-38-15			X	
MOD-028-2	Area Interchange Methodology	R-32-14		X		X
MOD-029-2a	Rated System Path Methodology	R-39-17		X		X
MOD-030-3	Flowgate Methodology	R-39-17		X		X
MOD-031-1³³	Demand and Energy Data	R-32-16			X	
MOD-031-2 ³⁴	Demand and Energy Data	R-39-17			X	
PER	Personnel Performance, Training, and Qualifications					
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	Operations Personnel Training	R-38-15	X	X		
PRC	Protection and Control					
PRC-001-1.1 (ii)	System Protection Coordination	R-32-16		X		
PRC-002-2 ³⁵	Disturbance Monitoring and Reporting Requirements	R-32-16	X			

³⁰ Removed from list as not applicable to IPL.

³¹ Removed from list as not applicable to IPL.

³² Removed from list as not applicable to IPL.

³³ MOD-031-1 retired on March 31, 2018. MOD-031-1 is superseded by MOD-31-2.

³⁴ Preceded by MOD-031-1. MOD-031-2 is effective as of April 1, 2018.

³⁵ 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 per cent completion on April 1, 2021 and 100 per cent completion on April 1, 2023. R5 is not applicable to BC Hydro.

Reference Number	Reliability Standard Name	BCUC Order Adopting	Applies to			
			TO	TOP	TP	TSP
PRC-004-5(i)	Protection System Misoperation Identification and Correction	R-32-16	X			
PRC-004-WECC-2	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) ³⁶	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 ³⁷	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			
PRC-015-1	Remedial Action Scheme Data and Documentation	R-39-17	X			
PRC-016-1	Remedial Action Scheme Misoperations	R-39-17	X			
PRC-017-1	Remedial Action Scheme Maintenance and Testing	R-39-17	X			

³⁶ Preceded by PRC-005-1.1b, PRC-011-0, and PRC-017-1 which will retire September 30, 2029. R1, R2 & R5 of PRC-005-2(i) is effective on October 1, 2017; R3 & R4 is effective as follows: 100 per cent by April 1, 2018 for equipment with maximum allowable maintenance intervals < one year, 30 per cent by October 1, 2018 for equipment with three year maximum allowable maintenance intervals, 100 per cent by October 1, 2019 for equipment with maximum allowable maintenance intervals between one and two years, 60 per cent by October 1, 2019 for equipment with maximum allowable maintenance intervals of three years, 30 per cent by October 1, 2019 for equipment with maximum allowable maintenance intervals of six years, 100 per cent by October 1, 2020 for equipment with maximum allowable maintenance intervals of three years, 60 per cent by October 1, 2021 for equipment with maximum allowable maintenance intervals of six years, 30 per cent by October 1, 2021 for equipment with maximum allowable maintenance intervals of 12 years, 100 per cent by October 1, 2023 for equipment with maximum allowable maintenance intervals of six years, 60 per cent by October 1, 2025 for equipment with maximum allowable maintenance intervals of 12 years, and 100 per cent by October 1, 2029 for equipment with maximum allowable maintenance intervals of 12 years.

³⁷ R2 retired on January 21, 2014.

Reference Number	Reliability Standard Name	BCUC Order Adopting	Applies to			
			TO	TOP	TP	TSP
PRC-018-1	Disturbance Monitoring Equipment Installation and Data Reporting	G-67-09	X			
PRC-019-2 ³⁸	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 ³⁹	Under-Voltage Load Shedding Program Performance	G-67-09		X		
PRC-023-4 ⁴⁰	Transmission Relay Loadability	R-39-17	X			
PRC-025-4⁴¹	Generator Relay Loadability	R-38-15	X			
TOP	Transmission Operations					
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 Limit (IROL) Violations	G-67-09		X		
TOP-007-WECC-1a⁴²	System Operating Limits	R-38-15 R-33-18		X		
TOP-008-1	Response to Transmission Limit Violations	G-67-09		X		
TPL	Transmission Planning					
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	

³⁸ PRC-019-2 effective dates are as follows: R1-R2: 40 per cent completion on October 1, 2017, 60 per cent completion on October 1, 2018, 80 per cent completion on October 1, 2019 and 100 per cent completion on October 1, 2020.

³⁹ R2 retired on January 21, 2014.

⁴⁰ PRC-023-4 R1-R5 is effective as of October 1, 2017 with respect to Circuits per sections 4.2.1.1 and 4.2.1.4. R1-R5 with respect to Circuits per sections 4.2.1.2, 4.2.1.3, 4.2.1.5 and 4.2.1.6 and R6 are not adopted.

⁴¹ Removed from list as not applicable to IPL.

⁴² TOP-007-WECC-1a retired on October 1, 2018.

Reference Number	Reliability Standard Name	BCUC Order Adopting	Applies to			
			TO	TOP	TP	TSP
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	
VAR	Voltage and Reactive					
VAR-001-4.1⁴³	Voltage and Reactive Control	R-32-16		X		
VAR-001-4.2 ⁴⁴	Voltage and Reactive Control	R-33-18		X		
VAR-002-WECC-2⁴⁵	Automatic Voltage Regulators	R-32-16		X		

⁴³ VAR-001-4.1 retired on September 30, 2018. VAR-001-4.1 is superseded by VAR-001-4.2

⁴⁴ Preceded by VAR-001-4.1. VAR-001-4.2 is effective as of October 1, 2018.

⁴⁵ Removed from list as not applicable to IPL.