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August 18, 2021

Mr. Patrick Wruck
Commission Secretary and Manager
Regulatory Support
British Columbia Utilities Commission
Suite 410, 900 Howe Street
Vancouver, BC V6Z 2N3

Dear Mr. Wruck:

RE: Project No. 1599215
British Columbia Utilities Commission (BCUC or Commission)
British Columbia Hydro and Power Authority (BC Hydro)
Mandatory Reliability Standards Assessment Report No. 14
Addressing Reliability Standards for Adoption in British Columbia
Responses to Information Request No. 1

BC Hydro writes in compliance with BCUC Order No. R-16-21 to provide its responses to Round 1 information requests (IRs) as follows:

Exhibit B-4	Responses to BCUC IRs (Public Version)
Exhibit B-4-1	Responses to BCUC IRs (Confidential Version)

BC Hydro has redacted certain information related to either critical infrastructure protection or third-parties. BC Hydro requests that this redacted information be held confidential in accordance with Part IV of the BCUC's Rules of Practice and Procedures.

For further information, please contact Alicia Henderson at 604-623-4381 or by email at bchydroregulatorygroup@bchydro.com.

Yours sincerely,



Chris Sandve
Chief Regulatory Officer

ah/ma

Enclosure

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British Columbia Hydro & Power Authority Mandatory Reliability Standards Assessment Report No. 14 Addressing Reliability Standards for Adoption in British Columbia	Exhibit: B-4

- 1.0 Reference: Special Considerations**
Exhibit B-1 (Report), Section 2.1, p. 5; Section 5.3, p. 22;
Appendix A-2, pp. 19–27,
64–85
Reliability Standards with Reliability Requirements to Interact
with a Transmission Planner

In British Columbia Hydro and Power Authority's (BC Hydro) Mandatory Reliability Standards (MRS) Assessment Report No. 14 (Report), page 5 states "Four of the eight Revised Standards in this Report – the FAC-002-3, MOD-031-3, NUC-001-4, and PRC-024-3 Revised Standards – reference the PC function, however, they are not dependent on inputs by or actions solely by the PC [Planning Coordinator] function."

Table 3 on page 22 of the Report, Northwood Pulp Mill provides feedback under the "one-time costs" column for FAC-002-3 indicating BC Hydro is its Transmission Planner.

Footnote 13 on page 22 of the Report states:

BC Hydro does not agree with Canfor Northwood Pulp Mill's statement that BC Hydro is its Transmission Planner. BC Hydro is a registered Transmission Planner under the BCUC MRS program and is thereby obligated under the currently adopted and effective FAC-002-2 reliability standard (Requirement 1) to study the reliability impact of interconnecting new generation, transmission, or electricity end-user Facilities and materially modifying existing interconnections of generation, transmission, or electricity end-user Facilities. BC Hydro does not have any documented agreement in place with Northwood Pulp Mill to indicate that BC Hydro is performing Transmission Planner compliance functions on its behalf.

- 1.1.1 Please describe the process in which Entities are assigned their Transmission Planner (TP).

RESPONSE:

Entities are not assigned a Transmission Planner but rather they become a Transmission Planner by registering for the function with the BCUC in accordance with the Registration Manual under the Rules of Procedure for Reliability Standards in British Columbia. For instance, BC Hydro is registered with the BCUC as Transmission Planner for its own Bulk Electric System, which includes BC Hydro's assets up to the point of interconnection with interconnected entities such as Independent Power Producers and Transmission Voltage Customers.

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- 1.1.1 Please describe the process in which Entities are assigned their Transmission Planner (TP).
- 1.1.1.1 Please discuss the steps taken with the integration of Entities when assigned a TP.

RESPONSE:

Please refer to BC Hydro's response to BCUC IR 1.1.1 where we clarify that entities are not assigned a Transmission Planner but rather are required to register for that function with the BCUC, if appropriate. We assume this question is asking how one Transmission Planner integrates the assets of another Entity if compliance responsibility is assumed. Please refer to BC Hydro's response to

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BCUC IR 1.1.2 for a description of the process by which an Entity can assume compliance responsibilities for another Entity.

BC Hydro is currently only registered as Transmission Planner for its own Bulk Electric System assets and is not undertaking any steps to integrate (i.e., assume the role of Transmission Planner for) other Entities. As a result, BC Hydro has not determined the steps necessary to integrate the assets of another entity if compliance responsibility was assumed.

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- 1.1.2 Please describe the process in which an Entity can assume compliance responsibilities for other Entities.

RESPONSE:

Part 3 of the BCUC's Registration Manual for British Columbia Mandatory Reliability Standards (which is Appendix 1 to the BCUC's Rules of Procedure) approved by way of BCUC Order No. R-40-17 addresses the assignment of responsibility for compliance with Reliability Standards.

Part 3 provides that, in order for an entity to assume compliance responsibility for another entity's registered function, written notice of such transfer of

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responsibilities needs to be provided and the entity assuming the compliance responsibility must “affirmatively state, in writing, that it accepts such responsibility”. A written notice of assignment must be sent to the BCUC and WECC. WECC then reviews and submits the notice and makes a recommendation to the BCUC on such a change which may or may not be accepted by the BCUC.

While section 3.1 of the Registration Manual does not explicitly refer to the Transmission Planner function, BC Hydro is of the view that responsibilities for compliance with requirements that are applicable to Transmission Planners may still be assigned. If such responsibilities were to be assigned, BC Hydro would follow the applicable steps set out in Part 3 of the Registration Manual in doing so.

BC Hydro confirms that no assignment of compliance responsibility has been agreed upon in respect of the Transmission Planner function applicable to Canfor Northwood Pulp Mill. It is the responsibility of each Entity to register for the appropriate functions under the BC Mandatory Reliability Standards Program.

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- 1.1.3 Please confirm the Entities for which BC Hydro acts as a TP.

RESPONSE:

BC Hydro is registered as and acts as a Transmission Planner for its own Bulk Electric System assets only.

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- 1.1.4 Please confirm whether there are Entities within BC Hydro's footprint for which BC Hydro does not act as TP.

RESPONSE:

In the context of the Transmission Planner function under the BC Mandatory Reliability Standards program, BC Hydro considers its Transmission Planner footprint to only include the Bulk Electric System assets owned by BC Hydro. Accordingly, there are no other Entities within BC Hydro's Transmission Planner footprint for which BC Hydro acts as Transmission Planner.

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- 1.1.4 Please confirm whether there are Entities within BC Hydro's footprint for which BC Hydro does not act as TP.
- 1.1.4.1 If confirmed, please provide the Entities within BC Hydro's footprint which do not have an assigned TP.

RESPONSE:

There are no entities within BC Hydro's footprint which do not have an assigned TP. Please refer to BC Hydro's response to BCUC IR 1.1.4.

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Reliability Standards with Reliability Requirements to Interact
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Appendix A-2 of the Report, pages 19 to 27 include the FAC-002-3 Reliability Standard. On page 20, requirements 2, 3, 4 and 5 require Generator Owners (GO), Transmission Owners (TO) and/or Distribution Providers (DP) to “coordinate and cooperate on studies with its Transmission Planner or Planning Coordinator.”

Appendix A-2 of the Report, pages 64 to 85 include the PRC-024-3 Reliability Standard. On page 67, requirement 4 states, in part, “Each Generator Owner shall provide its applicable protection settings associated with Requirements R1 and R2 to the Planning Coordinator or Transmission Planner...”

- 1.1.5 Given the FAC-002-3 revised standard require GOs, TOs and DPs to cooperate and coordinate on studies with its TP or PC, please describe any difficulties or reliability issues BC Hydro may experience in carrying out its role as a TP without the direct coordination or cooperation of Entities within its footprint.

RESPONSE:

BC Hydro considers its Transmission Planner footprint to only be the Bulk Electric System assets owned by BC Hydro. However, in carrying out its role as Transmission Planner for its own Bulk Electric System assets, BC Hydro does rely on the cooperation of interconnected entities who are outside of our Transmission Planner footprint to provide timely, accurate technical information necessary for BC Hydro to conduct meaningful studies of potential impacts of interconnection on the reliability of its own Bulk Electric System assets.

In regards to FAC-002-3, currently, BC Hydro does not experience difficulties or reliability issues in carrying out its role as a TP for its own BES assets, because the timely cooperation and coordination required from external entities is managed adequately through our contractual agreements.

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Appendix A-2 of the Report, pages 64 to 85 include the PRC-024-3 Reliability Standard. On page 67, requirement 4 states, in part, “Each Generator Owner shall provide its applicable protection settings associated with Requirements R1 and R2 to the Planning Coordinator or Transmission Planner...”

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- 1.1.5.1 If BC Hydro would not experience any difficulties or reliability issues, please explain why not.

RESPONSE:

Please refer to BC Hydro’s response to BCUC IR 1.1.5.

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Appendix A-2 of the Report, pages 19 to 27 include the FAC-002-3 Reliability Standard. On page 20, requirements 2, 3, 4 and 5 require Generator Owners (GO), Transmission Owners (TO) and/or Distribution Providers (DP) to “coordinate and cooperate on studies with its Transmission Planner or Planning Coordinator.”

Appendix A-2 of the Report, pages 64 to 85 include the PRC-024-3 Reliability Standard. On page 67, requirement 4 states, in part, “Each Generator Owner shall provide its applicable protection settings associated with Requirements R1 and R2 to the Planning Coordinator or Transmission Planner...”

- 1.1.6 Please discuss the implications, if any, for Entities which do not have an assigned TP regarding the requirements to interact with their TP in FAC-002-3 and PRC-024-3.

RESPONSE:

From a compliance perspective, if a Generator Owner, Transmission Owner or Distribution Provider does not have a registered Transmission Planner, then the requirements in FAC-002-3 and PRC-024-3 requiring it to interact with its Transmission Planner are not applicable for that Entity (see the BCUC’s Registration Manual for British Columbia Mandatory Reliability Standards at section 1, paragraph 2).

In BC Hydro’s view, the purpose of requiring a Generator Owner, Transmission Owner and Distribution Provider to coordinate and cooperate on studies with its Transmission Planner or Planning Coordinator in requirements 2, 3, 4 and 5 of FAC-002-3 is so that the Transmission Planner and Planning Coordinator are able to study the reliability impact of interconnecting new or materially modified Facilities on the Bulk Electric System as required by requirement 1 of FAC-002-3. If there is no registered Transmission Planner or Planning Coordinator for the Bulk Electric System assets of the Generator Owner, Transmission Owner or Distribution Provider, then the reliability impact of interconnecting the Generator Owner, Transmission Owner or Distribution Provider’s new or materially modified Facilities on their system may not be incorporated into those studies.

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Similarly, the purpose of requiring a Generator Owner to provide its applicable protection setting information to its Transmission Planner or Planning Coordinator in requirement 4 of PRC-024-3 is so that the Transmission Planner or Planning Coordinator are able to incorporate that information into its models. If there is no registered Transmission Planner or Planning Coordinator for the Bulk Electric System assets of the Generator Owner, then its protection setting information may not be incorporated into those models.

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- 1.1.6 Please discuss the implications, if any, for Entities which do not have an assigned TP regarding the requirements to interact with their TP in FAC-002-3 and PRC-024-3.
- 1.1.6.1 Please explain the impact to the reliability of the bulk electric system of the implications described in 1.6.

RESPONSE:

Regarding FAC-002-3, if the reliability impact of interconnecting the Generator Owner, Transmission Owner or Distribution Provider’s new or materially modified Facilities are not incorporated into the studies of a Transmission Planner or Planning Coordinator, then there is a risk that the applicable reliability performance requirements for those Bulk Electric System assets may not be met.

Regarding PRC-024-3 requirement 4, if protection setting information is not provided by a Generator Owner to its Transmission Planner or Planning Coordinator and not incorporated into the models of its Transmission Planner or Planning Coordinator, then those models may not be accurate, which could lead to wrong conclusions regarding potential thermal or voltage violations, or instability.

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**2.0 Reference: Summary of Final Assessment of the Standards Assessed in the Report
Exhibit B-1, Section 5.3, p. 21
CIP-012-1 Implementation**

Table 3 on page 21 of the Report, BC Hydro's feedback under the "one-time cost" column for CIP-012-1 states:

[R]esources and testing required for implementation and to document intra communication links and processes between BC Hydro's Control Centres and inter communication links and processes between BC Hydro's Control Centres other entities (within British Columbia and external to British Columbia. Studies will be required for certain connections between BC Hydro and other entites (into the U.S., Fortis BC, Alcan for example) to evaluate and implement technical solutions.

- 1.2.1 Please describe the nature of the resources, testing and studies between BC Hydro's Control Centres and other entities required to evaluate, document and implement CIP-012-1.

RESPONSE:

The purpose of CIP-012-1 is to protect the confidentiality and integrity of Real-time Assessment and Real-time monitoring data transmitted between Control Centres.

The resources required to evaluate, document and implement this standard will consist primarily of Network Engineers in the Real Time Systems department within the T&D System Operations Key Business Unit. Their work will be supplemented and reviewed by consultants who have experience in how other utilities have implemented this new standard.

The NERC Glossary of Terms defines a Control Center as:

One or more facilities hosting operating personnel that monitor and control the Bulk Electric System (BES) in real-time to perform the reliability tasks, including their associated data centers, of: 1) a Reliability Coordinator, 2) a Balancing Authority, 3) a Transmission Operator for transmission Facilities at two or more locations, or 4) a Generator Operator for generation Facilities at two or more locations.

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This definition will be used to guide the scope of work and applicability of this standard. BC Hydro is presently registered in all four of the functional roles described in the definition and all four functions are performed by NERC-certified operating personnel, [REDACTED]

As the CIP-012-1 Standard pertains to Real-time Assessment and Real-time monitoring data being transmitted between applicable control centres, [REDACTED]

[REDACTED]

[REDACTED]

Processes to ensure ongoing compliance with this standard and coordination with BC Hydro's Internal Compliance program will also need to be developed.

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- 1.2.2 Please confirm whether all BC Hydro Control Centres are applicable to CIP-012-1, including Control Centres, if any, within BC Hydro subsidiaries.

RESPONSE:

BC Hydro confirms that

[REDACTED]

[REDACTED]

BC Hydro's subsidiaries do not have Control Centres, as defined in the NERC Glossary of Terms.

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- 1.2.2 Please confirm whether all BC Hydro Control Centres are applicable to CIP-012-1, including Control Centres, if any, within BC Hydro subsidiaries.
- 1.2.2.1 If confirmed, please provide a list of the BC Hydro Control Centres under the scope of CIP-012-1.

RESPONSE:

Please refer to BC Hydro's response to BCUC IR 1.2.2.

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- 1.2.2 Please confirm whether all BC Hydro Control Centres are applicable to CIP-012-1, including Control Centres, if any, within BC Hydro subsidiaries.
- 1.2.2.2 If not confirmed, please provide a list of the BC Hydro Control Centres under the scope of CIP-012-1 and BC Hydro Control Centres that are not under the scope of CIP-012-1 with reasons why.

RESPONSE:

Please refer to BC Hydro's response to BCUC IR 1.2.2.

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2.0 Reference: Summary of Final Assessment of the Standards Assessed in the Report
Exhibit B-1, Section 5.3, p. 21
CIP-012-1 Implementation

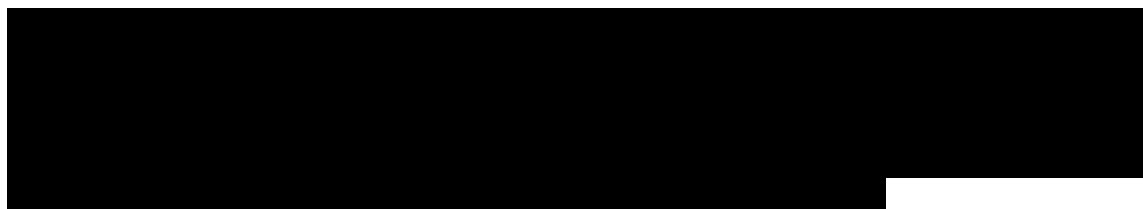
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- 1.2.2 Please confirm whether all BC Hydro Control Centres are applicable to CIP-012-1, including Control Centres, if any, within BC Hydro subsidiaries.
- 1.2.2.3 Please identify which Control Centres have intra and inter communication links.

RESPONSE:

BC Hydro understands this information request to refer to Control Centres belonging to BC Hydro.



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