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Via NEB Website

January 28, 2016

Sherri Young
Secretary of the Board
National Energy Board
Electricity Reliability
517 - 10th 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 January 28, 2015 BC Hydro provided to the NEB its record of the names and reference numbers of the reliability standards that were effective in B.C. as of January 30, 2015 and applicable to the IPLs. Attachment 1 outlines the changes to the applicable reliability standards since the January 30, 2015 list was filed. The reliability standards listed in Attachment 1 are approved by the BCUC and effective in B.C. as of January 30, 2016.

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.

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

Yours sincerely,

Tom Loski
Chief Regulatory Officer

st/ma

Enclosure (1)

Copy to:

**BCUC**
Attention: Erica Hamilton
commission.secretary@bcuc.com

**Teck Cominco Metals Ltd.**
Attention: Peter Rozee
peter.rozee@teckcominco.com

BC Hydro
Power smart

# 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, 2016

# Introduction

**NEB Order 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 Certificate Nos. 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. *Utilities Commission Act* 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:**<br>**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 30, 2016)**

| 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-001-2a~~ [2] | ~~Sabotage Reporting~~ | ~~R-1-13~~ | | ~~X~~ | | |
| CIP-002-3 | Critical Cyber Asset Identification | G-162-11 | X | X | | X |
| CIP-003-3[3] | Security Management Controls | G-162-11 | X | X | | X |
| CIP-004-3a | Personnel & Training | R-32-14 | X | X | | X |
| CIP-005-3a[4] | 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[5] | 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 |
| **COM** | **Communications** | | | | | |
| COM-001-1.1 | Telecommunications | G-167-10 | | X | | |
| COM-002-2 | Communications and Coordination | G-67-09 | | X | | |
| **EOP** | **Emergency Preparedness and Operations** | | | | | |
| EOP-001-2.1b | Emergency Operations Planning | R-32-14 | | X | | |
| EOP-003-1 | Load Shedding Plans | G-67-09 | | X | | |
| ~~EOP-004-1~~[6] | ~~Disturbance Reporting~~ | ~~G-67-09~~ | | ~~X~~ | | |

1 R2 retired on January 21, 2014.
2 CIP-001-2a is superseded by EOP-004-2.
3 R1.2, R3, R3.1, R3.2, R3.3, and R4.2 retired on January 21, 2014.
4 R2.6 retired on January 21, 2014.
5 R7.3 retired on January 21, 2014.
6 EOP-004-1 is superseded by EOP-004-2.

| Reference Number | Reliability Standard Name | BCUC Order Adopting | Applies to | | | |
|---|---|---|---|---|---|---|
| | | | TO | TOP | TP | TSP |
| EOP-004-2[7] | Event Reporting | R-32-14 | X | X | | |
| ~~EOP-005-1~~[8] | ~~System Restoration Plans~~ | ~~G-67-09~~ | | ~~X~~ | | |
| EOP-005-2[9] | System Restoration and Blackstart Resources | R-32-14 | X | X | | |
| ~~EOP-008-0~~[10] | ~~Plans for Loss of Control Center Functionality~~ | ~~G-67-09~~ | | ~~X~~ | | |
| EOP-008-1[11] | Loss of Control Center Functionality | R-32-14 | | X | | |
| **FAC** | **Facilities Design, Connections, and Maintenance** | | | | | |
| FAC-001-1 | Facility Connection Requirements | R-32-14 | X | | | |
| ~~FAC-002-1~~[12] | ~~Coordination of Plans For New Generation, Transmission, and End-User Facilities~~ | ~~R-1-13~~ | ~~X~~ | | ~~X~~ | |
| FAC-002-2[13] | Facility Interconnection Studies | R-38-15 | X | | X | |
| ~~FAC-003-1~~[14] | ~~Transmission Vegetation Management Program~~ | ~~G-67-09~~ | ~~X~~ | | | |
| FAC-003-3[15] | Transmission Vegetation Management | R-32-14 | X | | | |
| ~~FAC-008-1~~[16] | ~~Facility Ratings Methodology~~ | ~~G-67-09~~ | ~~X~~ | | | |
| FAC-008-3[17] | Facility Ratings | R-32-14 | X | | | |
| ~~FAC-009-1~~[18] | ~~Establish and Communicate Facility Ratings~~ | ~~G-67-09~~ | ~~X~~ | | | |
| FAC-014-2 | Establish and Communicate System Operating Limits | G-167-0 | | X | X | |
| FAC-501-WECC-1 | Transmission Maintenance | R-1-13 | X | | | |

7 Preceded by EOP-004-1 and CIP-001-2a. EOP-004-2 is effective as of August 1, 2015.
8 EOP-005-1 is superseded by EOP-005-2.
9 R3.1 retired on January 21, 2014. Preceded by EOP-005-1 and EOP-009-0. EOP-005-2 is effective as of August 1, 2015.
10 EOP-008-0 is superseded by EOP-008-1.
11 Preceded by EOP-008-0. EOP-008-1 is effective as of August 1, 2015.
12 R2 retired on January 21, 2014. FAC-002-1 is superceded by FAC-002-2.
13 Preceded by FAC-002-1. FAC-002-2 is effective as of October 1, 2015.
14 FAC-003-1 is superseded by FAC-003-3.
15 Preceded by FAC-003-1. FAC-003-3 is effective as of August 1, 2015.
16 FAC-008-1 is superseded by FAC-008-3.
17 Preceded by FAC-008-1 and FAC-009-1. R4 and R5 retired on January 21, 2014. FAC-008-3 is effective as of August 1, 2015.
18 FAC-009-1 is superseded by FAC-008-3.

| Reference Number | Reliability Standard Name | BCUC Order Adopting | Applies to | | | |
|---|---|---|---|---|---|---|
| | | | TO | TOP | TP | TSP |
| **INT** | **Interchange Scheduling and Coordination** | | | | | |
| ~~INT-004-2~~[19] | ~~Dynamic Interchange Transaction Modifications~~ | ~~G-67-09~~ | | ~~X~~ | | |
| ~~INT-006-3~~[20] | ~~Response to Interchange Authority~~ | ~~G-162-11~~ | | | | ~~X~~ |
| INT-006-4[21] | Evaluation of Interchange Transactions | R-38-15 | | | | X |
| **IRO** | **Interconnection Reliability Operations and Coordination** | | | | | |
| IRO-001-1.1 | Reliability Coordination — Responsibilities and Authorities | G-167-10 | | X | | X |
| IRO-004-2 | Reliability Coordination — Operations Planning | R-1-13 | | X | | X |
| IRO-005-3.1a | 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 | | |
| 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-018-0 | Treatment of Non-member Demand Data and How Uncertainties are Addressed in the Forecasts of Demand and Net Energy for Load | G-67-09 | | | X | |

[19] INT-004-2 is superseded by INT-004-3.1 and INT-004-3.1 is not included in this list as it is not applicable to the TO, TOP, TP or TSP.
[20] INT-006-3 is superseded by INT-006-4.
[21] Preceded by INT-006-3. INT-006-4 is effective as of October 1, 2015.

| Reference Number | Reliability Standard Name | BCUC Order Adopting | Applies to | | | |
|---|---|---|---|---|---|---|
| | | | TO | TOP | TP | TSP |
| MOD-019-0.1 | Reporting of Interruptible Demands and Direct Control Load Management | G-167-10 | | | X | |
| MOD-020-0 | Providing Interruptible Demands and Direct Control Load Management Data to System Operators and Reliability Coordinators | G-67-09 | | | X | |
| MOD-021-1 | Documentation of the Accounting Methodology for the Effects of Demand-Side Management in Demand and Energy Forecasts | R-1-13 | | | X | |
| MOD-025-2[22] | Verification and Data Reporting of Generator Real and Reactive Power Capability and Synchronous Condenser Reactive Power Capability | R-38-15 | X | | | |
| MOD-026-1[23] | Verification of Models and Data for Generator Excitation Control System or Plant Volt/Var Control Functions | R-38-15 | | | X | |
| MOD-027-1[24] | 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-029-1a | Rated System Path Methodology | G-175-11 | | X | | X |
| MOD-030-2 | Flowgate Methodology | G-175-11 | | X | | X |

[22] The effective dates are as follows: The effective date for 40 per cent completion is October 1, 2017, for 60 per cent completion is October 1, 2018, for 80 per cent completion is October 1, 2019 and for 100 per cent Completion is October 1, 2020.

[23] The effective dates are as follows: R3-R6 effective as of October 1, 2015, R1 effective on October 1, 2016 and R2: 30 per cent completion on October 1, 2019, 50 per cent completion on October 1, 2021 and 100 per cent completion on October 1, 2025.

[24] The effective dates are as follows: R3-R5 effective as of October 1, 2015, R1 effective on October 1, 2016 and R2: 30 per cent completion on October 1, 2019, 50 per cent completion on October 1, 2021 and 100 per cent completion on October 1, 2025.

| Reference Number | Reliability Standard Name | BCUC Order Adopting | Applies to | | | |
|---|---|---|---|---|---|---|
| | | | TO | TOP | TP | TSP |
| **PER** | **Personnel Performance, Training, and Qualifications** | | | | | |
| PER-001-0.2 | Operating Personnel Responsibility and Authority | R-41-13 | | X | | |
| ~~PER-002-0~~[25] | ~~Operating Personnel Training~~ | ~~G-67-09~~ | | ~~X~~ | | |
| PER-003-1 | Operating Personnel Credentials | R-41-13 | | X | | |
| PER-005-1[26] | System Personnel Training | R-1-13 | | X | | |
| **PRC** | **Protection and Control** | | | | | |
| ~~PRC-001-1~~[27] | ~~System Protection Coordination~~ | ~~G-67-09~~ | | ~~X~~ | | |
| PRC-001-1.1[28] | System Protection Coordination | R-38-15 | | X | | |
| PRC-004-WECC-1 | Protection System and Remedial Action Scheme Misoperation | R-1-13 | X | X | | |
| PRC-004-2.1a | Analysis and Mitigation of Transmission and Generation Protection System Misoperations | R-32-14 | X | | | |
| PRC-005-1.1b | Transmission and Generation Protection System Maintenance and Testing | R-32-14 | 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[29] | Technical Assessment of the Design and Effectiveness of Undervoltage Load Shedding Program | G-67-09 | X | X | | |

[25] PER-002-0 is superseded by PER-005-1.
[26] Preceded by PER-002-0. PER-005-1 R3.1 is effective as of January 15, 2016.
[27] PRC-001-1 is superseded by PRC-001-1.1.
[28] Preceded by PRC-001-1. PRC-001-1.1 is effective as of October 1, 2015.
[29] R2 retired on January 21, 2014.

| Reference Number | Reliability Standard Name | BCUC Order Adopting | Applies to | | | |
|---|---|---|---|---|---|---|
| | | | TO | TOP | TP | TSP |
| PRC-011-0 | Undervoltage Load Shedding System Maintenance and Testing | G-67-09 | X | | | |
| PRC-015-0 | Special Protection System Data and Documentation | G-67-09 | X | | | |
| PRC-016-0.1 | Special Protection System Misoperations | G-167-10 | X | | | |
| PRC-017-0 | Special Protection System Maintenance and Testing | G-67-09 | X | | | |
| PRC-018-1 | Disturbance Monitoring Equipment Installation and Data Reporting | G-67-09 | X | | | |
| PRC-019-1[30] | Coordination of Generating Unit or Plant Capabilities, Voltage Regulating Controls, and Protection | R-38-15 | X | | | |
| PRC-021-1 | Under-Voltage Load Shedding Program Data | G-67-09 | X | | | |
| PRC-022-1[31] | Under-Voltage Load Shedding Program Performance | G-67-09 | | X | | |
| PRC-023-1[32] | Transmission Relay Loadability | G-162-11 | X | | | |
| PRC-023-2[33] | Transmission Relay Loadability | R-41-13 | X | | | |
| PRC-023-3[34] | Transmission Relay Loadability | R-38-15 | X | | | |
| PRC-025-1[35] | Generator Relay Loadability | R-38-15 | X | | | |

[30] The 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.

[31] R2 retired on January 21, 2014

[32] PRC-023-1 is superseded by PRC-023-2. PRC-023-1 R3 effective date is to be determined.

[33] Preceded by PRC-023-1. PRC-023-2 is superseded by PRC-023-3. For circuits identified by 4.2.1.1 and 4.2.1.4 are effective as of January 1, 2016, for circuits identified by 4.2.1.2, 4.2.1.3, 4.2.1.5 and 4.2.1.6 effective dates are to be determined, R6 effective date is to be determined.

[34] Preceded by PRC-023-2. PRC-023-3 for circuits identified by 4.2.1.1 and 4.2.1.4 are effective as of January 1, 2016. For circuits identified by 4.2.1.2, 4.2.1.3, 4.2.1.5 and 4.2.1.6 effective dates are to be determined, R6 effective date is to be determined.

[35] The effective dates are as follows: The effective date for 40 per cent completion is October 1, 2017, for 60 per cent completion is October 1, 2018, for 80 per cent completion is October 1, 2019 and for 100 per cent Completion is October 1, 2020.

| Reference Number | Reliability Standard Name | BCUC Order Adopting | Applies to | | | |
|---|---|---|---|---|---|---|
| | | | TO | TOP | TP | TSP |
| **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-1~~[36] | ~~System Operating Limits~~ | ~~R-1-13~~ | | ~~X~~ | | |
| TOP-007-WECC-1a[37] | System Operating Limits | R-38-15 | | 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 | |
| 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-001-3[38] | Voltage and Reactive Control | R-32-14 | | X | | |
| VAR-002-WECC-1 | Automatic Voltage Regulators | R-1-13 | | X | | |

[36] TOP-007-WECC-1 is superseded by TOP-007-WECC-1a.
[37] Preceded by TOP-007-WECC-1. TOP-007-WECC-1a is effective as of October 1, 2015.
[38] VAR-001-3 E.A. 13 –18 are effective as of August 1, 2015 and R5 retired on January 21, 2014.