

Chris Sandve

Chief Regulatory Officer

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April 8, 2022

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

Dear Patrick Wruck:

**RE: British Columbia Utilities Commission (BCUC or Commission)
British Columbia Hydro and Power Authority (BC Hydro)
Annual Reporting of Reliability Indices Annual Response to Directive 26 of
BCUC Decision on F2005/F2006 Revenue Requirements Application
(F05/F06 RRA)
Responses to BCUC Staff Information Request No. 2**

BC Hydro writes to provide its responses to BCUC Staff Information Request No. 2 on BC Hydro's Fiscal 2021 Annual Reporting of Reliability Indices dated June 4, 2021.

If Commission staff are interested, BC Hydro would be pleased to arrange a meeting to discuss our planned outage and availability factor statistics.

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

bf/ma

Enclosure

British Columbia Utilities Commission Staff Information Request No. 2.1.1 Dated: March 22, 2022 British Columbia Hydro & Power Authority Response issued April 8, 2022	Page 1 of 1
British Columbia Hydro & Power Authority F2021 Annual Reporting of Reliability Indices	

**1.0 Reference: Generation Reliability Indices
British Columbia Hydro and Power Authority (BC Hydro)
responses to BCUC Staff Questions No. 1, dated
January 11, 2022, IR 3.1, p. 2
Reliability Indices**

In response to BCUC Staff Question 3.1, regarding BC Hydro's generation availability factor, BC Hydro states:

BC Hydro seeks to balance planned investments and forced outage tolerance recognizing that forced outages are generally higher cost and can limit system flexibility if they occur at inopportune times. As a result, BC Hydro's average availability factor has been below the CEA average for the past nine years mainly because BC Hydro spent 12.0% of time over those nine years for planned outages compared to the CEA average of 6.61% over the same period. Most recently, the higher availability factor in fiscal 2021 compared to fiscal 2020 was a result of BC Hydro spending 17.3% less time on planned outages in fiscal 2021 compared to fiscal 2020. This reduction was mainly due to work plan execution limitations caused by the COVID-19 pandemic, as well as the need to operate units to manage water levels across the overall system.

2.1.1 Please explain the reasons why BC Hydro's planned outage rate of 12.0% has been above the CEA average of 6.61% over the past nine years.

RESPONSE:

This response also answers BCUC Staff IR 2.1.1.1.

BC Hydro's planned outage rate of 12.0% which has been above the CEA average of 6.61% over the past nine years is mainly due to the increase in planned outages required to complete major capital projects.

The major capital projects are required to mitigate aging and deteriorating asset health, such as:

- **Generator insulation deterioration;**
- **Transformer insulation deterioration; and**
- **Water passage coating failure and corrosion.**

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2.1.1 Please explain the reasons why BC Hydro's planned outage rate of 12.0% has been above the CEA average of 6.61% over the past nine years.

2.1.1.1 Please describe the material condition of BC Hydro's generation assets which are contributing to its planned outage rate.

RESPONSE:

Please refer to BC Hydro's response to BCUC Staff IR 2.1.1.

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2.1.2 Please explain whether BC Hydro is planning future investments that will result in lower overall outage time and higher availability factor in line with CEA averages.

RESPONSE:

As explained in BCUC Staff IR 1.3.1.4 dated December 7, 2021, BC Hydro is not currently planning to undertake any actions specifically to improve our availability factor.

BC Hydro's future investment plans are based on balancing system performance and risk. Once future investment plans are implemented, it may result in lower overall outage time and higher availability factor.

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2.1.2 Please explain whether BC Hydro is planning future investments that will result in lower overall outage time and higher availability factor in line with CEA averages.

2.1.2.1 Please describe BC Hydro’s future targets for availability factor.

RESPONSE:

BC Hydro has not set any future targets for availability factor.

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2.1.3 Please describe the reliability risks associated with BC Hydro’s average nine-year availability factor.

RESPONSE:

This response also answers BCUC Staff IR 2.1.3.1.

Availability factor is influenced by the duration of planned outages and forced outages. The forced outages are the main contributors to reliability risks associated with the availability factor, because they can limit system flexibility if they occur at inopportune times and generally result in higher cost.

BC Hydro’s large integrated system allows us the flexibility to schedule outages at a time when unit unavailability is an acceptable risk to the system; thus, we have used planned outages to the extent we are able to mitigate the risks from forced outages.

BC Hydro also uses the average forced outage factor metric to monitor and assess reliability risk associated with unavailability of key generating stations.

By monitoring and assessing the key generating stations, BC Hydro is focusing its investments to areas where they have the most impact in mitigating reliability risks associated with the availability factor.

As explained in BCUC Staff IR 1.3.1 dated December 7, 2021, BC Hydro has consistently met its Service Plan objectives for the Key Generating Facility Forced Outage Factor metric.

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2.1.3 Please describe the reliability risks associated with BC Hydro's average nine-year availability factor.

2.1.3.1 Please describe how BC Hydro is currently mitigating the reliability risks associated with its availability factor and outage rates.

RESPONSE:

Please refer to BC Hydro's response to BCUC Staff IR 2.1.3.