



bcuc
British Columbia
Utilities Commission

Patrick Wruck
Commission Secretary

Commission.Secretary@bcuc.com
bcuc.com

Suite 410, 900 Howe Street
Vancouver, BC Canada V6Z 2N3
P: 604.660.4700
TF: 1.800.663.1385
F: 604.660.1102

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BC HYDRO MRS RELIABILITY COORDINATOR
REGISTRATION EXHIBIT A-4

Mr. Fred James
Chief Regulatory Officer
Regulatory & Rates Group
British Columbia Hydro and Power Authority
16th Floor – 333 Dunsmuir Street
Vancouver, BC V6B 5R3
bhydroregulatorygroup@bhydro.com

Re: British Columbia Hydro and Power Authority – Application for Reliability Coordinator Registration with the Mandatory Reliability Standards Program – Project No. 1598978 – BCUC Information Request No. 1

Dear Mr. James:

Further to British Columbia Utilities Commission Order G-227-18, establishing the Regulatory Timetable with respect to the above-noted application, enclosed please find BCUC Information Request No. 1.

Sincerely,

Original Signed By:

Patrick Wruck
Commission Secretary

/nd
Enclosure



British Columbia Hydro and Power Authority
Application for Reliability Coordinator Registration with the Mandatory Reliability Standards Program

INFORMATION REQUEST NO. 1 TO BC HYDRO

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A. RELIABILITY COORDINATOR FUNCTIONAL REGISTRATION BY BC HYDRO

- 1.0 Reference: Introduction**
Exhibit B-1, Application, Section 1.3.3, p. 1-7
RC functional registration

In its Application, British Columbia Hydro and Power Authority (BC Hydro) states:

BC Hydro submitted its application for registration as Reliability Coordinator (RC) with Western Electricity Coordinating Council (WECC) on September 4, 2018. The Registration Manual sets out the requirements for registration. BC Hydro notes that there is currently no formal administrative process to support registration as RC in B.C.

- 1.1 Other than the public interest test, does BC Hydro see any other parameters that the British Columbia Utilities Commission (BCUC) must consider in its assessment of BC Hydro’s Application to become the provincial RC?

- 2.0 Reference: Introduction**
Exhibit B-1, Section 1.3.2, p. 1-6; Section 3.3.1, p. 3-5
RC functional registration - synergies

On page 1-6 of the Application, BC Hydro states:

The 2007 British Columbia Energy Plan stated that, because the B.C. transmission system is part of a much larger interconnected grid, B.C. will need to work with other jurisdictions to maximize the benefits of the interconnections, remain consistent with evolving North American Reliability Standards, and ensure B.C.’s infrastructure remains capable of meeting customer needs. To address these objectives the provincial government amended the [*Utilities Commission*] Act on May 1, 2008 by adding section 125.2 giving the Commission jurisdiction to adopt MRS [Mandatory Reliability Standards] for application in B.C. and issued the MRS regulation.

On page 3-5 of the Application, BC Hydro states:

With CAISO [California Independent System Operator] being the RC for B.C. as well as much of the Western Interconnection it is anticipated that there would be synergies in having multiple BAs [Balancing Authorities] and TOPs [Transmission Operators] under the oversight of the CAISO RC for WECC-wide reliability issues.

- 2.1 Please describe the synergies that could be obtained in having multiple BAs and TOPs under the oversight of one RC. Specifically, do synergies relate to reduced costs in performing the RC function and/or increased operational efficiency (for example, identifying the lowest cost means of dealing with a reliability issue)? For any potential loss of synergy, please describe how BC Hydro could mitigate this loss.
- 2.2 Please describe the RC’s role with regard to transmission planning, specifically with regard to maximizing the benefits (for both reliability and trade) of the interconnections.
 - 2.2.1 Please explain how BC Hydro, in its role as the RC, would maximize the benefits of the interconnections.
- 2.3 If BC Hydro was approved as the RC for BC, please describe the process of transitioning to a different RC provider at a later date, if required.

B. RELIABILITY COORDINATOR FUNCTION ALTERNATIVES

**3.0 Reference: Reliability Coordinator Function Alternatives
Exhibit B-1, Section 3.3, p. 3-4
Evaluation and comparison of alternatives**

BC Hydro states the following in its Application:

The evaluation and comparison of Alternatives 1 and 2 have been performed on reliability benefits, governance, implementation risk and cost. The results are summarized in Table 3-1 below and in the subsequent sections in this chapter. For considerations other than cost, the alternatives were given a High, Medium or Low ranking for benefit or risk:

Table 3-1 Evaluation of Alternatives 1 and 2

Alternative	Reliability Benefit	Governance Risk	Implementation Risk	Start-up Cost (\$million CAN)	Annual Cost (\$million CAN)
BC Hydro	High	Low	Medium	1.77 ⁸ – 2.30	2.51 ⁸ – 2.76
CAISO	Medium	Medium	Low	0.25 – 0.50	1.60 – 4.70

- 3.1 Please describe in detail BC Hydro’s method of assessing implementation risks for Alternative 1 and Alternative 2.

**4.0 Reference: Reliability Coordinator Function Alternatives
Exhibit B-1, Section 3.3.3, p. 3-8
Implementation risk evaluation**

In its Application, BC Hydro states:

In evaluating the risks associated with the implementation of RC services, consideration was given to actions required by BC Hydro to support each alternative. These actions include the necessary people, process and technology changes that would support provision of RC services by the required dates.

4.1 Please provide any examples where a similar RC implementation plan and schedule has been devised and executed in other provinces.

4.1.1 What learnings, if any, has BC Hydro incorporated into their implementation plan based on similar approaches in other provinces.

C. GOVERNANCE

**5.0 Reference: Reliability Coordinator Function Alternatives
Exhibit B-1, Section 3.3.2, pp. 3-6–3-7; Exhibit B-3, pp. 23–24
Governance risk evaluation**

On page 3-6 of the Application, BC Hydro states:

In taking on the function of the RC, BC Hydro will continue to make reliability and operational decisions independent of market influences and BC Hydro organizational structure. In addition, BC Hydro proposes that as part of the process of it being designated and approved by the BCUC as an RC functional entity in B.C. that BC Hydro will adhere to a RC Standards of Conduct in a form adopted by the BCUC. A copy of the NERC [North American Electric Reliability Corporation] RC Standards of Conduct are included as Appendix C.

BC Hydro states on page 3-7 of its Application: “BC Hydro as the RC for B.C. will address any issues and concerns raised by B.C. registered entities in a fair and non-discriminatory way, to ensure a positive outcome for the overall reliability of the province and the Western Interconnection.”

BC Hydro also states on page 3-7: “It is proposed that entities that plan to join CAISO’s RC would have membership in an Oversight Committee that would provide input and guidance to CAISO on the operations and performance of the RC.”

In Exhibit B-3, BC Hydro proposed two groups that would be established for RC governance: RC Registered Entities Oversight Group and RC and BA/TOP Operations Working Group.

5.1 Has BC Hydro received feedback from BC registered entities to date confirming that BC Hydro currently makes reliability and operational decisions independent of market influences and BC Hydro organizational structure?

5.1.1 If so, please provide a detailed description of any feedback received to date.

5.2 Does BC Hydro recommend that the BCUC adopt the NERC RC Standards of Conduct as attached to the Application?

- 5.2.1 If not, please explain why not and please provide a detailed description with justification of any amendments and deviations from the NERC RC Standards of Conduct for applicability in BC.
- 5.2.2 If applicable, please provide other Standards of Conduct that have been adopted in other provinces.
- 5.3 Please provide in detail the scope and responsibilities of the oversight group and the working group proposed by BC Hydro.
 - 5.3.1 Please explain the systems and processes, including any voting rights of the members of the oversight group that would be established to ensure that any issues and concerns raised by BC registered entities are addressed in a fair and non-discriminatory way.
 - 5.3.2 Please explain the alternative specific models that were assessed in the establishment of the oversight group. If possible, please provide examples from other provinces that were assessed in deciding the model for BC.
 - 5.3.3 Please explain any feedback received from registered entities on the specific models that would be adopted.
 - 5.3.4 Please explain if WECC would be a member of the oversight group or an observer, and if not, please explain why not.
 - 5.3.5 If it was determined that the adopted model was not effective, please explain how BC Hydro would transition to a new more effective model.
 - 5.3.6 Would BC Hydro be open to establishing the oversight and working groups on a pilot basis, subject to the BCUC reviewing the effectiveness of these groups at a future date?

D. RELIABILITY COORDINATOR FUNCTION SOLUTION

- 6.0 Reference: Agreements
Exhibit B-1, Section 4.2.2, p. 4-3
Agreements**

In its Application, BC Hydro states:

Each RC is required to coordinate with other RC's in the interconnection. Agreements are an effective means to clarify issues and expectations and ensure coordination and compliance with the Reliability Standards. BC Hydro expects to have agreement in place with PEAK [PEAK Reliability], CAISO, SPP [Southwest Power Pool] and AESO [Alberta Electric System Operator] prior to beginning RC operations.

- 6.1 Please discuss the current status of agreements with current and future RCs and describe the potential risks which BC Hydro might face as result of not finalizing these agreements prior to beginning RC operations.
 - 6.1.1 In the event that these agreements cannot be finalized for reasons outside of your control, what steps would BC Hydro take to minimise impact on BC Hydro's RC operations?

**7.0 Reference: Certification Process
Exhibit B-1, Section 4.2.3, Table 4-2, p. 4-5;
CAISO Reliability Coordinator Frequently Asked Questions (RC FAQs)¹, p. 2
Level of certification**

BC Hydro describes its certification options in Table 4-2 of the Application and states that Full certification provides the highest level of assessment but risks impacting BC Hydro's RC timeline. CAISO states in its RC FAQs that the RC needs to be NERC-certified to ensure it has adequate facilities, tools, personnel, procedures and training necessary to perform the tasks of the RC.

- 7.1 Please highlight the differences between an Assurance review and Full certification by WECC.
- 7.1.1 Please provide this information in a summary table, and include each standard that would be assessed through Full certification compared to an Assurance review. Please note any standards that have not previously been reviewed by WECC in relation to any other functional registration by BC Hydro, such as Critical Infrastructure Protection (CIP) standards.
- 7.1.2 Please include identification of RC functions that would not be assessed by WECC, and any difference in the level of review of the functions that would be assessed.
- 7.1.3 For those RC functions that would not be assessed, please explain the following: (i) when were they last reviewed by WECC; and (ii) would the type of assessment be different for a RC compared to a Balancing Authority (BA)?
- 7.2 For standards that would not be reviewed by WECC under the proposed Assurance review, please indicate any advantages to forego such review.
- 7.3 Please explain the risks, compared to Full certification, of BC Hydro undertaking the following lower levels of assessment:
- (i) a WECC Assurance review; and
 - (ii) a self-assessment conducted by BC Hydro. Please include in your explanation whether a lower level of certification could negatively affect the perception of BC Hydro's competence to perform the RC function with other RC providers, and/or increase the level of scrutiny should there be a blackout.
- 7.4 Please explain BC Hydro's statement that full WECC certification would risk impacting BC Hydro's RC implementation timeline. Please include in the explanation: (i) how BC Hydro determined that the timeline could be negatively impacted; (ii) what is BC Hydro's estimate of the likelihood of a negative impact to the timeline; and (iii) what could be the end result should it occur. Please also identify ways in which BC Hydro could mitigate both the likelihood and impact of this risk.
- 7.4.1 Please explain what level of certification entities currently served by PEAK are obtaining and if they are obtaining full WECC certification, how they have addressed the timeline risk.
- 7.5 Please explain: (i) whether WECC or BC Hydro would define the nature of the Assurance review; and (ii) whether the Assurance review proposed by BC Hydro would be the same as that undertaken by the Alberta Electric System Operator (AESO) when it took over the RC role.
- 7.5.1 Please identify the date that the AESO took over the RC role, and discuss whether there have been any changes since that date in the overall complexity of the market and/or RC functions that could support a higher level of review today.

¹ <https://www.caiso.com/Documents/ReliabilityCoordinatorFAQ.pdf>.

- 7.5.2 Please identify any changes to NERC standards that have been adopted by other RCs since AESO took over the RC role and explain whether these NERC standards will be subject to review by WECC through the Assurance review and Full certification.
- 7.5.3 What additional assessments, if any, did AESO undertake after their initial Assurance review? Please indicate whether these reviews were performed out by WECC or other internal bodies.
- 7.6 Please comment on the following option: the BCUC registering BC Hydro as the RC on the basis of an Assurance review now, but with a requirement that BC Hydro obtain full WECC certification within a specific timeline. Please include a discussion of the advantages/disadvantages of such an option, and what timeline could be feasible to obtain full WECC certification.
- 7.7 If other entities are obtaining full NERC certification, please comment on how BC Hydro's proposed Assurance Review aligns with section 125.2(6) of the *Utilities Commission Act*.
- 7.8 Other than WECC's resource constraints and its possible effect on BC Hydro's RC implementation timeline, can BC Hydro explain if there are any other reasons why a Full certification is not warranted prior to approval of BC Hydro's application to become the registered RC for BC?

**8.0 Reference: Certification Process
Exhibit B-1, Section 4.3.1, p. 4-8; Section 4.4, p. 4-12
Cost and cost recovery**

On page 4-8 of the Application, BC Hydro provides an estimate of RC start-up and ongoing costs, and further states on page 4-12 that it is not planning on recovering costs from registered entities but may do so in the future.

- 8.1 Please explain to what extent, if any, the medium level of implementation risk identified by BC Hydro is related to the estimated RC budget estimate. To the extent that there is a relationship, please quantify the cost/risk trade-off.
- 8.2 Please confirm that BC Hydro recognizes that the costs described in this Application are subject to be reviewed during a future revenue requirements application.
- 8.3 Please explain under which circumstances BC Hydro may consider it appropriate to recover RC costs from registered entities and the basis for such recovery.

E. STAKEHOLDER ENGAGEMENT

**9.0 Reference: Stakeholder Engagement with Registered Entities
Exhibit B-1, Section 5.3.1, p. 5-2
Engagement activities**

BC Hydro states it had received five responses representing seven registered entities at the time of filing and three of the five responses expressed a level of support for BC Hydro performing the role of RC while the other two expressed a desire for more engagement with BC Hydro before providing a position.

Specifically, entities requested more information on RC roles and responsibilities, confirming data-sharing options, ensuring independence of the RC function; providing more information on California Independent System Operator (CAISO) as an option; and the need for independent evaluation of BC Hydro's RC capabilities.

Meetings were also held with FortisBC as the other major Transmission Operator (TOP) in BC to provide a verbal summary of BC Hydro's plan and to solicit direct feedback. These meetings provided an opportunity to inform operational and compliance staff to allow them to consider impacts to FortisBC's interests.

- 9.1 Please provide a detailed description of the stakeholder engagement that BC Hydro has undertaken with registered entities since the filing of the Application.
- 9.2 Has BC Hydro considered establishing a working group with registered entities to address topics such as operations planning, data sharing, emergency procedures and training?
 - 9.2.1 If so, please provide the details and outline any feedback received from registered entities. If not, please explain the rationale for not establishing a working group.
- 9.3 Has BC Hydro provided information requested by entities regarding RC roles and responsibilities, data-sharing obligations and information on how independence of the RC function will be maintained as requested?
 - 9.3.1 If yes, please provide details and outline any feedback received from registered entities and if no, please provide reasons why not.
- 9.4 Has BC Hydro provided information requested by registered entities about providing more information on CAISO as the RC?
 - 9.4.1 If yes, please provide details and outline any feedback received from registered entities and if no, please provide reasons why not.
- 9.5 Has BC Hydro provided information requested registered entities on the level of independent evaluation of BC Hydro's RC capability?
 - 9.5.1 If yes, please provide details and outline any feedback received from registered entities and if no, please provide reasons why not.
- 9.6 Please provide the feedback including any suggestions received from FortisBC with regards to BC Hydro's proposal to become the RC for BC.
- 9.7 Will operating agreements be reached with registered entities to ensure their interests are considered?
 - 9.7.1 If so, please provide details on when this will be reached and if not, please provide a reason why not.
 - 9.7.2 Please provide an update on the anticipated timing of completion of the proposed draft of the governance model to support RC independence as well as the proposed RC Standards of Conduct. Please provide a copy of those documents in draft form if available.

**10.0 Reference: Stakeholder Engagement with RC Providers and Proposed RC Providers
Exhibit B-1, Section 5.3.2, p. 5-3
Engagement activities**

BC Hydro states:

As BC Hydro was considering the options for RC service, RC coordination meetings were held to discuss the transition of customers from PEAK to CAISO and SPP [Southwest Power Pool]. [...] Another key aspect of engagement with RC providers is the development of BC Hydro's coordination agreements. These agreements will need to be in place prior to BC Hydro's RC 'go-live' date.

- 10.1 Please provide an update on the ongoing engagement BC Hydro has had with PEAK, Alberta Electric System Operator (AESO) and other future RC providers.
- 10.2 Has BC Hydro or another party considered establishing a working committee with current and future RCs across the Western Interconnection to address topics such as operations planning, data sharing, emergency procedures and training?
 - 10.2.1 If so, please provide the details and outline any feedback received from registered entities. If not, please explain the rationale for not establishing a working group.
- 10.3 Please provide an update on the development of coordination agreements with current and proposed RC providers.
 - 10.3.1 Please explain the mitigation plans BC Hydro has in place in the event that other proposed RC providers are not fully certified as RC by WECC before BC Hydro's RC go-live date.

F. RISK MANAGEMENT

**11.0 Reference: Introduction
Exhibit B-1, Section 1.2.1, Table 1-1, p. 1-3
Function types in BC**

In the footer on page 1-3 of its Application, BC Hydro states: "The PC function is equated to the PA [Planning Authority] function through the NERC glossary. BC Hydro is registered as a PA in B.C. and so therefore is acting as the PA/PC for the BC Hydro Asset Footprint only."

- 11.1 Please clarify that currently there are no formally registered PA/PC for the province of British Columbia under the BCUC MRS program.
- 11.2 Please confirm or explain otherwise that currently no entity is acting as the PA/PC outside of the BC Hydro asset footprint.
- 11.3 Please confirm that under the proposed Application, BC Hydro would assume RC responsibilities for all parts of the province, including territories outside of BC Hydro's asset footprint.
- 11.4 Please provide a list of jurisdictions in North America for which no PA/PC is formally registered.
- 11.5 If this Application is approved, would BC Hydro assume any responsibilities of PA/PC functions outside of its asset footprint?
 - 11.5.1 If no, who will perform the PA/PC function in these territories? Please explain your response.
- 11.6 Would BC Hydro accept responsibility as the formal PA/PC for the province of BC in conjunction with registration as the RC?

**12.0 Reference: Risk Management
Exhibit B-1, Section 6.2, p. 6-1
Start-up risks**

BC Hydro states in its Application:

Most of the start-up risks are driven by the short timeline required to implement the RC role and the need to have people, process, and technology changes in place to begin parallel operations by summer 2019 and transition to independent operations by September 2019. These risks can be further characterized as 'internal' or 'external' depending on the primary source of the associated uncertainty. Refer to Table 6-1 for a

tabular presentation of the start-up risks, potential impacts, and mitigations.

- 12.1 Please provide an assessment on implementation risk for each start-up risk identified in Table 6-1 and assign each a Low, Medium or High ranking for risk and provide the rationale for determining these risk assessments.

**13.0 Reference: Risk Management
Exhibit B-1, Section 6.2.2, pp. 6-2, 6-4
External risks**

On page 6-2 of the Application, BC Hydro states:

BC Hydro will need to establish RC-to-RC agreements with all RCs operating in the Western Interconnection. While templates exist, the number of agreements and short timeline poses a risk to ensuring these are all in place in a timely manner before BC Hydro is operating as RC. These agreements will address issues such as operations coordination, data exchange, communication protocols, and emergency procedures.

For data exchange with other RCs in the Western Interconnection to occur – to support the RC function, BC Hydro will need to agree on the required data exchange with all RCs operating in the Western Interconnection. The scope of the data required will not be finalized until arrangements have been established with other RCs. Data exchange is required to support the operational analyses required for RC operations.

PEAK is unable to sustain operations until December 2019, as there is a risk that PEAK may not have the resources required to sustain RC operations as new RCs are established and become able to assume the RC responsibilities for the PEAK area. If this occurs, it will result in loss of RC oversight for the majority of the Western Interconnection, resulting in weakened coordination and management of regional risks and non-compliance with Reliability Standards. BC Hydro plans to have RC capabilities in place in BC by July 1, 2019 to support two months of shadow operations with PEAK before the transition.

- 13.1 Please provide an update of the agreements that have been established with existing and proposed RCs in the Western Interconnection.
 - 13.1.1 Please explain how these agreements will address operations coordination, data exchange, communication protocols and emergency procedures.
- 13.2 Please explain the mitigation options BC Hydro has in place in the event that there are delays in the certification of future RCs (i.e. CAISO, SPP).
- 13.3 Please explain what mitigation plans BC Hydro has in place in the event that PEAK cannot provide RC capabilities before July 1, 2019 and if BC Hydro is unable to support two months of shadow operations.
 - 13.3.1 Please explain how BC Hydro and other RCs in the Western Interconnection will mitigate the risks of weakened coordination and management and non-compliance with Reliability Standards if PEAK is unable to provide RC capabilities before July 1, 2019.

**14.0 Reference: Risk Management
Exhibit B-1, Section 6.2.2, p. 6-3; CAISO RC FAQs², p. 2
External risks - core/non-core services**

In its Application, BC Hydro states:

Uncertainty of sustainment of existing PEAK RC tools post wind down – PEAK RC provides a number of tools today that are of interest to many of the RC’s and BAs in the Western Interconnection that will continue to operate after PEAK dissolves. These included Enhanced Curtailment Calculator (used to determine energy curtailment amounts to address system overloads) and Western Interchange Tool (used for accounting of scheduled and actual interchange values), as well as other tools.

CAISO states in its RC FAQs that it plans to offer non-core hosted advanced network applications, including: State Estimator; Real Time Contingency Analysis; Study Power Flow and Contingency Analysis; and NERC CIP-014 Physical Security standards.

- 14.1 Are the tools that BC Hydro are uncertain PEAK will continue to provide core RC services If yes, please identify the tool(s), describe the risk and negative impact that could occur if they are not provided and how BC Hydro plans to mitigate this risk.
- 14.2 Please provide an update on the discussions BC Hydro has held with PEAK, AESO and future RCs to ensure PEAK’s existing RC tools are sustained post PEAK’s wind down.
 - 14.2.1 Please provide an explanation of the required capabilities and associated costs with retaining existing PEAK tools.
 - 14.2.2 Please explain how these costs will be shared among the RCs operating in the Western Interconnection.
- 14.3 Please explain whether BC Hydro plans to offer (or acquire from a third party) the non-core services that CAISO plans to offer (including why and why not).
 - 14.3.1 If BC Hydro does not plan on offering these non-core services, please explain whether efficiency/reliability over the short and long-term could be negatively affected.

**15.0 Reference: Risk Management
Exhibit B-1, Section 6.2.2, p. 6-4
External risks - regulatory approval**

In its Application, BC Hydro includes a delay in regulatory approvals as an external risk.

- 15.1 Please identify any key steps BC Hydro needs to undertake to be able to provide RC services that BC Hydro is not planning to initiate until it has received has regulatory approval, and discuss whether there could be a net benefit from proceeding with these steps in advance of approval.

**16.0 Reference: Risk Management
Exhibit B-1, Section 6.2.1, pp. 6-1, 6-2; Section 4.2.1, p. 4-2;
Section 1.2.1; p. 1-4; Appendix B, p. 33
Internal risks - staffing**

BC Hydro describes staffing uncertainty and availability of key resources as an internal start-up risk in Section 6.2.1 of the Application. BC Hydro provides a proposed RC department structure on page 4-2 of

² <https://www.caiso.com/Documents/ReliabilityCoordinatorFAQ.pdf>.

the Application and states that it has, or will have, NERC-certified people, processes and tools to meet the requirements associated with the RC role on page 1-4. In Appendix B of the Application, BC Hydro describes RC staff training requirements (PER-003-1 and PER-004-02).

16.1 For each position identified on BC Hydro's RC organisation chart, please identify whether a staff member has already been identified to fill the role and whether the identified staff member has received NERC certification.

16.1.1 Please describe BC Hydro's strategy towards filling those roles with NERC-certified employees, and comment on whether changes to this strategy (for example, use of consultants or a change in hiring approach) could mitigate the internal RC risks.

16.2 Please estimate the date by when BC Hydro considers it will be able to meet PER-003-1 and PER-004-2 requirements, and describe: whether there is a meaningful risk that these requirements will not be met by that target date; the potential impact of that risk occurring; and the steps BC Hydro is taking to mitigate these risks.

16.2.1 Please explain whether BC Hydro is using, or could use, training resources developed by other RCs to mitigate internal risks.

16.3 Please provide an organization chart of Peak Reliability (PEAK) and the Alberta Electric System Operator (AESO) RC function, and comment on any significant difference between the staffing levels and expertise of these other RC functions compared to that proposed by BC Hydro.

**17.0 Reference: Risk Management
Exhibit B-1, Section 1.3.1, p. 1-4; Section 4.2.5, pp. 4-6, 4-7; Section 6.3, p. 6-6
Internal risks - process and tools**

BC Hydro states on page 1-4 of the Application that it has, or will have, processes and tools in place to meet the requirements associated with the RC role. BC Hydro describes in Section 4.2.5 the modifications and enhancements to BC Hydro's tools that will be required.

BC Hydro states in Section 6.3 that WECC is considering changes to RC modelling requirements (IRO Standard 002-5) that may not support BC Hydro's preferred modelling methodology.

17.1 For new or modified information technology (IT) tools, please explain how BC Hydro ensures that changes made will be robust. Please include whether WECC Assurance review and/or Full certification will test these IT tools.

17.1.1 Please explain whether BC Hydro is using, or could use, IT tools developed by other RCs to mitigate implementation risk.

17.1.2 Please explain whether there is a meaningful risk that these process/tools will not be in place by the required date; the potential impact of that risk occurring; and the steps BC Hydro is taking to mitigate these risks.

17.2 Please explain what the implications would be of WECC selecting a modelling methodology for IRO Standard 002-5 that differs from BC Hydro's approach to modelling; whether there is a meaningful risk of that occurring; and what steps BC Hydro could take in advance to reduce the negative impact associated with that outcome.