



**ORDER NUMBER**  
**R-14-20**

IN THE MATTER OF  
the *Utilities Commission Act*, RSBC 1996, Chapter 473

and

British Columbia Hydro and Power Authority  
Mandatory Reliability Standard Assessment North American Electric Reliability Corporation  
COVID-19 Compliance Response

**BEFORE:**

W. M. Everett, QC, Panel Chair  
E. B. Lockhart, Commissioner

on July 29, 2020

**ORDER**

**WHEREAS:**

- A. On June 17, 2020, British Columbia Hydro and Power Authority (BC Hydro) submitted to the British Columbia Utilities Commission (BCUC), its assessment of the proposed delayed effective dates for 14 Mandatory Reliability Standards (MRS) identified by the North American Electric Reliability Corporation (NERC) in an informational letter to the BCUC dated April 24, 2020 (NERC Letter) (Report). In the Report, and after receiving feed back from participating Entities, BC Hydro recommends delaying the effective dates for six of the 14 MRS that currently have implementation dates in British Columbia in the second half of 2020, due to the impacts of the COVID-19 pandemic;
- B. Pursuant to section 125.2 of the *Utilities Commission Act* (UCA) the BCUC has exclusive jurisdiction to determine whether a “reliability standard” as defined in the UCA, is in the public interest and should be adopted in British Columbia (BC). The UCA also states BC Hydro must review each reliability standard and provide a report to the BCUC assessing each reliability standard for its reliability impact, suitability, applicability and potential cost of adoption. Within this process, BC Hydro also recommends effective dates for the MRS brought before the BCUC for adoption;
- C. On March 18, 2020, the United States (US) Federal Energy Regulatory Commission (FERC) and NERC provided industry guidance to ensure grid reliability amid potential COVID-19 impacts (Guidance);
- D. On March 19, 2020, the BCUC issued Letter L-11-20 to all Entities registered with the British Columbia Mandatory Reliability Standards Program (MRS Program), advising that the BCUC is using regulatory discretion that aligns with measures in the Guidance. In Letter L-11-20, the BCUC also stated that it will consider the impact of the COVID-19 pandemic for specific aspects of compliance with MRS and included Direction to ensure Bulk Electric System (BES) reliability amid potential COVID-19 impacts and related compliance with MRS;

- E. On April 6, 2020, NERC filed a motion with FERC to defer the implementation, by three to six months, of 14 reliability standards scheduled to become effective in the US, in whole or in part, during the second half of 2020 (Motion). FERC granted that Motion on April 17, 2020;
- F. In the NERC Letter, NERC indicated registered entities in the US were granted deferral of three to six months for reliability standards with implementation dates scheduled to become effective in the US in the second half of 2020 and suggested the BCUC also consider a three to six month delay for 14 MRS scheduled to go into effect in the second half of 2020 in BC;
- G. Aware of the Motion and in connection with the NERC Letter, and in consideration of its responsibilities outlined in the UCA to assess reliability standards including effective dates in BC, BC Hydro sent a request for feedback to Registered Entities in the MRS Program requesting comments on the deferral of effective dates of the 14 MRS identified in the NERC Letter;
- H. Eight Registered Entities responded to BC Hydro's request for feedback. Three Registered Entities responded stating no extensions were required. Five of the Registered Entities stated a six-month implementation extension is required for three MRS due to on site restrictions for contractors. Additionally, BC Hydro stated a six-month implementation extension is required for three other MRS due to on site restrictions for control centres;
- I. By Order R-13-20, dated July 2, 2020, BC Hydro was directed to publish a notice of process for consideration of the delayed effective dates along with the established Regulatory Timetable for written public comment;
- J. On July 9, 2020, Dokie General Partnership, Innergex Renewable Energy Inc., Jimmie Creek Limited Partnership, Toba Montrose General Partnership and Upper Lillooet River Power LP submitted that their comments are represented in the Report and stated their support of the conclusion and recommendations as presented by BC Hydro in the Report;
- K. On July 10, 2020, FortisBC Inc. submitted it has no additional comments regarding the Report;
- L. On July 14, 2020, BC Hydro submitted a response to the written public comments and has no further reply comments; and
- M. The BCUC has reviewed and considered the Report and the proposed delayed effective dates assessed therein, as well as comments received from Entities and considers that the delayed effective date of six MRS is warranted.

**NOW THEREFORE** pursuant to sections 58 to 61 of the UCA, the BCUC orders as follows:

1. Six of the fourteen MRS in the Report, and previously adopted in BC, have revised effective dates as identified in Attachment A to this order.
2. All reliability standards listed in Attachment B to this order are effective as of the dates shown. The effective dates for the reliability standards listed in Attachment B supersede the effective dates that were included in any similar list appended to any previous order of the BCUC.

**DATED** at the City of Vancouver, in the Province of British Columbia, this 29th day of July 2020.

BY ORDER

*Original Signed By:*

W. M. Everett, QC  
Commissioner

Attachment

**British Columbia Utilities Commission  
Reliability Standard Effective Dates as Revised by this Order**

**Table 1 British Columbia Utilities Commission Reliability Standards with Effective Dates as Adopted**

	Standard	Standard Name	Effective Date(s) as Adopted by Previous Orders	Approved New Effective Date(s) as per this Order
1.	CIP-010-2 R3.2, R3.2.1 and R3.2.2	Cyber Security – Configuration Change Management and Vulnerability Assessments	October 1, 2020	N/A
2.	EOP-004-4	Event Reporting	October 1, 2020	N/A
3.	EOP-005-3	System Restoration and Blackstart Resources	October 1, 2020	N/A
4.	EOP-006-3	System Restoration Coordination	October 1, 2020	N/A
5.	EOP-008-2	Loss of Control Center Functionality	October 1, 2020	N/A
6.	IRO-017-1	Outage Coordination	October 1, 2020	N/A
7.	MOD-025-2	Verification and Data Reporting of Generator Real and Reactive Power Capability and Synchronous Condenser Reactive Power Capability	40% compliance by October 1, 2017 60% compliance by October 1, 2018 80% compliance by October 1, 2019 100% compliance by October 1, 2020	40% compliance by October 1, 2017 60% compliance by October 1, 2018 80% compliance by October 1, 2019 100% compliance by April 1, 2021
8.	PRC-19-2	Coordination of Generating Unit or Plant Capabilities, Voltage Regulating Controls, and Protection	40% compliance by October 1, 2017 60% compliance by October 1, 2018 80% compliance by October 1, 2019 100% compliance by October 1, 2020	40% compliance by October 1, 2017 60% compliance by October 1, 2018 80% compliance by October 1, 2019 100% compliance by April 1, 2021
9.	PRC-024-2	Generator Frequency and Voltage Protective Relay Settings	40% compliance by October 1, 2017 60% compliance by October 1, 2018 80% compliance by October 1, 2019 100% compliance by October 1, 2020	40% compliance by October 1, 2017 60% compliance by October 1, 2018 80% compliance by October 1, 2019 100% compliance by April 1, 2021
10.	TOP-001-4	Transmission Operations	October 1, 2020	April 1, 2021
11.	TOP-002-4	Transmission Operations	October 1, 2020	April 1, 2021
12.	TOP-010-1(i)	Real-time Reliability Monitoring and Analysis Capabilities	October 1, 2020	April 1, 2021
13.	TPL-001-4 R2-R6, R8	Transmission Operations	July 1, 2020	N/A
14.	VAR-501-WECC-1	Power System Stabilizer (PSS)	October 1, 2020	N/A

British Columbia Utilities Commission

Reliability Standards with Effective Dates adopted in British Columbia

Standard	Name	BCUC Order Adopting	Effective Date
BAL-001-2	Real Power Balancing Control Performance	R-14-16	July 1, 2016
BAL-002-2 <sup>1</sup>	Disturbance Control Standard – Contingency Reserve for Recovery from a Balancing Contingency Event	R-39-17	January 1, 2018
BAL-002-3	Disturbance Control Standard – Contingency Reserve for Recovery from a Balancing Contingency Event	R-21-19	April 1, 2020
BAL-002-WECC-2a	Contingency Reserve	R-39-17	July 26, 2017
BAL-003-1.1	Frequency Response and Frequency Bias Setting	R-32-16A	October 1, 2016
BAL-004-WECC-2 <sup>1</sup>	Automatic Time Error Correction	R-32-14	October 1, 2014
BAL-004-WECC-3	Automatic Time Error Correction	R-21-19	January 1, 2020
BAL-005-0.2b <sup>1</sup>	Automatic Generation Control	R-41-13	December 12, 2013 R2: Retired January 21, 2014 <sup>2</sup>
BAL-005-1	Balancing Authority Control	R-33-18	October 1, 2019
CIP-002-5.1a	Cyber Security — BES Cyber System Categorization	R-33-18	October 1, 2018 and as per B.C.-specific Implementation Plan
CIP-003-7 <sup>1</sup>	Cyber Security — Security Management Controls	R-21-19	October 1, 2019 and as per B.C.-specific Implementation Plan
CIP-003-8	Cyber Security — Security Management Controls	N/A	Pending BCUC review
CIP-004-6	Cyber Security — Personnel & Training	R-39-17	October 1, 2018 and as per B.C.-specific Implementation Plan

<sup>1</sup> Reliability standard is superseded by the revised/replacement reliability standard listed immediately below it as of the effective date(s) of the revised/replacement reliability standard.

<sup>2</sup> On November 21, 2013, FERC Order 788 (referred to as Paragraph 81) approved the retiring of the reliability standard requirements.

<b>Standard</b>	<b>Name</b>	<b>BCUC Order Adopting</b>	<b>Effective Date</b>
CIP-005-5 <sup>1</sup>	Cyber Security – Electronic Security Perimeter(s)	R-38-15	October 1, 2018 and as per B.C.-specific Implementation Plan
CIP-005-6	Cyber Security – Electronic Security Perimeter(s)	N/A	Pending BCUC review
CIP-006-6	Cyber Security — Physical Security of BES Cyber Systems	R-39-17	October 1, 2018 and as per B.C.-specific Implementation Plan
CIP-007-6	Cyber Security — System Security Management	R-39-17	October 1, 2018 and as per B.C.-specific Implementation Plan
CIP-008-5 <sup>1</sup>	Cyber Security – Incident Reporting and Response Planning	R-38-15	October 1, 2018 and as per B.C.-specific Implementation Plan
CIP-008-6	Cyber Security – Incident Reporting and Response Planning	N/A	Pending BCUC review
CIP-009-6	Cyber Security — Recovery Plans for BES Cyber Systems	R-39-17	October 1, 2018 and as per B.C.-specific Implementation Plan
CIP-010-2 <sup>1</sup>	Cyber Security – Configuration Change Management and Vulnerability Assessments	R-39-17	October 1, 2018 and as per B.C.-specific Implementation Plan
CIP-010-3	Cyber Security – Configuration Change Management and Vulnerability Assessments	N/A	Pending BCUC review
CIP-011-2	Cyber Security – Information Protection	R-39-17	October 1, 2018 and as per B.C.-specific Implementation Plan
CIP-013-1	Cyber Security - Supply Chain Risk Management	N/A	Pending BCUC review
CIP-014-2	Physical Security	R-32-16A	October 1, 2017 and as per B.C.-specific Implementation Plan
COM-001-3	Communications	R-39-17	R1, R2: October 1, 2017 R3-R13: October 1, 2018
COM-002-4	Operating Personnel Communications Protocols	R-32-16A	April 1, 2017

Standard	Name	BCUC Order Adopting	Effective Date
EOP-003-1 <sup>3</sup>	Load Shedding Plans	G-67-09	November 1, 2010
EOP-003-2 <sup>4</sup>	Load Shedding Plans	n/a	Adoption held in abeyance at this time <sup>5</sup>
EOP-004-3 <sup>1</sup>	Event Reporting	R-39-17	October 1, 2017
EOP-004-4	Event Reporting	R-21-19	October 1, 2020
EOP-005-2 <sup>1</sup>	System Restoration and Blackstart Resources	R-32-14	August 1, 2015 R3.1: Retired January 21, 2014 <sup>2</sup>
EOP-005-3	System Restoration and Blackstart Resources	R-21-19	October 1, 2020
EOP-006-2 <sup>1</sup>	System Restoration Coordination	R-32-14	August 1, 2014
EOP-006-3	System Restoration Coordination	R-21-19	October 1, 2020
EOP-008-1 <sup>1</sup>	Loss of Control Center Functionality	R-32-14	August 1, 2015
EOP-008-2	Loss of Control Center Functionality	R-21-19	October 1, 2020
EOP-010-1 <sup>6</sup>	Geomagnetic Disturbance Operations	R-38-15	R1, R3: October 1, 2016 R2: At retirement of IRO-005-3.1a R3
EOP-011-1	Emergency Operations	R-39-17	October 1, 2018
FAC-001-2 <sup>1</sup>	Facility Interconnection Requirements	R-38-15	October 1, 2016
FAC-001-3	Facility Interconnection Requirements	R-33-18	October 1, 2019
FAC-002-2	Facility Interconnection Studies	R-38-15	October 1, 2015
FAC-003-4	Transmission Vegetation Management	R-39-17	October 1, 2017

<sup>3</sup> Reliability standard would be superseded by EOP-003-2 if adopted in B.C. Adoption of EOP-003-2 pending reassessment.

<sup>4</sup> Reliability standard is superseded by EOP-011-1 as of the EOP-011-1 effective date in conjunction with PRC-010-2 Requirement 1 if adopted in B.C. Adoption of PRC-010-2 pending reassessment.

<sup>5</sup> Unable to assess based on undefined Planning Coordinator/Planning Authority footprints and entities responsible. The BCUC Reasons for Decision for Order No. R-41-13 (page 20), indicated that a separate process would be established to consider this matter as it pertains to B.C.

<sup>6</sup> Requirement 2 of the reliability standard will be effective upon the retirement of IRO-005-3.1a Requirement 3 which follows the effective date of IRO-002-4 (October 1, 2017; per BCUC Order No. R-39-17).

Standard	Name	BCUC Order Adopting	Effective Date
FAC-008-3	Facility Ratings	R-32-14	August 1, 2015 R4 and R5: Retired January 21, 2014 <sup>2</sup>
FAC-010-3	System Operating Limits Methodology for the Planning Horizon	R-39-17	R1–R4: October 1, 2017 R5: Retired
FAC-011-3	System Operating Limits Methodology for the Operations Horizon	R-39-17	October 1, 2017
FAC-013-1 <sup>7</sup>	Establish and Communicate Transfer Capability	G-67-09	November 1, 2010
FAC-013-2	Assessment of Transfer Capability for the Near-Term Transmission Planning Horizon	n/a	Adoption held in abeyance at this time <sup>5</sup>
FAC-014-2	Establish and Communicate System Operating Limits	G-167-10	January 1, 2011
FAC-501-WECC-1 <sup>1</sup>	Transmission Maintenance	R-1-13	April 15, 2013
FAC-501-WECC-2	Transmission Maintenance	R-21-19	October 1, 2019
INT-004-3.1	Dynamic Transfers	R-38-15	R1, R2: October 1, 2015 R3: January 1, 2016
INT-006-4	Evaluation of Interchange Transactions	R-38-15	October 1, 2015
INT-009-2.1	Implementation of Interchange	R-38-15	October 1, 2015
INT-010-2.1	Interchange Initiation and Modification for Reliability	R-38-15	October 1, 2015
INT-011-1.1	Intra-Balancing Authority Transaction Identification	R-38-15	October 1, 2015
IRO-001-4	Reliability Coordination – Responsibilities	R-39-17	October 1, 2017
IRO-002-2 <sup>8</sup>	Reliability Coordination – Facilities	R-1-13	April 15, 2013
IRO-002-5 <sup>1</sup>	Reliability Coordination – Monitoring and Analysis	R-33-18	January 1, 2019
IRO-002-6	Reliability Coordination – Monitoring and Analysis	N/A	Pending BCUC review

<sup>7</sup> Reliability standard would be superseded by the FAC-013-2 if adopted in B.C. Adoption of FAC-013-2 pending reassessment.

<sup>8</sup> Refer to “IRO and TOP Reliability Standards Supersession Mapping” section below.



<b>Standard</b>	<b>Name</b>	<b>BCUC Order Adopting</b>	<b>Effective Date</b>
IRO-005-3.1a <sup>8,9</sup>	Reliability Coordination - Current Day Operations	R-32-14	August 1, 2014
IRO-006-5	Reliability Coordination – Transmission Loading Relief	R-1-13	April 15, 2013
IRO-006-WECC-2 <sup>1</sup>	Qualified Transfer Path Unscheduled Flow (USF) Relief	R-38-15	October 1, 2015
IRO-006-WECC-3	Qualified Transfer Path Unscheduled Flow (USF) Relief	N/A	Pending BCUC review
IRO-008-2	Reliability Coordinator Operational Analyses and Real-time Assessments	R-39-17	October 1, 2017
IRO-009-2	Reliability Coordinator Actions to Operate Within IROLs	R-39-17	October 1, 2017
IRO-010-2	Reliability Coordinator Data Specification and Collection	R-39-17	April 1, 2019
IRO-014-3	Coordination Among Reliability Coordinators	R-39-17	October 1, 2017
IRO-015-1 <sup>8</sup>	Notification and Information Exchange	G-67-09	November 1, 2010
IRO-017-1	Outage Coordination	R-39-17	October 1, 2020
IRO-018-1 <sup>1</sup>	Reliability Coordinator Real-time Reliability Monitoring and Analysis Capabilities	R-39-17	April 1, 2018
IRO-018-1(i)	Reliability Coordinator Real-time Reliability Monitoring and Analysis Capabilities	R-33-18	April 1, 2020
MOD-001-1a	Available Transmission System Capability	G-175-11	November 30, 2011
MOD-004-1	Capacity Benefit Margin	G-175-11	November 30, 2011
MOD-008-1	Transmission Reliability Margin Calculation Methodology	G-175-11	November 30, 2011

<sup>9</sup> Requirement 3 of the reliability standard is superseded by EOP-010-1 Requirement 2 as of the IRO-002-4 effective date (October 1, 2017; per BCUC Order No. R-39-17).

<b>Standard</b>	<b>Name</b>	<b>BCUC Order Adopting</b>	<b>Effective Date</b>
MOD-010-0 <sup>10</sup>	Steady-State Data for Modeling and Simulation for the Interconnected Transmission System	G-67-09	November 1, 2010
MOD-012-0 <sup>10</sup>	Dynamics Data for Modeling and Simulation of the Interconnected Transmission System	G-67-09	November 1, 2010
MOD-020-0	Providing Interruptible Demands and Direct Control Load management Data to System Operators and Reliability Coordinators	G-67-09	November 1, 2010
MOD-025-2	Verification and Data Reporting of Generator Real and Reactive Power Capability and Synchronous Condenser Reactive Power Capability	R-38-15 With revised effective dates by Order R-14-20	40% by October 1, 2017 60% by October 1, 2018 80% by October 1, 2019 100% by April 1, 2021
MOD-026-1	Verification of Models and Data for Generator Excitation Control System or Plant Volt/Var Control Functions	R-38-15	R1: October 1, 2016 R2: 30% by October 1, 2019 50% by October 1, 2021 100% by October 1, 2025 R3-R6: October 1, 2015
MOD-027-1	Verification of Models and Data for Turbine/Governor and Load Control or Active Power/Frequency Control Functions	R-38-15	R1: October 1, 2016 R2: 30% by October 1, 2019 50% by October 1, 2021 100% by October 1, 2025 R3-R5: October 1, 2015
MOD-028-2	Area Interchange Methodology	R-32-14	August 1, 2014
MOD-029-2a	Rated System Path Methodology	R-39-17	October 1, 2017
MOD-030-3	Flowgate Methodology	R-39-17	October 1, 2017
MOD-031-2	Demand and Energy Data	R-39-17	April 1, 2018
MOD-032-1	Data for Power System Modeling and Analysis	R-38-15	Effective date held in abeyance <sup>5</sup>

<sup>10</sup> Reliability standard will be superseded by MOD-032-1 and MOD-033-1 if adopted in B.C. Adoption of MOD-032-1 and MOD-033-1 pending reassessment.

Standard	Name	BCUC Order Adopting	Effective Date
MOD-033-1	Steady-State and Dynamic System Model Validation	R-38-15	Effective date held in abeyance <sup>5</sup>
NUC-001-3	Nuclear Plant Interface Coordination	R-38-15	January 1, 2016
PER-001-0.2 <sup>8</sup>	Operating Personnel Responsibility and Authority	R-41-13	December 12, 2013
PER-002-0	Operating Personnel Training	G-67-09	November 1, 2010
PER-003-1 <sup>1</sup>	Operating Personnel Credentials	R-41-13	January 1, 2015
PER-003-2	Operating Personnel Credentials	R-21-19	April 1, 2020
PER-004-2 <sup>11</sup>	Reliability Coordination – Staffing	R-1-13	January 15, 2013
PER-005-2	Operations Personnel Training	R-38-15	R1-R4, R6: October 1, 2016 R5: October 1, 2017
PER-006-1 <sup>12</sup>	Specific Training for Personnel	R-21-19	October 1, 2021
PRC-001-1.1(ii) <sup>13</sup>	System Protection Coordination	R-32-16A	October 1, 2016
PRC-002-2	Disturbance Monitoring and Reporting Requirements	R-32-16A	R1, R5: April 1, 2017 R2-R4, R6-R11: staged as per B.C.-specific Implementation Plan R12: July 1, 2017
PRC-004-5(i)	Protection System Misoperation Identification and Correction	R-32-16A	October 1, 2017
PRC-004-WECC-2	Protection System and Remedial Action Scheme Misoperation	R-39-17	October 1, 2017 Retired: Pending BCUC Review
PRC-005-1.1b <sup>1, 16</sup>	Transmission and Generation Protection System Maintenance and Testing	R-32-14	January 1, 2015
PRC-005-2 <sup>1</sup>	Protection System Maintenance	R-38-15	R1, R2, R5: October 1, 2017 R3, R4: staged as per B.C.-specific Implementation Plan

<sup>11</sup> Reliability standard will be superseded by PER-003-2 if adopted in B.C. as of the PER-003-2 effective date.

<sup>12</sup> Reliability standard will supersede PRC-001-1.1(ii) R1 as of the effective date of PER-006-1.

<sup>13</sup> PRC-001-1.1(ii) Requirement 1 will be superseded by PER-006-1 as of the effective date of PER-006-1; PRC-001-1(ii) Requirements 3 and 4 will be superseded by PRC-027-1 as of the effective date of PRC-027-1; and, the rest of PRC-001-1.1(ii) will be superseded by other reliability standards as of October 1, 2020.

Standard	Name	BCUC Order Adopting	Effective Date
PRC-005-2(i) <sup>1</sup>	Protection System Maintenance	R-32-16A	R1, R2, R5: October 1, 2017 R3, R4: staged as per B.C.-specific Implementation Plan
PRC-005-6	Protection System, Automatic Reclosing, and Sudden Pressure Relaying Maintenance	R-39-17	R1, R2, R5: October 1, 2019 R3, R4: See Implementation Plan
PRC-006-3 <sup>14</sup>	Automatic Underfrequency Load Shedding	n/a	Adoption held in abeyance at this time <sup>5</sup>
PRC-007-0 <sup>15</sup>	Assuring consistency of entity Underfrequency Load Shedding Program Requirements	G-67-09	November 1, 2010
PRC-008-0 <sup>16</sup>	Implementation and Documentation of Underfrequency Load Shedding Equipment Maintenance Program	G-67-09	November 1, 2010
PRC-009-0 <sup>15</sup>	Analysis and Documentation of Underfrequency Load Shedding Performance Following an Underfrequency Event	G-67-09	November 1, 2010
PRC-010-0 <sup>1</sup>	Technical Assessment of the Design and Effectiveness of Undervoltage Load Shedding Program	G-67-09	November 1, 2010 R2: Retired January 21, 2014 <sup>2</sup>
PRC-010-2	Under Voltage Load Shedding	n/a	Adoption held in abeyance at this time <sup>5</sup>
PRC-011-0 <sup>16</sup>	Undervoltage Load Shedding system Maintenance and Testing	G-67-09	November 1, 2010

<sup>14</sup> Reliability standard supersedes PRC-006-1 and PRC-006-2 which have both been held in abeyance due to the undefined Planning Coordinator/Planning Authority footprints and entities responsible.

<sup>15</sup> Reliability standard will be superseded by PRC-006-3 if adopted in B.C. Adoption of PRC-006-3 pending reassessment.

<sup>16</sup> Reliability standard is superseded by PRC-005-6 as per the PRC-005-6 B.C.-specific Implementation Plan.

Standard	Name	BCUC Order Adopting	Effective Date
PRC-012-2	Remedial Action Schemes	R-33-18	October 1, 2021 R1: Attachment 1, Section II Parts 6(d) and 6(e) to be determined. Unable to be assessed at this time. <sup>5</sup> R2: Attachment 2, Section I Parts 7(d) and 7(e) to be determined. Unable to be assessed at this time. <sup>5</sup> R4: To be determined. Unable to be assessed at this time. <sup>5</sup>
PRC-015-1 <sup>17</sup>	Remedial Action Scheme Data and Documentation	R-39-17	October 1, 2017
PRC-016-1 <sup>17</sup>	Remedial Action Scheme Misoperations	R-39-17	October 1, 2017
PRC-017-1 <sup>16</sup>	Remedial Action Scheme Maintenance and Testing	R-39-17	October 1, 2017
PRC-018-1 <sup>18</sup>	Disturbance Monitoring Equipment Installation and Data Reporting	G-67-09	November 1, 2010
PRC-019-2	Coordination of Generating Unit or Plant Capabilities, Voltage Regulating Controls, and Protection	R-32-16A With revised effective dates by Order R-14-20	40% by October 1, 2017 60% by October 1, 2018 80% by October 1, 2019 100% by April 1, 2021
PRC-021-1 <sup>19</sup>	Under Voltage Load Shedding Program Data	G-67-09	November 1, 2010
PRC-022-1 <sup>19</sup>	Under Voltage Load Shedding Program Performance	G-67-09	November 1, 2010 R2: Retired January 21, 2014 <sup>2</sup>

<sup>17</sup> Reliability standard is superseded by PRC-012-2 as of the PRC-012-2 effective date.

<sup>18</sup> Reliability standard is superseded by PRC-002-2 as of the PRC-002-2 effective date.

<sup>19</sup> Reliability standard is superseded by PRC-010-2 if adopted in B.C. Adoption of PRC-010-2 pending reassessment.

Standard	Name	BCUC Order Adopting	Effective Date
PRC-023-2 <sup>1, 20</sup>	Transmission Relay Loadability	R-41-13	R1-R5: For circuits identified by sections 4.2.1.1 and 4.2.1.4: January 1, 2016 For circuits identified by sections 4.2.1.2, 4.2.1.3, 4.2.1.5, and 4.2.1.6: To be determined <sup>5</sup> R6: To be determined <sup>5</sup>
PRC-023-4	Transmission Relay Loadability	R-39-17	R1-R5 Circuits 4.2.1.1, 4.2.1.4: October 1, 2017 with the exception of Criterion 6 of R which will not become effective until PRC-025-1 R1 is completely effective in B.C. Until then, PRC-023-2 R1, Criterion 6 will remain in effect.  R1-R5 Circuits 4.2.1.2, 4.2.1.3, 4.2.1.5, 4.2.1.6 and R6: To be determined
PRC-024-2	Generator Frequency and Voltage Protective Relay Settings	R-32-16A With revised effective dates by Order R-14-20	40% by October 1, 2017 60% by October 1, 2018 80% by October 1, 2019 100% by April 1, 2021
PRC-025-1 <sup>1</sup>	Generator Relay Loadability	R-38-15	40% by October 1, 2017 60% by October 1, 2018 80% by October 1, 2019 100% by October 1, 2020
PRC-025-2	Generator Relay Loadability	R-21-19	October 1, 2019
PRC-026-1	Relay Performance During Stable Power Swings	n/a	Adoption held in abeyance at this time <sup>5</sup>
PRC-027-1 <sup>21</sup>	Coordination of Protection Systems for Performance During Faults	R-21-19	October 1, 2021

<sup>20</sup> PRC-023-2 Requirement 1, Criterion 6 only is superseded by PRC-025-1 as of PRC-025-1's 100 per cent Effective Date.

<sup>21</sup> Reliability standard will supersede PRC-001-1.1(ii) Requirements 3 and 4 as of the effective date of PRC-027-1.

<b>Standard</b>	<b>Name</b>	<b>BCUC Order Adopting</b>	<b>Effective Date</b>
TOP-001-1a <sup>8</sup>	Reliability Responsibilities and Authorities	R-1-13	January 15, 2013
TOP-001-4	Transmission Operations	R-33-18 With revised effective dates by Order R-14-20	April 1, 2021
TOP-002-2.1b <sup>8</sup>	Normal Operations Planning	R-41-13	December 12, 2013
TOP-002-4	Operations Planning	R-39-17 With revised effective dates by Order R-14-20	April 1, 2021
TOP-003-1 <sup>8</sup>	Planned Outage Coordination	R-1-13	April 15, 2013
TOP-003-3	Operational Reliability Data	R-39-17	April 1, 2019
TOP-004-2 <sup>8</sup>	Transmission Operations	G-167-10	January 1, 2011
TOP-005-2a <sup>8</sup>	Operational Reliability Information	R-1-13	April 15, 2013
TOP-006-2 <sup>8</sup>	Monitoring System Conditions	R-1-13	April 15, 2013
TOP-007-0 <sup>8</sup>	Reporting System Operating Unit (SOL) and Interconnection Reliability Operating Limit (IROL) Violations	G-67-09	November 1, 2010
TOP-008-1 <sup>8</sup>	Response to Transmission Limit Violations	G-67-09	November 1, 2010
TOP-010-1(i)	Real-time Reliability Monitoring and Analysis Capabilities	R-33-18 With revised effective dates by Order R-14-20	April 1, 2021
TPL-001-0.1 <sup>22</sup>	System Performance Under Normal (No Contingency) Conditions (Category A)	G-167-10	January 1, 2011
TPL-001-4	Transmission System Planning Performance Requirements	R-27-18A	R1: July 1, 2019 R2-R6, R8: July 1, 2020 R7: To be determined <sup>5</sup>
TPL-002-0b <sup>22</sup>	System Performance Following Loss of a Single Bulk Electric System Element (Category B)	R-1-13	January 15, 2013

<sup>22</sup> Reliability standard is superseded by TPL-001-4 Requirements 2 to 6, and 8 as of their effective dates.

<b>Standard</b>	<b>Name</b>	<b>BCUC Order Adopting</b>	<b>Effective Date</b>
TPL-003-0b <sup>22</sup>	System Performance Following Loss of Two or More Bulk Electric System Elements (Category C)	R-32-14	August 1, 2014
TPL-004-0a <sup>22</sup>	System Performance Following Extreme Events Resulting in the Loss of Two or More Bulk Electric System Elements (Category D)	R-32-14	August 1, 2014
TPL-007-1 <sup>1</sup>	Transmission System Planned Performance for Geomagnetic Disturbance Events	N/A	Adoption held in abeyance at this time <sup>5</sup>
TPL-007-3	Transmission System Planned Performance for Geomagnetic Disturbance Events	N/A	Pending BCUC review
VAR-001-4.2 <sup>1</sup>	Voltage and Reactive Control	R-33-18	October 1, 2018
VAR-001-5	Voltage and Reactive Control	R-21-19	October 1, 2019
VAR-002-4.1	Generator Operation for Maintaining Network Voltage Schedules	R-33-18	October 1, 2018
VAR-501-WECC-2 <sup>1</sup>	Power System Stabilizer (PSS)	R-32-16A	October 1, 2016
VAR-501-WECC-3.1	Power System Stabilizer (PSS)	R-33-18	October 1, 2020 R3: For units placed into service after the effective date: January 1, 2021 For units placed into service prior the effective date: January 1, 2024



**British Columbia Utilities Commission**

**IRO and TOP Reliability Standards  
Supersession Mapping**

This following mapping shows the supersession of Requirements for the following IRO, TOP, and PER reliability standards by the revised/replacement IRO and TOP reliability standards adopted or yet to be adopted in B.C. as of the effective date in the “B.C. Reliability Standards” section above:

- IRO-002-2 — Reliability Coordination - Facilities
- IRO-005-3.1a — Reliability Coordination - Current Day Operations
- IRO-015-1 — Notifications and Information Exchange Between Reliability Coordinators
- PER-001-0.2 — Operating Personnel Responsibility and Authority
- TOP-001-1a — Reliability Responsibilities and Authorities
- TOP-002-2.1b — Normal Operations Planning
- TOP-003-1 — Planned Outage Coordination
- TOP-004-2 — Transmission Operations
- TOP-005-2a — Operational Reliability Information
- TOP-006-2 — Monitoring System Conditions
- TOP-007-0 — Reporting System Operating Limit (SOL) and Interconnection Reliability Operating Limit (IROL) Violations
- TOP-008-1 — Response to Transmission Limit Violations

<b>Standard IRO-002-2 — Reliability Coordination – Facilities</b>	
<b>Requirement Being Superseded</b>	<b>Superseding BCUC Approved Standard(s)</b>
Requirements R1, R3-R5, R7, and R8	IRO-002-4
Requirement R2	IRO-010-2
Requirement R6	IRO-008-2

<b>Standard IRO-005-3.1a — Reliability Coordination - Current Day Operations</b>	
<b>Requirement Being Superseded</b>	<b>Superseding BCUC Approved Standard(s)</b>
Requirements R1-R3	IRO-002-4
Requirement R4	IRO-008-2

<b>Standard IRO-005-3.1a — Reliability Coordination - Current Day Operations</b>	
<b>Requirement Being Superseded</b>	<b>Superseding BCUC Approved Standard(s)</b>
Requirements R5 and R8	IRO-001-4 IRO-002-4
Requirements R6 and R7	IRO-008-2 IRO-017-1
Requirement R8	IRO-001-4 IRO-002-4
Requirement R9	IRO-002-4 IRO-010-2
Requirement R10	IRO-009-1 TOP-001-4
Requirement R11	MOD-001-2, Requirement R2 (pending FERC adoption in the U.S. and subsequent assessment and adoption in B.C.)
Requirement R12	IRO-008-2
<b>Standard IRO-015-1 — Notifications and Information Exchange Between Reliability Coordinators</b>	
<b>Requirement Being Superseded</b>	<b>Superseding BCUC Approved Standard(s)</b>
Requirements R1 and R2	IRO-014-3
Requirement R3	IRO-010-2

<b>Standard PER-001-0.2 — Operating Personnel Responsibility and Authority</b>	
<b>Requirement Being Superseded</b>	<b>Superseding BCUC Approved Standard(s)</b>
All Requirements	TOP-001-4

<b>Standard TOP-001-1a — Reliability Responsibilities and Authorities</b>	
<b>Requirement Being Superseded</b>	<b>Superseding BCUC Approved Standard(s)</b>
Requirements R1, R2, R4, R5, R6	TOP-001-4
Requirement R3	IRO-001-4 TOP-001-4
Requirement R7	TOP-001-4 TOP-003-3 IRO-010-2
Requirement R8	EOP-003-2, Requirement 1 (adoption held in abeyance in B.C. due to PA/PC dependencies) IRO-009-2

<b>Standard TOP-002-2.1b — Normal Operations Planning</b>	
<b>Requirement Being Superseded</b>	<b>Superseding BCUC Approved Standard(s)</b>
Requirement R1	TOP-001-4 TOP-002-4
Requirements R2, R5-R9, R12	TOP-002-4
Requirement R3	IRO-017-1 TOP-003-3
Requirement R4	IRO-017-1 IRO-008-2
Requirement R10	IRO-017-1 TOP-001-4 TOP-002-4 TOP-003-3
Requirement R11	TOP-001-4 TOP-002-4
Requirement R13	TOP-001-4 TOP-003-3
Requirements R14, R15, and R19	TOP-003-3
Requirements R16, R17, and R18	IRO-010-2

<b>Standard TOP-003-1 — Planned Outage Coordination</b>	
<b>Requirement Being Superseded</b>	<b>Superseding BCUC Approved Standard(s)</b>
Requirement R1	IRO-010-2 TOP-003-3
Requirement R2	IRO-017-1 TOP-003-3
Requirement R3	TOP-001-4
Requirement R4	IRO-008-2 IRO-017-1

<b>Standard TOP-004-2 — Transmission Operations</b>	
<b>Requirement Being Superseded</b>	<b>Superseding BCUC Approved Standard(s)</b>
Requirement R1	TOP-001-4
Requirement R2	TOP-001-4 TOP-002-4
Requirements R3 and R4	TOP-001-4
Requirement R5	Retired
Requirement R6	IRO-017-1 TOP-001-4

<b>Standard TOP-005-2a — Operational Reliability Information</b>	
<b>Requirement Being Superseded</b>	<b>Superseding BCUC Approved Standard(s)</b>
Requirement R1	IRO-010-2 TOP-003-3
Requirement R2	TOP-003-3
Requirement R3	Retired

<b>Standard TOP-006-2 — Monitoring System Conditions</b>	
<b>Requirement Being Superseded</b>	<b>Superseding BCUC Approved Standard(s)</b>
Requirement R1	IRO-010-2 TOP-001-4 TOP-003-3
Requirement R2	IRO-002-4 TOP-001-4
Requirement R3	IRO-010-2 TOP-003-3
Requirement R4	TOP-003-3
Requirement R5	IRO-002-5 TOP-001-4
Requirement R6	TOP-003-3

<b>Standard TOP-006-2 — Monitoring System Conditions</b>	
<b>Requirement Being Superseded</b>	<b>Superseding BCUC Approved Standard(s)</b>
Requirement R7	IRO-002-5 TOP-001-4

<b>Standard TOP-007-0 — Reporting System Operating Limit (SOL) and Interconnection Reliability Operating Limit (IROL) Violations</b>	
<b>Requirement Being Superseded</b>	<b>Superseding BCUC Approved Standard(s)</b>
Requirement R1	IRO-008-2 TOP-001-4
Requirement R2	IRO-009-2 TOP-001-4
Requirement R3	EOP-003-2, Requirement 1 (adoption held in abeyance in B.C. due to PA/PC dependencies) IRO-009-2
Requirement R4	IRO-008-2

<b>Standard TOP-008-1 — Response to Transmission Limit Violations</b>	
<b>Requirement Being Superseded</b>	<b>Superseding BCUC Approved Standard(s)</b>
Requirements R1	EOP-003-2, Requirement 1 (adoption held in abeyance in B.C. due to PA/PC dependencies)  TOP-001-4
Requirements R2 and R3	TOP-001-4
Requirement R4	TOP-001-4  TOP-002-4  TOP-003-3