bcuc
British Columbia
Utilities Commission

Suite 410, 900 Howe Street
Vancouver, BC Canada V6Z 2N3
bcuc.com

P: 604.660.4700
TF: 1.800.663.1385
F: 604.660.1102

British Columbia Hydro and Power Authority

2021 Integrated Resource Plan

Decision
and Order G-58-24

March 6, 2024

Before:
M. Jaccard, Panel Chair
C. M. Brewer, Commissioner
T. A. Loski, Commissioner

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Executive Summary

On December 21, 2021, British Columbia Hydro and Power Authority (BC Hydro) filed its 2021 Integrated Resource Plan (IRP) Application (Application), pursuant to section 44.1 of the *Utilities Commission Act* (UCA). In spring 2023, BC Hydro determined that the Near-term Actions of the 2021 IRP will not be sufficient to meet the future electricity needs of its customers. Accordingly, on June 15, 2023, BC Hydro filed the Signposts Update and Updated 2021 IRP, which included updates to the reference load forecast, the additional load scenarios, the load resource balances, and the Near-term Actions.

BC Hydro's Updated 2021 IRP is a guidebook for what, when, and how to meet customers' evolving electricity needs. The Updated 2021 IRP looks at a 20-year time frame and will guide BC Hydro's resource planning decisions on its integrated system to meet the future electricity needs of its customers.

Pursuant to section 44.1(6) of the UCA, the Panel finds that carrying out the Updated 2021 IRP is in the public interest, and accepts the Updated 2021 IRP. In making this determination, the Panel concludes BC Hydro has provided information to address each of the filing requirements of a long-term resource plan, including an estimate of demand, a plan to reduce demand with cost-effective demand-side measures, and a plan for the energy purchases and facilities for BC Hydro to meet its demand forecasts. These respective components provide a reasonable basis for outlining BC Hydro's Near-term Actions and a range of long-term scenarios that could potentially unfold. The Panel observes that BC Hydro has presented a flexible plan that will allow the utility to adjust decisions regarding the implementation of new demand and supply side resources during a period of significant change and uncertainty. Further, acceptance of the plan is supported by each of the criteria that the BCUC must consider as outlined in section 44.1(8) of the UCA.

In addition to acceptance of the Updated 2021 IRP, the Panel makes the following determinations:

- Pursuant to section 44.1(9) of the UCA, the Panel conclusively determines for BC Hydro the following for the purposes of any hearing or proceeding to be conducted by the British Columbia Utilities Commission under the UCA:
    - That there is a need for BC Hydro to acquire approximately 3,000 GWh of clean or renewable energy from greenfield generation facilities in the province for delivery to BC Hydro as early as fiscal 2029; and
    - That there is a need for BC Hydro to acquire approximately 700 GWh of clean or renewable energy from existing generation facilities in the province for delivery to BC Hydro prior to fiscal 2029.
- The Panel approves BC Hydro's request to include the Contingency Resource Plans and high load scenarios of BC Hydro's Updated 2021 IRP in BC Hydro's Network Integration Transmission Services update under the Open Access Transmission Tariff.
- BC Hydro must file its next IRP no later than October 31, 2025.

The Panel strongly supports BC Hydro's proposal for more frequent and targeted updates to future IRPs, and consider such an approach to be appropriate in the context of a period of increasing change and uncertainty, and enabling BC Hydro greater flexibility to respond to changes.

1.0 Introduction and Background

On December 21, 2021, British Columbia Hydro and Power Authority (BC Hydro) filed its 2021 Integrated Resource Plan (IRP) Application (Application), pursuant to section 44.1 of the *Utilities Commission Act* (UCA).

In spring 2023, BC Hydro determined that the Near-term Actions[1] of the 2021 IRP will not be sufficient to meet the future electricity needs of its customers. Accordingly, on June 15, 2023, BC Hydro filed the Signposts Update and Updated 2021 IRP,[2] which included updates to the Reference Load Forecast, the additional load scenarios, the load resource balances, and the Near-term Actions.[3]

In addition to acceptance of the Updated 2021 IRP pursuant to section 44.1(6) of the UCA, BC Hydro seeks the following:

- Approval of the Contingency Resource Plans and high load scenarios of BC Hydro's Updated 2021 IRP for inclusion in BC Hydro's Network Integration Transmission Services update under BC Hydro's Open Access Transmission Tariff.
- Acceptance of BC Hydro's proposal to file long-term resource plans approximately 18 months after the British Columbia Utilities Commission (BCUC) decision on the prior plan, as described in section 7 of the Signposts Update and in accordance with the applicable directives set out in the BCUC's decision.[4]
- An order from the BCUC that the following matters are considered as conclusively determined for the purposes of any future hearing or proceeding to be conducted by the BCUC under the UCA:
    - BC Hydro should acquire approximately 3,000 GWh from greenfield generation facilities in the province for delivery to BC Hydro as early as fiscal 2029, and
    - BC Hydro should acquire approximately 700 GWh from existing generation facilities in the province for delivery to BC Hydro prior to fiscal 2029.[5]

1.1 Legislative Framework

The 2021 IRP represents the first long-term resource plan filed by BC Hydro for acceptance by the BCUC since 2008 due to an exemption from section 44.1 of the UCA contained in the *Hydro and Power Authority Act.* The exemption was subsequently rescinded in 2019,[6] and by Order G-28-21[7] the BCUC determined BC Hydro must file its next long-term resource plan by December 31, 2021.

Section 44.1 of the UCA establishes the BCUC's framework for reviewing BC Hydro's 2021 IRP. Section 44.1(2) provides that BC Hydro must file a long-term resource plan including several components, which are outlined in Section 3 of this Decision.

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[1] The actions that BC Hydro is taking to implement the Base Resource Plan and prepare for contingency scenarios, during the period between the submission of the 2021 IRP and the submission of the next IRP.

[2] Exhibit B-39.

[3] BC Hydro Final Argument, p. 11.

[4] Exhibit B-39, Appendix A-1; BC Hydro Final Argument, p. 14.

[5] BC Hydro Final Argument, pp. 57–58.

[6] By the *Energy Statutes Amendment Act*, 2019.

[7] BC Hydro Long-Term Resource Plan Filing Date, Order G-28-21 with Reasons for Decision dated January 27, 2021.

Sections 44.1(6) and (7) of the UCA require that after reviewing the plan, the BCUC must accept the plan, if the BCUC determines that carrying out the plan would be in the public interest, or reject the plan (in whole or in part). In determining whether the IRP is in the public interest, under section 44.1(8) the BCUC must consider four criteria, which are outlined in Section 4 of this Decision.

1.2 Regulatory Process

The BCUC established regulatory timetables for the review of the 2021 IRP,[8] which included the following regulatory process:

- Two rounds of information requests (IRs);
- A procedural conference;
- Filing of intervener evidence, and IRs on same;
- BC Hydro rebuttal evidence, and IRs on same;
- Filing of the Signposts Update, and a further round of IRs;
- Updates to intervener evidence;
- An oral hearing regarding BC Hydro's load forecast scenarios;
- A workshop regarding New Energy Acquisitions; and
- Written final argument from BC Hydro and interveners, and reply argument from BC Hydro.

Final arguments were filed by: Association of Major Power Customers (AMPC); British Columbia Old Age Pensioners' Organization et al. (BCOAPO); BC Sustainable Energy Association and Vancouver Electric Vehicles Association (BCSEA-VEVA); Canadian Association of Petroleum Producers (CAPP); Capital Power Corporation (Capital Power); Clean Energy BC (CEBC), Commercial Energy Consumers Association of British Columbia (the CEC); FortisBC Energy Inc. and FortisBC Inc. (FortisBC); BC First Nations Energy and Mining Council (FNEMC); Gitanyow Hereditary Chiefs; Local Government Interveners;[9] Kanaka Bar Indian Band (KBIB); Movement of United Professionals (MoveUP); NorthRiver Midstream Inc. (NRM); Nuu-chah-nulth Tribal Council (NTC); Residential Consumer Intervener Association (RCIA); and ZoneII Ratepayers Group (ZoneII RPG). A full list of interveners can be found in Appendix A of this Decision.

1.3 Purpose of BC Hydro's 2021 IRP

Previous BCUC decisions[10] have elaborated on the broader purpose of long-term resource planning. In this section, the Panel builds upon these discussions by examining the overarching issue of flexibility, which will guide our review of the 2021 IRP. BC Hydro states:

[8] By Orders G-15-22, G-71-22, G-118-22, G-129-22, G-151-22, G-227-22, G-250-22, G-333-22, G-75-23, G-116-23, G-129-23, G-200-23, G-220-23, G-260-23, and G-291-23.

[9] Representing Metro Vancouver Regional District, City of Vancouver, City of Richmond and Lulu Island Energy Company Ltd., the District of Saanich, and the District of North Vancouver.

[10] E.g. Decision and Order G-283-21 dated September 27, 2021, Creative Energy Vancouver Platforms Inc., 2021 Long Term Resource Plan, pp. 5–7.

> BC Hydro's Updated 2021 Integrated Resource Plan (Updated 2021 IRP) is a guidebook for what, when, and how to meet customers' evolving electricity needs. The Updated 2021 IRP looks at a 20-year time frame and will guide BC Hydro's resource planning decisions on its integrated system to meet the future electricity needs of its customers. Importantly, and in this time of energy transition, it is a flexible plan that focuses on being ready for the potential pace of change.[11]

and:

> A purpose of a long-term resource plan is to demonstrate the utility will be able to cost-effectively meet its customers' electricity needs over the time horizon of the plan – that is, to demonstrate the utility has a good (not perfect) understanding of its customers' future electricity needs and a good understanding of the resource options (and portfolios of resources) available to cost-effectively meet those requirements when they materialize[12]

The Panel agrees that flexibility during a period of change is of great importance, and our review of whether the 2021 IRP is in the public interest will place considerable emphasis on examining the extent to which the various aspects of the plan lead to a flexible approach which enables BC Hydro to adjust to changing circumstances. In a period of rapidly shifting policy, technology, and other exogenous factors, we do not believe that attempting to predict a precise future – and formulating narrow plans toward such a future – is a prudent course of action. There are diminishing returns with respect to seeking high degrees of precision when the events that have occurred in the course of this proceeding have clearly indicated how quickly plans may need to adapt. This does not mean we have not carefully reviewed the details of BC Hydro's plan, but rather our decision focusses on (i) the reasonableness of the assumptions and approaches outlined by BC Hydro, (ii) the materiality of the many uncertainties underpinning the plan, and (iii) BC Hydro's ability to adapt in the face of these uncertainties.

The Panel's review of the 2021 IRP will primarily focus on the Signposts Update and the accompanying Updated 2021 IRP. We do not believe that there is merit to making determinations on the original Application, which is out of date and whose proposed actions have since been superseded. However, we acknowledge that supporting evidence related to BC Hydro's methodological approach to long-term planning are outlined in more detail in the original Application, and accordingly we will consider those aspects that remain directly applicable to the Signposts Update. For clarity, references to the "2021 IRP" in this decision are intended to denote the complete evidentiary record in the proceeding, and the Panel will distinguish the original Application or Signposts Update (and accompanying Updated 2021 IRP) where applicable.

Finally, we acknowledge there were many interveners who provided recommendations to the BCUC and/or BC Hydro in final submissions. While these recommendations were reviewed by the Panel, for brevity we do not address all recommendations in this Decision.

[11] BC Hydro Final Argument, p. 1.

[12] Ibid., p. 5.

1.4 Overview of the Decision

The remainder of the Decision is structured as follows:

- Section 2 briefly describes BC Hydro's planning context;
- Section 3 outlines each of the main components of the 2021 IRP, including the filing requirements described under section 44.1(2) of the UCA;
- Section 4 includes the Panel's consideration of each of the criteria outlined in section 44.1(8) of the UCA;
- Section 5 addresses other issues arising in the proceeding;
- In Section 6, the Panel provides its overall determination on whether to accept the Updated 2021 IRP; and
- In Section 7, the Panel addresses the timing of BC Hydro's next IRP.

2.0 Planning Context for the 2021 IRP

BC Hydro states reconciliation with Indigenous peoples, climate action, evolving customer needs and electricity consumption, and technological advancements are changing how electric utilities do business. BC Hydro developed the 2021 IRP with this context in mind.[13] As outlined further in Section 4.4 of this Decision, BC Hydro's consultation on the 2021 IRP included broad support for the following key priorities and objectives:

- Reducing greenhouse gas (GHG) emissions through clean electricity;
- Keeping costs down for customers; and
- Limiting land and water impacts.

The 2021 IRP also includes the objective of supporting the growth of B.C.'s economy.[14] BC Hydro notes that an objective of supporting reconciliation had strong support, but Indigenous participants viewed it as being inappropriately expressed as an objective that could be traded-off when comparing alternatives.[15]

A key feature of BC Hydro's long-term planning process is "signposts monitoring" which is a process whereby BC Hydro monitors whether the Near-term Actions identified in its resource plan continue to be appropriate. In the Signposts Update, BC Hydro identified several factors which were expected to, in aggregate, result in higher levels of electricity demand, including: evolving climate policies and regulations at various levels of government, investment decisions by large industrial customers, and shifts in the economy affecting residential and commercial customers.[16] Additionally, BC Hydro's "signposts monitoring" indicated a decrease in forecast electricity supply.[17]

[13] Exhibit B-1, p. 2-2.
[14] Exhibit B-1, p. 7-9.
[15] Ibid., p. 4-10.
[16] Exhibit B-39, pp. 15–19.
[17] Ibid., p. 20.

Panel Discussion

The Panel views BC Hydro's planning objectives as reasonable considerations for evaluating the 2021 IRP. We also acknowledge that external issues including announcements by the Provincial Government had a significant impact upon the development of the Signposts Update, and note the evolving policy landscape will continue to be an important consideration for BC Hydro's long-term planning during a time of potential rapid change.

3.0 Key Components of the 2021 IRP

In this section, the Panel summarizes the main elements of the 2021 IRP, including how BC Hydro addresses each of the filing requirements of a long-term resource plan as specified in section 44.1(2) of the UCA.

3.1 Estimate of Demand

Section 44.1(2)(a) requires that a resource plan include an "estimate of the demand for energy the public utility would expect to serve if the public utility does not take new demand-side measures during the period addressed by the plan." In this section, the Panel summarizes BC Hydro's Reference Load Forecast and the three additional load scenarios developed for the 2021 IRP.

3.1.1 Reference Load Forecast

BC Hydro's April 2023 Reference Load Forecast provides a 20-year forecast (2024-2043) of energy and capacity demand in BC Hydro's integrated system before demand-side measures.[18] The energy demand forecast captures the total consumption of energy (or sales) in a given year.[19] The peak demand forecast estimates the highest consumption of electricity in a one-hour period over the course of a year.[20] The results of the Reference Load Forecast are presented in Figures 1 and 2 below.

The Reference Load Forecast relies on established methodology that is also a key input into BC Hydro's Revenue Requirements Applications.[21] The methodology uses deterministic end-use forecasting models for the residential, commercial, and portions of the light industrial forecasts. It uses customer-based forecasts with probability weightings for the large industrial and portions of the light industrial sector forecasts.[22] BC Hydro's Electrification Plan[23] is included in the Reference Load Forecast, with approximately 2,000 GWh of incremental load by fiscal 2026.[24]

The Reference Load Forecast projects moderate growth averaging about 1.4 percent per year over the planning horizon. BC Hydro adds that growth is primarily due to electric vehicle and oil and gas sector load growth – including liquefied natural gas (LNG), and it is partially offset by declines in the forestry sub-sector.[25]

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[18] Exhibit B-39, p. 27; Appendix C1, pp. 1, 9.
[19] Exhibit B-1, Appendix C, p. 1.
[20] Ibid., Appendix C, p. 2.
[21] Transcript Volume 2, p. 20; BC Hydro Final Argument, p. 22.
[22] Exhibit B-39, Appendix B1, p. 11.
[23] BC Hydro's Electrification Plan consists of initiatives designed to increase low carbon electrification, attract additional load, and connect customers more efficiently; Exhibit B-1, p. 2-4.
[24] Exhibit B-39, p. 19.
[25] Exhibit B-39, Appendix B1, p. 11.

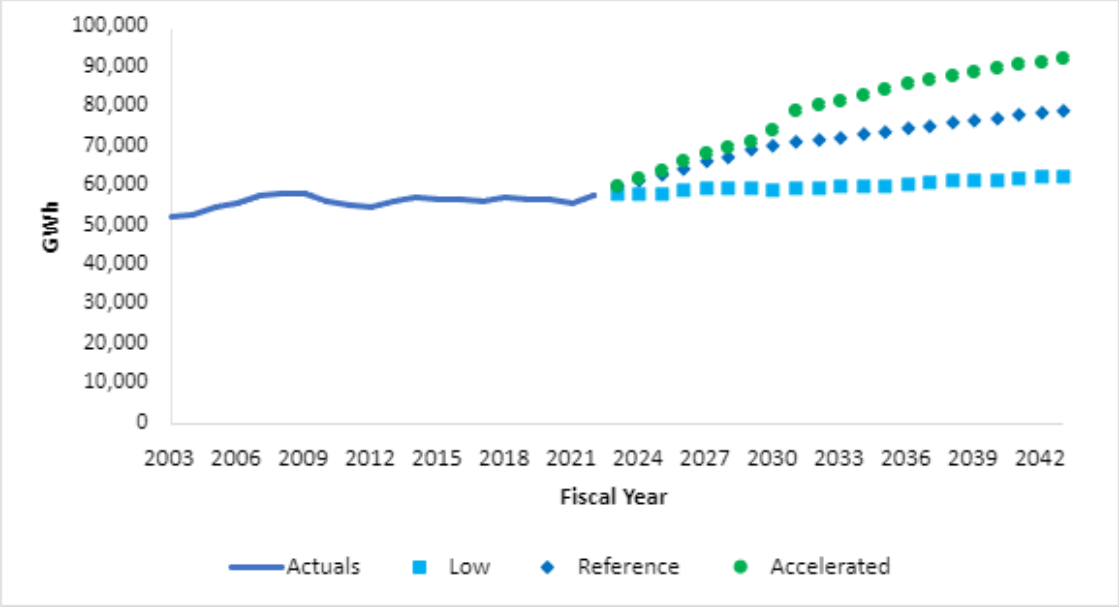
BC Hydro states that past reference load forecasts compare well to actuals, that the accuracy of the current Reference Load Forecast is consistent with industry norms and is strong in the near-term.[26]

3.1.2 Load Scenarios

BC Hydro states that the greatest sources of uncertainty in the Reference Load Forecast are the large industrial sector, the pace and extent of electrification, and economic risks.[27] BC Hydro developed three additional load scenarios to address the inherent uncertainty of load forecasting[28] and prepared a number of different potential energy futures for which BC Hydro must be ready to respond.[29] BC Hydro did not assign probabilities to the different scenarios.[30]

BC Hydro's load forecast scenarios are: the Accelerated Electrification, the Low Load, and the North Coast LNG and mining load scenario. The first two scenarios are system wide, while the latter is a regional scenario.

Figure 1: Total Integrated System Energy Load Scenarios[31]



[26] BC Hydro Final Argument, p. 25; Exhibit B-49, BC Hydro's Rebuttal Evidence on Intervener Evidence on Load Forecast Scenarios, Table 1, p. 3.
[27] Exhibit B-39, pp. 45-46.
[28] Ibid., p. 46.
[29] Oral Hearing October 11, 2023, Transcript Volume 2 revised, p. 20, lines 19-26.
[30] Ibid., p. 30, line 8.
[31] BCUC Staff graph, based on data in Exhibit B-44, RCIA IR 4.116.1.

Figure 2: Total Integrated System Coincident Peak Demand Scenarios[32]

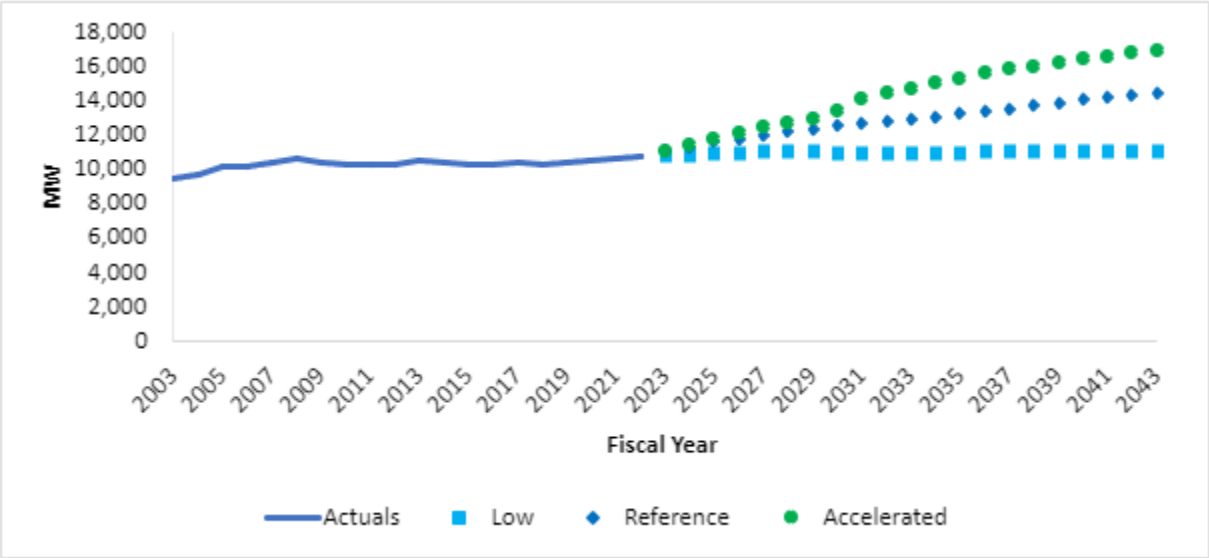


Table 1: 2023 North Coast Load Scenario Coincident Peak Demand Forecast[33]

Fiscal Year	2023 North Coast Load Scenario (MW)
F2025	497
F2030	1,065
F2035	1,208
F2040	1,209

The Accelerated Electrification load scenario uses a top-down model designed to show one of the possible pathways to achieve the Province's GHG emission reduction targets. This scenario assumes the provincial GHG emission reduction targets are met over the milestone years of 2025, 2030 and 2040.[34] BC Hydro engaged Navius Research to carry out the modelling for the Accelerated Electrification load scenario. Navius uses a technologically detailed, full-economic equilibrium, energy economy model to simulate how different GHG reduction policy portfolios will affect the electricity consumption in B.C. from the present to 2040.[35]

The Accelerated Electrification load scenario represents the highest load scenario in the 2021 IRP. Most of the incremental growth in electricity demand compared to the Reference Load Forecast comes from the electrification of compressors used for natural gas processing and pipeline transportation; the electrification of space heating in residential and commercial buildings; and the adoption of zero emission vehicles in light, medium and heavy-duty transportation.[36]

[32] BCUC Staff graph, based on data in Exhibit B-44, RCIA IR 4.117.1.
[33] BCUC Staff table, based on Exhibit B-39, p. 54, Table 4-13.
[34] Exhibit B-39, p. 48.
[35] Ibid.
[36] BC Hydro Final Argument, p. 27.

The Low Load scenario reflects a possible prolonged period of stagnation in electricity demand. It assumes lower economic growth and resource sector development relative to the Reference Load Forecast, combined with slower light-duty electric vehicle adoption and lower industrial electrification uptake.[37]

The North Coast LNG and mining load scenario considers potential large industrial loads that may materialize in the North Coast over and above what is considered in the Reference Load Forecast.[38] Specifically, this scenario assumes that several of the proposed mines and LNG facilities in the region proceed to operation within the next decade.[39] The loads in this scenario increase the system need for energy and capacity in the first decade of the plan relative to the Reference Load Forecast, albeit not to the extent of the increase seen in the Accelerated Electrification load scenario.[40]

The Updated 2021 IRP focuses on being ready for the potential pace of change in demand, emphasizing ranges rather than static targets for various plan elements to increase flexibility to respond to changing circumstances.[41]

3.1.3 Load Forecast Updates in Future IRPs

As discussed further in Section 7.0 of this Decision, BC Hydro proposes a new "living" long-term resource planning cycle, with more frequent long-term resource plan filings that would include targeted, rather than comprehensive, updates to the load forecast.[42]

On the characteristics of future load forecasts, BC Hydro proposes the following:

- Focus of targeted load forecast updates on activities or sectors that have material impact on load, such as the large industrial sector, and/or may experience significant change during the energy transition, such as zero-emission transportation, residential heat-pumps, changes to the building sector including changes to the pace of housing construction, and new building bylaws;[43]
- The reference load forecast methodology will be similar to the current methodology[44] and will integrate methodological and input improvements;[45]
- Continue the refinement of the design of load scenarios[46] including electrification load scenarios, to provide information on the load locations and to align with and reconcile BC Hydro customer account information and service requests from its large industrial customers;[47]

[37] Exhibit B-39, p. 46.
[38] Ibid., p. 53.
[39] Ibid., p. 53
[40] Exhibit B-1, p. 5-11.
[41] Exhibit B-39, p. 87; Oral Hearing October 11, 2023, Transcript Volume 2 revised, p. 187.
[42] Ibid., pp. 87-88.
[43] BC Hydro Final Argument, p. 63; Oral Hearing October 12, 2023, Transcript Volume 3 revised, pp. 43-45.
[44] Oral Hearing October 11, 2023, Transcript Volume 2 revised, p. 126.
[45] Exhibit B-21, BCUC IR 2.89.1.
[46] Exhibit B-43, BCUC IR 4.173.4
[47] BC Hydro Final Argument, p. 63; Exhibit B-44, CEC IR 4.1.1; Oral Hearing October 11, 2023, Transcript Volume 2 revised, pp. 133-134, 140.

- Refine the load scenario methodology to consider the potential for increasing stringency in GHG emission reduction policies[48] and understand how the large industrial sector may respond to climate change policy developments.[49]

Positions of the Parties

Most parties support[50] or do not oppose the load forecast methodology, and several interveners have recommendations for future IRP load forecasts.

Given the significance and the uncertainty of the oil and gas and LNG subsector load forecast, and interveners' inability to access detailed commercially sensitive information relied upon in its development, the CEC recommends the BCUC review this subsector, preferably on a project-by-project basis.[51] BCOAPO recommends this approach be extended to all the large industrial sub-sectors.[52] The CEC supports BC Hydro's Reference and Low Load Forecasts but not the Accelerated Electrification load scenario, a scenario it considers aspirational.[53] The CEC recommends a load forecasting approach in which it is equally probable that the load forecast is too low or too high.[54]

Gitanyow Hereditary Chiefs oppose the inclusion of LNG in the load forecast, as they do not consider LNG development to be in the public interest.[55]

CEBC considers the Reference Load Forecast may underestimate future electrification demand and recommends the Accelerated Electrification load scenario be the Reference case.[56] CEBC recommends that for the next IRP, the BCUC direct BC Hydro to establish a reasonable number of demand outlooks, in addition to a reference case and that, unlike the current Application, the outlooks be consistent and use the same methodology to better support the analysis and comparisons.[57] BC Hydro replies that it has plans for continuous improvement of its forecast methodologies over time.[58]

RCIA recommends that BC Hydro's Updated IRP be accepted,[59] however it recommends that load forecasts used for Certificate of Public Convenience and Necessity (CPCN), Network Integration Transmission Services (NITS)applications or other similar filings which rely on the IRP-established load forecasts, be updated adding the most recent actual data available at the time of each application.[60] RCIA suggests this would be a largely mechanistic process.[61] RCIA also submits that no area should be excluded from the next IRP, stating that

[48] Exhibit B-44, CEC IR 4.1.1.
[49] Exhibit B-43, BCUC IR 4.173.4.
[50] BCSEA-VEVA Final Argument, p. 5-9; CEC Final Argument, p. 15; NTC Final Argument, p. 2; BCOAPO Final Argument, pp. 24, 26, 27.
[51] CEC Final Argument, pp. 2-3,12.
[52] BCOAPO Final Argument, p. 21.
[53] CEC Final Argument, pp.15, 24, 51.
[54] Ibid., pp. 15, 24.
[55] Gitanyow Hereditary Chiefs Final Argument, pp. 3-4.
[56] CEBC Final Argument, pdf p. 6.
[57] Ibid., pdf pp. 9-10.
[58] BC Hydro Reply Argument, p. 29.
[59] RCIA Final Argument, p. 25
[60] Ibid., p. 13.
[61] Ibid., p. 12.

interveners already largely focus on key areas to the extent prudent and relevant to their constituents so specific exclusions are not necessary.[62]

In reply to RCIA, BC Hydro strongly disagrees with RCIA's recommendation to update the IRP load forecasts in CPCN and NITS applications. BC Hydro submits that updating the load forecasts for every application that relies on a load forecast will result in multiple load forecast vintages each year, with small, non-material changes between vintages. BC Hydro submits that the approach is not practical or efficient and will not improve the quality of information obtained from the load forecasts and should therefore be rejected.[63]

With respect to the load forecast, FortisBC is concerned about the lack of sectoral and geographical resolution of the Accelerated Electrification load scenario,[64] and identifies issues regarding lack of explanation of the effect of increased electrification on peak load under colder temperatures than BC Hydro's system design temperature.[65] FortisBC notes areas of alignment with BC Hydro's proposed areas of focus of the next long-term resource plan, in particular, the design of electrification load scenarios "to provide information on the load locations and to align with and reconcile BC Hydro customer account information;" the proposal to "develop targeted load scenarios to examine load impacts of potential future developments on specific end uses, such as… residential heat pumps." [Emphasis in original][66]

In reply to FortisBC's recommendation on the need for BC Hydro to provide additional information on the impact of deeper electrification on BC Hydro system and its customers, including costs, BC Hydro replies that electrification programs are not part of the UCA section 44.1(2) filing requirements, are not matters the BCUC is to consider in determining whether to accept the Updated 2021 IRP under UCA sections 44.1(6) and (8) and the BCUC does not have the ability to determine the level or focus of electrification prescribed undertakings taken by BC Hydro.[67]

With regards to interveners' recommendations for future IRPs, BC Hydro submits in its Reply Argument "that the BCUC does not need to address every recommendation put forward by interveners in their final arguments and should instead conclude, as it did in its Decision and Order G-380-22 on FortisBC Inc.'s 2021 LTERP [Long-Term Electric Resource Plan], that in most cases, the more appropriate forum for parties to follow up on such matters is through the consultation process for the next LTRP [Long-Term Resource Plan]." BC Hydro adds that this is particularly applicable to intervener recommendations regarding load scenarios.[68]

Panel Determination

British Columbia is in the midst of an energy transition which may result in changes to BC Hydro's business and energy demands. The Panel notes BC Hydro's flexibility in its approach to load forecasting, in particular BC Hydro's use of load forecasting scenarios collectively and not each in isolation. BC Hydro's methodology for the Reference Load Forecast is consistent with its accepted past approach, and the load scenarios consider a

[62] RCIA Final Argument, p. 18.
[63] BC Hydro Reply Argument, p. 21.
[64] FortisBC Final Argument, p. 1.
[65] Ibid., p. 9.
[66] Ibid., p. 15.
[67] BC Hydro Reply Argument, p. 19.
[68] Ibid., p. 6.

range of future uncertainties. For these reasons, **the Panel finds the Reference Load Forecast and the use of the Reference Load Forecast alongside the other load forecast scenarios to be reasonable, and is satisfied that BC Hydro has addressed the requirements of section 44.1 (2)(a) of the UCA.**

The Panel notes there are differences in the methodologies used for the Reference Case, the Low Load and the North Coast load scenarios compared to the methodology for the Accelerated Electrification load scenario. We agree with CEBC's view on the need for similarities of methodologies across scenarios to enable an 'apples to apples' comparison. The Panel notes BC Hydro's intention to align the methodology of the Accelerated Electrification load scenario to allow for a better comparison in its next IRP, and we encourage this approach.

The demand and capacity forecasts cover a period of 20 years, through 2043. The timelines involved in the energy transition and the resultant demand for electricity in BC Hydro's service territory are uncertain. The highest scenario contemplates a future where the B.C. government's CleanBC Plan goals are met. However, there are possible scenarios where the demand could exceed that level. For instance, we consider that a future scenario with high levels of electrification could conceivably occur in parallel with an increase in large industrial projects in Northern BC. We support BC Hydro's proposal, outlined in Section 7.0 of this Decision, to file resource plans on a more frequent basis, which will mitigate the risk of load growth outpacing the forecast of the highest load scenario presented by BC Hydro between resource plan cycles. Therefore, we do not make any specific findings or recommendations to explore other potential scenarios in the next filing, with the expectation that BC Hydro's internal load forecasting and scenario development practices will examine the appropriate range of scenarios for its long-term planning purposes.

Additionally, BC Hydro has submitted that it may not be feasible or practical to prepare a comprehensive update of the load forecasts within the time window between issuance of a decision on one resource plan and the filing of the subsequent resource plan application on this new, more frequent schedule. BC Hydro proposes filing targeted load forecasts that focus on subsectors that have higher impact on the overall load forecast, explaining that other subsectors would not have a material impact on the load forecast overall and may not experience much change from one application to the next. The Panel agrees that a targeted load forecast is sufficient for the next IRP, subject to BC Hydro's judgement of the subsectors where updates are most material. The continued development of load scenarios and a consideration of load scenarios collectively can provide a pathway to manage load forecast uncertainty in the absence of more comprehensive load forecast updates.

With respect to RCIA's proposal for updates to load forecasts in applications between IRP filings, the Panel agrees with BC Hydro that RCIA's proposal to update load forecasts in such applications is not a simple mechanistic adjustment and would be resource intensive. Further, the process proposed by RCIA would not eliminate the inherent uncertainty associated with load forecasting.

The Panel generally supports that BC Hydro indicates which of the load forecast scenarios are more likely, and we note the CEC's suggestion that utilities strive towards an equal probability of over- or under-estimating over time. However, given the pace of change in the energy industry, such an expectation today may be more challenging to meet. Therefore, the Panel agrees with BC Hydro that more frequent updates of load forecasts and the consideration of ranges of loads – i.e. all load forecast scenarios collectively – instead of a sole focus on the Reference Load Forecast, is the preferred technique to achieve the heightened flexibility in planning needed at this time.

FortisBC recommends that BC Hydro further analyze the impact of electrification on the load forecast. BC Hydro identifies the refinement of load scenarios including electrification load scenarios as an area of focus for the next IRP, which appears to support such analysis. The Panel agrees with FortisBC and encourages BC Hydro to further analyze the impact of electrification on the load forecast. As discussed in Section 3.6 below, we expect that the pace of electrification in the context of the energy transition may warrant deeper analysis of regional load forecasts in future iterations of the IRP to support transmission and distribution planning.

3.2 Analysis Supporting BC Hydro's Resource Needs

Having found BC Hydro's load forecast scenarios to be reasonable for the purposes of long-term planning, we now turn our attention to BC Hydro's plan for ensuring a reliable supply of electricity to meet that demand. BC Hydro's explanation of how it develops its resource plans is outlined in Chapters 5 to 7 of the original Application, including load resource balances, resource options and other inputs, planning objectives, selection of resources, and identification of Near-term Actions.

In this section, the Panel addresses the key issues arising in the proceeding related to BC Hydro's assumptions and analysis underpinning the 2021 IRP. Specifically, we consider whether the planning criteria, portfolio modelling, and other technical assumptions used by BC Hydro in the 2021 IRP provide a reasonable basis for determining the timing and amounts of future demand-side measures (DSM) and generation resource acquisitions.

3.2.1 Planning Criteria and Resource Adequacy

BC Hydro states that it uses a range of planning criteria to determine the volume and timing of energy, capacity and transmission assets needed for its load resource balance through the 20-year horizon of its long-term resource plan. As a first step, the Updated 2021 IRP considers the dependable capability and contributions of existing and committed resources to serve the forecast demand. Contributions from these resources were determined in accordance with BC Hydro's one-day-in-10-years loss of load expectation (LOLE) and transmission planning standards, the prescriptions of Electricity Self-Sufficiency for the Heritage hydroelectric resources, and the effective load carrying capability (ELCC) of intermittent resources such as wind, non-storage run-of-river hydro, and solar.[69]

BC Hydro notes that it has used the one-day-in-10-years LOLE standard since 1975 and that this approach was last reviewed and accepted by the BCUC in 2006. This approach requires BC Hydro to maintain enough supply resources to ensure supply shortages are not expected to result in load loss events exceeding 0.1 days per year. Using a probabilistic model, BC Hydro concluded that a 12 percent planning reserve margin was required to ensure system resource adequacy.[70]

BC Hydro identifies a review of its resource adequacy standards as a focus for its next IRP, stating that "BC Hydro expects to engage on resource adequacy standards as part of its development of the 2025 long-term resource plan update." BC Hydro submits that a comprehensive review of resource adequacy standards could take up to

[69] BC Hydro Final Argument, p. 12.

[70] Exhibit B-28, pp. 5, 8–9.

several years depending on the scope and objectives of the review and that it will consider an appropriate scope of review as part of its engagement.[71]

Positions of the Parties

RCIA argues that BC Hydro's LOLE modelling approach results in unnecessarily high reserve requirements and that taking a 'load-centric approach' (rather than the 'generation-centric' methodology currently in use) would be preferable.[72] RCIA supports BC Hydro's proposed review of its resource adequacy standards but disagrees that such a review should take several years to complete. In RCIA's view, the reasonableness and prudence of BC Hydro's LOLE definition and BC Hydro's use of a 'load centric' planning reserve margin calculation are both well within BC Hydro's ability to address fully in the context of the next IRP. RCIA states that, ideally, such a review would be undertaken in a separate proceeding outside of the confines of an IRP.[73]

Capital Power and BCOAPO similarly support BC Hydro's proposed review of resource adequacy standards.[74] Capital Power suggests that engagement on this issue should focus on approaches used to evaluate resource adequacy throughout the year and on a subregional basis, as well as how various resource options are assessed as making contributions to resource adequacy.[75]

Panel Discussion

The Panel considers BC Hydro's planning criteria to be satisfactory for assessing the load resource balances, and adequate for the purposes of the 2021 IRP. Further, BC Hydro's methodology for determining the contribution from existing and committed resources is a reasonable means by which to establish and plan for additional resource needs over the 20-year planning horizon. This method sufficiently characterises the resources available to BC Hydro before any Near-term Actions, and provides an effective base of data for the purpose of determining the timing and volume of additional resources necessary to meet demand variations over time.

While some interveners have raised concerns with BC Hydro's use of the one-day-in-10-years LOLE criterion, the Panel recognizes that this approach is a well-established industry practice, and that BC Hydro has successfully relied on this planning standard since the mid 1970s. The Panel appreciates BC Hydro's commitment to reviewing whether this standard remains appropriate given the pace of change in BC's energy systems and looks forward to further consideration of this topic in the next IRP. The Panel finds BC Hydro's proposal to engage on the scope of this review as part of the development of the next IRP to be appropriate and expects that this scoping discussion will consider stakeholder input, such as that submitted by RCIA, Capital Power, and BCOAPO in this proceeding. The Panel expects inclusion in the IRP to be a more efficient and appropriate process than a standalone review of resource adequacy.

[71] BC Hydro Final Argument, pp. 63–64.
[72] RCIA Final Argument, p. 20.
[73] Ibid., pp. 19–21.
[74] Capital Power Final Argument, pp. 10–11; BCOAPO Final Argument, p. 32.
[75] Ibid., pp. 10–11.

3.2.2 Input Assumptions

BC Hydro provided information on additional inputs into the development of the 2021 IRP including (i) a forecast of the price of wholesale market electricity, (ii) resource options, including generation resources, DSM, and bulk transmission, (iii) reference prices and an estimate of long-run marginal costs (LRMC), and (iv) financial inputs, including the Weighted Average Cost of Capital (WACC) and U.S. to Canadian dollar exchange rate forecast.[76]

BC Hydro states that its market price forecast was derived from the Hitachi Energy Spring 2021 Power Reference Case Forecast for the Western Interconnection and is based on hourly energy predictions at the Mid-Columbia (Mid-C) trading hub.[77] BC Hydro relied on this forecast to assess the cost of Electricity Purchase Agreement (EPA) renewals and value electricity during surpluses.[78]

With respect to the resource options considered in the 2021 IRP, BC Hydro explains that the Resource Options Database, or "RODAT" is a database of information on a broad range of resources that are available to meet future electricity needs. The RODAT includes technical, financial, social, and environmental attributes, covering DSM, EPA renewals, upgrades to BC Hydro's bulk transmission facilities and existing generation facilities, and new clean or renewable generation resources.[79]

To compare potential resource options, BC Hydro relies on two reference price benchmarks – (i) a generation reference price (energy and capacity), which considers values during surplus and deficit periods, including the use of prices at the Mid-C trading hub and LRMC of the next resource block, respectively, and (ii) a non-bulk transmission and distribution reference price, which is established based on the 10-year capital plan and corresponding 10-year load forecast.[80]

BC Hydro submits that, based on the Load Resource Balance and RODAT, wind resources in the Peace River region are expected to be the lowest-cost greenfield clean or renewable resources in BC, and are used as the energy LRMC, whereas utility-scale batteries are used as the capacity LRMC.[81]

With respect to the financial inputs underlying the 2021 IRP, BC Hydro explains that the key inputs into its WACC include a five-year forecast of 10-year borrowing rates from the Government of BC's Treasury Board, the historical spread between 30-year and 10-year Government of BC debt, the BCUC's benchmark utility's post-tax Return on Equity of 8.75 percent, and BC Hydro's target capital structure of 60 percent debt and 40 percent equity.[82] U.S. to Canadian exchange rates were based on information from the Government of BC's Treasury Board.[83]

BC Hydro submits that the methodologies used for the market price forecast, LRMC, and RODAT have been extensively examined in the 2021 IRP and that these topics do not require a substantive update in the next long-

[76] Exhibit B-1, p. 6-1, Appendix L.
[77] Exhibit B-1, BC Hydro 2021 IRP, p. 6-2.
[78] Ibid., p. 6-1; Appendix L, p. 4.
[79] Ibid., Appendix B, p. 16.
[80] Ibid., Appendix L, pp. 1-5, 18-20.
[81] Ibid., Appendix L, pp. 6, 14.
[82] Ibid., p. 6-29.
[83] Ibid., p. 6-30.

term resource plan unless there has been a material change in the methodology.[84] BC Hydro does, however, intend to update resource option costs in the next IRP, as well as the estimated potential for solar/battery resources.[85]

Positions of the Parties

In Capital Power's view, increased transparency and access to data, inputs, and other information underlying BC Hydro's plan would improve the efficiency of long-term resource plan reviews. Capital Power states that it "does not agree that the market price forecast methodology should be outside the scope of the next IRP, given that markets throughout North America are facing challenges to their supply mixes, load expectations and overall design due to the energy transition."[86] Capital Power also submits that clear and transparent updates will be needed to the RODAT and LRMC to reflect up-to-date information on technologies and financial markets.[87]

FortisBC notes that BC Hydro developed LRMC values solely for the Reference Load Forecast and the associated Base Resource Plan, and suggests that multiple LRMCs (or alternative metrics that can be used to show the differences in costs across the various scenarios) should be developed in the next IRP.[88]

Panel Discussion

The Panel considers BC Hydro's methodology and assumptions for its market price forecast, LRMC, and the RODAT to be adequate for the purposes of the 2021 IRP. As these topics have been explored in detail in this IRP, barring any material changes to BC Hydro's approach, the Panel sees no merit in requiring additional information on these methodologies in the next long-term resource plan.

3.2.3 Portfolio Modelling

Appendix N of the original Application provides details of 33 resource portfolios that BC Hydro analyzed through its System Optimizer model to identify the least cost portfolio of resources to reliably serve its customers over the planning horizon, including the input assumptions and net present values (NPVs) associated. Chapters 6 and 7 of the original Application further discuss how BC Hydro used this portfolio analysis to build its long-term resource plan.

Positions of the Parties

AMPC submits that although Appendix N of the original Application provided some quantitative assessment of the actions proposed by BC Hydro, it was not sufficiently detailed or robust to establish that the plan is in the public interest.[89] In AMPC's view, "[t]he different suites of alternative actions must be assessed against varying possible future conditions and risks (such as interest rates, market prices), and tested in light of the expected impact on key criteria such as on rates, on reliability, and on other customer interests (e.g., higher NPV, higher

[84] BC Hydro Final Argument, p. 65.
[85] Exhibit B-1, BC Hydro 2021 IRP, Section 6.3.1.1; Exhibit B-9, BCUC IR 1.24.1; Exhibit B-43, BCUC IR 4.141.3.
[86] Capital Power Final Argument, pdf p. 13.
[87] Ibid., pdf p. 14.
[88] Fortis BC Final Argument, p. 12.
[89] AMPC Final Argument, pp. 17–23.

rates, more risk, more uncertainty under certain conditions etc.) so that trade-offs can be examined."[90] AMPC cites Manitoba Hydro's Needs For and Alternatives to Review of Manitoba Hydro's Preferred Development Plan as an example of best practices in this respect.[91]

AMPC further submits that the lack of an updated Appendix N, and corresponding quantitative assessment of NPVs, for the Signposts Update is a notable deficiency in BC Hydro's long-term resource plan.[92] AMPC argues that the BCUC should reject BC Hydro's request for approval of its proposed new energy acquisitions, and plans for independent power producer (IPP) renewals and future resources, as a consequence of this and other perceived deficiencies in the 2021 IRP.[93]

In reply, BC Hydro states that "AMPC does not identify any legal or regulatory requirement in B.C. that the Updated 2021 IRP does not meet in their view."[94]

BC Hydro states that it selected portfolios for System Optimizer analysis based on the requirements of the UCA, *Clean Energy Act*, and applicable planning criteria. BC Hydro explains that the focus of its portfolio analysis is first on selecting an appropriate level of DSM, consistent with the BC's regulatory requirements prioritizing DSM over supply-side resource additions. Next, BC Hydro focused on sensitivities for relevant uncertainties that could materially impact selection of particular resource plan elements.[95]

With regards to how portfolio analysis informed the Updated 2021 IRP, BC Hydro submits that it demonstrated through information request responses how each element of the Contingency Resource Plans informed the Updated 2021 IRP.[96] Further, BC Hydro states that ratepayer impact was considered in every decision reflected in the Updated 2021 IRP as one of its four planning objectives for the IRP.[97]

Panel Discussion

In preparing the 2021 IRP, BC Hydro analyzed a multitude of resource portfolios in its System Optimizer, examining the relative performance of portfolios with varying levels of DSM and supply side resource options, with consideration of a set of planning objectives. The Panel considers BC Hydro's comparative portfolio analysis to be sufficient for the purposes of the 2021 IRP, and that the incremental sensitivity analysis suggested by AMPC is not necessary to provide the BCUC with an adequate understanding of the resource options available to cost-effectively meet BC Hydro's needs in this long-term plan. We expect BC Hydro to continue to provide robust portfolio analyses in future long-term resource plans, inclusive of sensitivity assessments as appropriate.

[90] Ibid., p. 16.
[91] Ibid., pp. 16, 18, 20, 27.
[92] AMPC Final Argument, pp. 23–26.
[93] Ibid., pp. 26–27, 36–38.
[94] BC Hydro Reply Argument, p. 32.
[95] Ibid., pp. 30–31.
[96] Ibid., pp. 32.
[97] Ibid., pp. 32.

3.3 Demand-Side Measures

Following the estimate of demand or load BC Hydro expects to serve, section 44.1(2)(b) of the UCA requires that BC Hydro provide a plan of how they intend to reduce the estimated forecast load by taking cost-effective DSM. We address the cost-effectiveness of BC Hydro's planned DSM in Section 4.3 of this Decision. Additionally, section 44.1(2)(f) requires an explanation of why facilities BC Hydro intends to construct or planned energy purchases could not instead be met with DSM.

BC Hydro's DSM include energy efficiency DSM programs, as well as capacity-focused DSM options developed to reduce electricity use during high demand or peak periods.[98] In addition to capacity savings associated with energy efficiency DSM, capacity-focused DSM helps to defer capital projects, avoiding or deferring associated land impacts. Accordingly, BC Hydro has also considered new capacity-focused DSM in the 2021 IRP: time-varying rates, demand response programs, industrial load curtailment, and electric vehicle smart-charging technology programs are DSM options to encourage customers to shift their electricity consumption out of peak demand periods.[99]

Energy Efficiency DSM

BC Hydro considered different levels of energy efficiency programming (None, Base, Higher and Higher Plus), with higher levels driven by increased incentives and marketing efforts, while the measures comprising the different levels remain primarily the same.[100]

The Updated 2021 IRP sets out how BC Hydro will advance the timing of the ramp-up of energy-efficiency programs to realize savings sooner than originally planned. BC Hydro plans to:

- Advance the ramp-up from Base Energy Efficiency to Higher Energy Efficiency to achieve approximately 1,800 GWh/year of energy savings and 300 MW of capacity savings by fiscal 2030 while maintaining the option to ramp up to Higher Plus Energy Efficiency in future years to achieve approximately 1,950 GWh/year of energy savings and 350 MW of capacity savings by fiscal 2030.
- Retain the flexibility to ramp up or ramp down based on future need within an overall energy savings range of 1,250 GWh/year to 2,000 GWh/year by fiscal 2030 and an overall capacity savings range of 200 MW to 350 MW by fiscal 2030.[101]

BC Hydro notes that relying on greater levels of energy efficiency has benefits in terms of lower portfolio costs and decreased land and water impacts; however, it also results in increased rate impacts (as costs are recovered over a smaller revenue base) and a wider range of uncertainty regarding the delivery of savings over the longer-term.[102] If required in response to higher load, BC Hydro will move to the Higher Plus level of energy efficiency. BC Hydro demonstrated that this remains a lower cost solution compared to relying on greenfield energy resources.[103] BC Hydro expects to decide in fiscal 2027 whether to ramp up to the Higher Plus level of energy

[98] Exhibit B-39, Appendix B1, Section 5.2.2, p. 17.
[99] BC Hydro Final Argument, p. 34.
[100] Exhibit B-39, Appendix B1, p. 16; 32; BC Hydro Final Argument, p. 31.
[101] Ibid., p. 64.
[102] Ibid., Section 7.4.1.1; Exhibit B-39, p. 65; Appendix B1, p. 34.
[103] Ibid., p. 65.

efficiency.[104] BC Hydro notes its actual DSM energy efficiency savings to date are tracking to the planned amounts set out in the Fiscal 2023-Fiscal 2025 DSM Expenditures Schedule[105] approved within the Fiscal 2023-Fiscal 2025 Revenue Requirements Application decision.[106]

BC Hydro stated that the financial benefits of conservation on deferring specific regional transmission and distribution requirements are beyond the scope of the 2021 IRP.[107] The non-bulk transmission and distribution reference price provides a system average view of the wire system investment costs.[108]

In response to concerns raised about the risk of under-delivery of DSM, BC Hydro discussed processes to monitor and adjust program offers to mitigate the risk of under-delivery, including ongoing monitoring of DSM programs, technical reviews and evaluations, along with ongoing engagement to understand barriers. BC Hydro also undertook a DSM uncertainty analysis[109] to understand the potential range of under-delivery and impacts.[110]

Capacity-focused DSM

With respect to capacity focused DSM, BC Hydro notes the need for capacity resources has advanced in the Accelerated Electrification load scenario and Accelerated Electrification with DSM under-delivery scenarios at the System and South Coast level.[111] Relative to the original Application, the Updated 2021 IRP advances the timing of the implementation of demand-response programs in support of time-varying rates to facilitate an earlier understanding of the achievable capacity savings. It also advances the timing of forecast industrial load curtailment to fiscal 2025.[112]

By advancing the delivery of these new programs and achieving the capacity savings earlier, BC Hydro intends to use the early results to make changes as required, assess the ability of these resources to scale up in response to higher load scenarios, if required, and reduce the uncertainty associated with relying on the savings.[113] BC Hydro filed an independent report on the capacity savings estimates in the 2021 IRP, which concluded that the capacity savings estimates are well supported and reasonable.[114]

The Updated 2021 IRP element for time-varying rates and demand response programs is to:

- Pursue voluntary time-varying rates supported by demand response programs to achieve up to approximately 220 MW of capacity savings at the system level by fiscal 2030.

[104] BC Hydro Final Argument, p. 32.
[105] BC Hydro Fiscal 2023 to Fiscal 2025 Revenue Requirements Application Decision and Order G-91-23 dated April 21, 2023.
[106] Exhibit B-39, p. 66.
[107] Exhibit B-1, p. 7-19.
[108] Ibid., Appendix L, p. 20-21.
[109] Exhibit B-1, Appendix M.
[110] Exhibit B-22, BESEA-VEVA IR 2.7.1-2; Exhibit B-21, BCUC 2.98.2.
[111] Exhibit B-39, p. 61, Table 5-9 and Table 5-10.
[112] Ibid., p. 67.
[113] Ibid., pp. 68–69.
[114] Exhibit B-3, p. 2.

- Advance the timing of the implementation of programs, technology and product offers for customers to facilitate an earlier understanding of the achievable capacity savings and to maintain the flexibility to ramp up in response to future needs.
- Advance industrial load curtailment to achieve up to approximately 100 MW of incremental capacity savings at the system level as early as fiscal 2025.
- Pursue a combination of education and marketing efforts as well as incentives for smart-charging technology for customers to support a voluntary residential time-of-use rate to shift home charging by 50 to 75 percent of residential electric vehicle drivers to off-peak demand periods to achieve up to approximately 170 MW of capacity savings at the system level by fiscal 2030, with a planned amount of 100 MW by fiscal 2030.[115]

In December 2023, the BCUC approved BC Hydro's Residential Optional Residential Time-of-Use (TOU) Rates application[116] to achieve approximately 45 MW to 300 MW of capacity savings at the system level by fiscal 2030, with expected savings of 100 MW. BC Hydro will put forward additional optional rate applications in future years to achieve the fiscal 2030 capacity savings target.[117]

In addition, the RODAT considered three energy efficiency options not included in the Base Resource Plan or the Fiscal 2023 to Fiscal2025 DSM Expenditure Schedule,[118] namely incentives: for new construction to achieve a higher efficiency level than the current building code; to support customer adoption of small solar rooftop systems; and combined solar and batteries on single-family homes, with utility management of batteries to help meet system capacity.[119]

Positions of the Parties

There was general support from several interveners for BC Hydro's proposed approach to ramp up the DSM target to the Higher DSM portfolio, with more caution regarding the possible shift to Higher Plus.[120]

In response to a request from BCOAPO,[121] BC Hydro confirms that a decision on whether to ramp up to Higher Plus levels of energy efficiency will be addressed in the next IRP. A decision would be needed in fiscal 2027, with savings starting in fiscal 2028, in order to achieve 1,950 GWh by fiscal 2030.[122] BCSEA-VEVA agrees with BC Hydro's proposal to relook at the need for Higher Plus energy efficiency in the 2025 IRP.[123]

[115] Exhibit B-39, pp. 66–67.
[116] BC Hydro Optional Residential Time-of-Use Rate Application Decision and Order G-342-23 dated December 12, 2023.
[117] Exhibit B-39, p. 69.
[118] Exhibit B-9, BCUC IR 24.1.
[119] Exhibit B-1, Appendix B, Section 5.2.1, p. 16; Exhibit B39, Appendix B1, p. 16.
[120] CEC Final Argument, pp. 8, 15, 45; BCOPAO Final Argument, p. 41; Zone II RPG Final Argument, p. 7; BCSEA-VEVA Final Argument, pp. 8–9.
[121] BCOAPO Final Argument, p. 41, referring to Exhibit B-44, BCOAPO 4.25.1.
[122] BC Hydro Reply Argument, p. 28.
[123] BCSEA-VEVA Final Argument, p. 17.

While supportive of BC Hydro's DSM plans, Zone II RPG note BC Hydro's submission that "achieving the highest level of savings under the Higher Plus level comes with increased rate impacts."[124] In addition, certain DSM measures, such as heat pumps, are cost prohibitive to some BC Hydro ratepayers. Zone II RPG encourages BC Hydro to implement enhanced DSM incentives for its customers struggling with energy poverty if higher levels of energy efficiency DSM measures are implemented.[125]

CAPP supports BC Hydro's energy-efficiency programs, while noting the end of customer funded DSM programs for the oil and gas sector under the Transmission service rate design. CAPP requests that its members be consulted in the design of new energy efficiency programs to ensure that long-term investment decisions are informed by an understanding of DSM programs.[126] BC Hydro highlights that the BCUC recently issued a decision on BC Hydro's Transmission Service Rate Design application,[127] and notes that BC Hydro intends to ramp up energy efficiency for industrial customers.[128]

The CEC agrees with a staged approach to ramping up energy efficiency DSM, allowing BC Hydro to learn from the ramp up to Higher before ramping up to Higher Plus and to generally align energy savings with need. The CEC also agrees that BC Hydro should retain the flexibility to ramp down DSM efforts and spending based on developing future needs.[129] The CEC questions the effectiveness of voluntary TOU rates in achieving required savings, and assumptions regarding price elasticity.[130]

The CEC highlights the need to maintain consistency between the DSM forecast and the reference load forecast, to avoid either double or undercounting of forecast DSM savings that are subtracted from the gross load forecast.[131] The CEC accepts BC Hydro's current approach and level of effort and oversight in dealing with load-DSM integration issues, and recommends ongoing diligence to minimize potential errors in the BC Hydro net (after DSM) load forecast.[132]

BCOAPO and BCSEA-VEVA agree with BC Hydro[133] that the Updated 2021 IRP includes information regarding why the demand for energy to be served by BC Hydro's intended new facilities and purchases is not planned to be replaced by DSM.[134]

Panel Discussion

The Panel is satisfied that BC Hydro has met the requirement of section 44.1(2)(b) of the UCA to include a plan of how the authority intends to reduce the demand referred to in paragraph (a) by taking cost-effective demand-side measures. In turn, taken together with BC Hydro's load forecasts, BC Hydro has also satisfied section 44.1(c) of the UCA which requires an estimate of demand after taking cost-effective DSM. We

[124] BC Hydro Final Argument, p. 31.
[125] Zone II RPG, pp. 7–8.
[126] CAPP Final Argument, pp. 3–4.
[127] BC Hydro Transmission Service Rate Design Application Decision and Order G-353-23 dated December 15, 2023.
[128] BC Hydro Reply Argument, p. 9.
[129] CEC Final Argument, p. 45.
[130] Ibid., pp. 38–39.
[131] Ibid., pp. 13, 46.
[132] Ibid., pp. 45–46.
[133] BC Hydro Final Argument, pp. 50–51.
[134] BCSEA-VEVA Final Argument, p. 11; BCOAPO Final Argument, pp. 39, 45.

acknowledge that BC Hydro plans to implement several new capacity focused DSM programs as part of the 2021 IRP to defer the need for new supply-side resources, but there is increased uncertainty with reliance on such initiatives. Given the differing forecast regional capacity constraints, such as that anticipated in the South Coast region, the Panel encourages BC Hydro to consider regionally focused DSM strategies and offers in its next IRP, based on improved estimates of the value of regional transmission and distribution savings. Overall, the Panel is satisfied that BC Hydro has met the requirement of section 44.1(2)(f) to explain why the demand for energy to be served by the facilities (referred to in paragraph (d)) and energy purchases (referred to in paragraph (e)) are not planned to be replaced by DSM.

The Panel supports BC Hydro's approach to identifying a target range of DSM savings, and to addressing the decision on whether to ramp up to Higher Plus levels of energy efficiency in the next IRP depending on the emerging system load. The Panel also acknowledges the uncertainty associated with DSM savings, particularly in the emerging area of capacity savings, but is of the view that BC Hydro has taken actions to reduce the level of uncertainty and that the remaining uncertainty is reasonable. As referenced elsewhere in this Decision, BC Hydro's analysis of supply-side resources includes consideration of a scenario with Accelerated Electrification with under-delivery from DSM.

3.4 Energy and Capacity Purchases

Section 44.1(2)(e) requires that a long-term resource plan include information regarding the energy purchases that BC Hydro intends to make in order to serve the estimated demand. In the 2021 IRP, BC Hydro outlines its approach to renewing energy purchases with existing third-party suppliers, and its plans to acquire new energy from greenfield facilities.

3.4.1 Independent Power Producer Renewals

As of the filing of the 2021 IRP, BC Hydro had 123 EPAs with IPP facilities on the integrated system, providing approximately 9,100 GWh of firm energy and 1,300 MW of dependable capacity.[135] Many of these existing EPAs expire over the course of the 20-year planning horizon, and for the purposes of long-term planning BC Hydro assumes that all clean or renewable IPPs with EPAs will be renewed.[136]

BC Hydro states that for existing clean or renewable IPPs with EPAs expiring up to April 1, 2026, it intends to offer renewal at market-based pricing as it expects most of these facilities will have a low cost of service and will be able to operate economically.[137] Further, BC Hydro states that a market-based priced approach limits the cost risk to BC Hydro's customers in low market conditions and low load scenarios.[138] For existing clean or renewable IPPs with EPAs expiring after April 1, 2026, BC Hydro states that it intends to renew agreements on a cost-effective basis, which may include continuing market-price based renewal offers.[139]

BC Hydro submits that the short-term surplus created by its proposal to acquire approximately 3,000 GWh/year of greenfield energy (discussed in Section 3.4.2, below) provides a buffer to manage against the risk that

[135] Exhibit B-39, Appendix B1, p. 18.
[136] Ibid., p. 71; Exhibit B-43, BCUC IR 4.152.2.
[137] Exhibit B-1, p. 4-32.
[138] Exhibit B-39, Appendix B1, p. 44.
[139] Ibid., p. 70.

renewal of some EPAs will prove not to be cost-effective.[140] Further, BC Hydro notes that the parties (i.e., BC Hydro and the generation facility owner) agree to the final price in an EPA renewal, and submits that the execution of six long-term EPAs, representing approximately two-thirds of the total volume available from the EPAs set to expire prior to April 1, 2026, demonstrates the approach is working.[141]

BC Hydro identifies McMahon Generating facility, Houweling Nurseries Cogeneration facility and the Island Generation facility as existing EPAs that are not clean or renewable as defined by the *Clean Energy Act*. BC Hydro indicates that the 2021 IRP does not include renewal of these EPAs.[142]

Positions of the Parties

CEBC recommends that BC Hydro be required to outline a fair and transparent process for EPA renewals that reflects the broad value all EPA renewals offer the BC power system as well as unique circumstances for specific facilities. In CEBC's view, linking the renewal process to external market prices is not prudent in circumstances with a growing need for generation supply.[143]

With regards to gas-fired EPAs expiring during the planning horizon, Capital Power submits that these resources should be included in BC Hydro's modelling for later years in the IRP's time horizon to the extent these facilities have the capability of being operated as "clean or renewable" resources from 2030 onwards, for instance through the use of biogas as the sole fuel source. Capital Power submits that the BCUC should decline to accept this component of the IRP and instead direct BC Hydro to reconsider Island Generation as a resource option in its next IRP filing.[144]

NRM argues that BC Hydro's EPA renewal strategy should include extended use of existing supply that is already connected to the BC Hydro grid, including a shorter-term (5-10 year) renewal of the EPA with the McMahon cogeneration power plant. In NRM's view, this approach would limit near-term supply risks while also providing time for NRM to progress a potential carbon capture and storage (CCS) project at its facility. NRM explains that CCS would lower the carbon intensity of power and steam generated at the site by 95 percent, and that it expects that future changes to the *Clean Energy Act* will enable and be supportive of carbon capture from fossil fuel power generation.[145]

In reply to Capital Power, BC Hydro expresses its willingness to consider Island Generation, and other gas-fired generation facilities, in future long-term resource plans if these facilities are fueled entirely by renewable natural gas (i.e., biogas or biomethane) and risks associated with costs and the potential for stranded assets are absent.[146]

[140] Exhibit B-43, BCUC IR 4.156.2.
[141] BC Hydro Reply Argument, p. 29.
[142] Exhibit B-43, BCUC IR 4.152.5; BC Hydro Reply Argument, p. 26.
[143] CEBC Final Argument, p. 14.
[144] Capital Power Final Argument, pp. 2–3, 12.
[145] NRM Final Argument, p. 2.
[146] Exhibit B-43, BCUC IR 4.156.2; BC Hydro Reply Argument, p. 26.

Panel Discussion

The Panel considers BC Hydro's approach to EPA renewals with existing IPPs to be adequate for the purposes of the 2021 IRP. The information provided by BC Hydro regarding its proposed EPA renewal strategy, including details on the specific generating facilities, expiry dates, and price benchmarks, provides the BCUC with sufficient information on the timing and volume of likely renewals and their cost effectiveness. We are not persuaded by CEBC's submission that a new approach to EPA renewals that excludes consideration of the market prices of energy is required. BC Hydro's proposed energy acquisitions, and the proposed living long-term planning cycle, mitigate risks associated with uncertainty in BC Hydro's IPP forecast. Further, as noted by BC Hydro, the ultimate price contained in EPA renewals is an agreed upon value between the contract parties that, along with other contract considerations, will be reviewed by the BCUC under section 71 of the UCA.

With respect to the submissions of Capital Power and NRM, the Panel encourages BC Hydro to continue to explore opportunities to leverage existing generation resources in the province that are, or can produce, clean or renewable energy to reliably and cost effectively meet BC's energy and capacity needs. However, we note that at present, the Island Generation, McMahon Generating, and Houweling Nurseries Cogeneration facilities are reliant on fossil fuel, and therefore conflict with one of BC Hydro's IRP objectives of reducing GHG emissions through clean electricity.

3.4.2 New Energy Acquisition

After accounting for existing and committed resources, DSM, and IPP renewals, BC Hydro forecasts both system--level and regional energy and capacity shortfalls over the 20-year planning horizon.[147] Table 2, below provides a summary of the Updated 2021 IRP energy load resource balances after DSM and IPP renewals for several load forecast scenarios. This summary shows a deficit in the available energy resources emerging by fiscal 2029 under the Reference Load Forecast and by fiscal 2027 under the Accelerated Electrification load scenarios.[148]

Table 2: Energy Load Resource Balances after Updated 2021 IRP Planned Demand-Side Measures and Electricity Purchase Agreement Renewals[149]

Surplus / deficit (GWh)	F2027	F2028	F2029	F2030	F2031	F2032	F2033
April 2023 Reference Load Forecast	700	100	-1,000	-2,200	-2,900	-3,100	-3,200
2023 Accelerated electrification load scenario	-1,400	-2,300	-3,400	-5,900	-10,800	-11,600	-12,400
2023 Accelerated electrification with DSM under-delivery scenario	-1,800	-2,900	-4,000	-6,700	-11,800	-12,600	-13,600

[147] Exhibit B-39, Appendix B1, pp. 4–12.

[148] Exhibit B-39, p. 73.

[149] Ibid., p. 73, Table 5-11.

BC Hydro's Updated 2021 IRP includes the addition of a new Near-term Action to address this deficit – the acquisition of (i) approximately 3,000 GWh of new clean or renewable energy from greenfield facilities in the province that are able to achieve commercial operation as early as fiscal 2029, and (ii) approximately 700 GWh of new clean or renewable energy from existing facilities prior to fiscal 2029.[150] BC Hydro anticipates that these acquisitions, along with the advancement of utility-scale battery projects, will address both forecast system and regional-level capacity and energy shortfalls under the Base Resource Plan.[151]

BC Hydro states that to determine the appropriate quantum of new energy acquisitions, it examined the range of possible load scenarios and focused on how to best position itself to meet the potential pace of change associated with this range of outcomes. BC Hydro argues that the timing and volumes proposed strike an appropriate balance between having sufficient energy to meet higher than expected demand and minimizing any surpluses that may occur.[152] Further, BC Hydro submits that the evidence in this proceeding supports a conclusive determination by the BCUC, pursuant to section 44.1(9) of the UCA, on the volume and timing of the energy acquisitions.[153]

BC Hydro proposes to acquire the 3,000 GWh per year in greenfield resources through a Call for Power.[154] BC Hydro states that it is designing the call to result in cost-effective supplies for BC Hydro and its customers. This includes targeting large, clean and renewable projects to take advantage of economies of scale, and favouring projects with a generation profile that is of higher value to BC Hydro. BC Hydro further states that it will require strong and meaningful participation from First Nations in eligible projects. BC Hydro indicates that the specifics of this requirement are under development, however, its goal is to "settle on a participation model that advances economic reconciliation through meaningful partnerships between First Nations and IPPs."[155]

Based on feedback received during engagement on the Call for Power, BC Hydro expects to allow projects awarded contracts through the call to begin delivering energy to BC Hydro between the Fall of 2028 and the Fall of 2031.[156] BC Hydro expects that it could rely on market imports as a temporary bridge until the next domestic resources become available should project lead times result in a need for incremental energy.[157]

With respect to existing facilities, BC Hydro estimates that there is approximately 700 GWh per year of clean or renewable energy produced by existing generation facilities that are connected to the BC Hydro system but that are not currently selling the energy to BC Hydro.[158] BC Hydro plans to acquire this energy through a process of bilateral negotiations, as each IPP's circumstances may be unique and contracts would need to take into account existing agreements with the IPP. BC Hydro notes that any new agreements to be entered into would be at cost-effective prices.[159]

[150] Ibid., Appendix B1, p. 5a.
[151] Ibid., Appendix B1, pp. 14–20.
[152] Workshop October 16, 2023, Transcript Volume 4, pp. 15, 36–38; BC Hydro Final Argument, pp. 45, 48–50.
[153] Exhibit B-52, Attachment 1, p. 4.
[154] Exhibit B-39, p. 29.
[155] Workshop October 13, 2023, Transcript Volume 4, pp. 59–61.
[156] Exhibit B-52, Attachment 1, p. 37.
[157] Exhibit B-39, p. 76.
[158] Ibid., p. 73; Exhibit B-43, BCUC IR 4.150.1.
[159] Exhibit B-43, BCUC IR 4.150.1.

Positions of the Parties

While MoveUp supports BC Hydro's request for a conclusive determination by the BCUC under section 44.1(9) of the UCA,[160] several interveners disagree that the volume and timing of the proposed energy acquisitions can be conclusively determined in this proceeding.[161]

RCIA and AMPC cite load forecast uncertainties as a primary reason for denying BC Hydro's requested approval.[162] These parties suggest that the 2021 IRP is incomplete, as it provides little quantitative assessment of the resourcing alternatives. RCIA submits that BC Hydro has "provided primarily qualitative evidence to support its proposed acquisitions, the strongest of which is that BC Hydro needs to provide a clear acquisition signal to the market so mature and competitive market players will participate to fill a forecast gap that **may** be in the 3,000 GWh range."[163] In RCIA's view, while BC Hydro's proposed energy acquisitions are one solution, BC Hydro has failed to demonstrate that its solution is "optimal or cost-effective."[164]

AMPC submits that gaps in the 2021 IRP record mean the BCUC "cannot presumptively support any given path, and must instead fully evaluate whether BC Hydro's chosen path should be preferred in approval-specific proceedings,"[165] nor can the BCUC determine whether the plan is in the public interest.[166] AMPC submits that a workshop held in the first quarter of 2024 to explain the Call for Power procurement documents, and a consolidated section 71 process, would ensure that ratepayers are protected pending a completed IRP, while allowing BC Hydro to act expeditiously in procuring new energy.[167]

FNEMC submits that First Nations equity ownership should be a requirement for proposals being submitted through the planned acquisition process, citing the United Nations Declaration on the Rights of Indigenous People (UNDRIP) and the BCUC's role in upholding its principals. Further, FNEMC argues that there should be a minimum equity participation level required, with options for higher levels of First Nation equity participation.[168]

In response to FNEMC, BC Hydro argues that directives to BC Hydro to create First Nations economic opportunities through procurement (including new energy acquisition), or employment relate to BC Hydro management decisions, which the BCUC has already determined are beyond its jurisdiction in this proceeding.[169]

Panel Determination

In the sections above, we have found the information and approaches used by BC Hydro in the 2021 IRP to (i) establish a range of forecast electricity demand scenarios, and (ii) determine the contributions from existing and committed resources, cost-effective DSM, and IPP renewals to be adequate for the purposes of this -long-

[160] MoveUp Final Argument, p. 4.
[161] BCOAPO Final Argument, pp. 71-72; Capital Power Final Argument, p. 4; BCSEA-VEVA Final Argument, p. 2; FNEMC Final Argument, p. 19; AMPC Final Argument, p. 36; RCIA Final Argument, p. 14.
[162] AMPC Final Argument, pp. 30-31; RCIA Final Argument, pp. 13–15.
[163] RCIA Final Argument, p. 15.
[164] Ibid.
[165] AMPC Final Argument, p. 3.
[166] Ibid., p. 8.
[167] Ibid., pp. 3–4.
[168] FNEMC Final Argument, p. 2.
[169] BC Hydro Reply Argument, p. 11.

term resource plan. Taken together, these demonstrate a near-term need for new generation resources to ensure a reliable supply of electricity to BC Hydro's customers.

The evidentiary record shows that the quantum of incremental energy required to meet demand grows from approximately 1,000 GWh in fiscal 2029 to 3,200 GWh in fiscal 2033 under the Reference Load Forecast scenario, and from approximately 4,000 GWh in fiscal 2029 to over 13,000 GWh in fiscal 2033 under the Accelerated Electrification with DSM under-delivery scenario. As discussed in Section 1.3 above, the Panel's review of the 2021 IRP favours flexible approaches that position BC Hydro to adjust to changing circumstances over attempts to precisely predict the future. We are not persuaded by intervener argument that further quantitative analysis is required by BC Hydro to substantiate the 3,700 GWh procurement target, nor that BC Hydro ought to be required to demonstrate that its proposal is "optimal" as suggested by RCIA. In planning to acquire 3,700 GWh of new clean or renewable energy resources by fiscal 2029, BC Hydro positions itself effectively to meet the Reference Load Forecast demand, with minimal energy surpluses, while also limiting the potential for significant energy shortfalls, should the higher levels of electrification load envisioned materialize.

The BCUC has previously held that the purpose of a long-term resource plan is to "facilitate efficient and effective oversight of public utilities by periodically reviewing a utility's long-term plans and the choices they face when deciding how to provide safe and reliable service at just and reasonable rates" and that long-term resource plans facilitate "more effective and efficient regulation of utilities by allowing the BCUC and participants a process to understand the long-term challenges, opportunities, and direction of the utilities. This enables the BCUC to efficiently examine subsequent applications from utilities, such as CPCNs, RRAs [revenue requirements applications], energy supply contracts and rate designs, which deal with shorter-term issues, and to understand how those applications relate to the long-term view of the utility."[170]

We consider a conclusive determination on the timing and need of the energy acquisitions to be consistent with this purpose, as it will facilitate an effective and efficient review of future energy supply contract filings made pursuant to section 71 of the UCA. Further, we consider such a determination to be supported by the evidentiary record in this proceeding, as outlined above. Accordingly, **pursuant to section 44.1(9) of the UCA, the Panel conclusively determines for BC Hydro the following for the purposes of any hearing or proceeding to be conducted by the BCUC under the UCA:**

- **That there is a need for BC Hydro to acquire approximately 3,000 GWh of clean or renewable energy from greenfield generation facilities in the province for delivery to BC Hydro as early as fiscal 2029; and**
- **That there is a need for BC Hydro to acquire approximately 700 GWh of clean or renewable energy from existing generation facilities in the province for delivery to BC Hydro prior to fiscal 2029.**

For clarity, this determination does not limit consideration by future BCUC panels of any other matter relevant to the acceptance or rejection of energy supply contracts resulting from the planned energy acquisitions.

With regards to FNEMC's recommendations, the Panel concurs with BC Hydro that the creation of economic opportunities exclusive to First Nations through procurement or employment associated with the energy acquisitions is a BC Hydro management decision that falls outside of the BCUC's jurisdiction to direct under

[170] Creative Energy Vancouver Platforms Inc., 2021 Long Term Resource Plan, p. 5.

section 44.1 of the UCA. We support BC Hydro's focus on ensuring strong and meaningful participation from First Nations in generation facilities eligible under the Call for Power, and encourage BC Hydro to specifically consider the role that equity partnerships can play in achieving this objective.

3.4.3 Future Resources

BC Hydro also identifies a need for additional energy resources over the latter portion of the planning horizon, starting in fiscal 2036 under the Reference Load Forecast scenario. Should higher load scenarios occur, both additional future energy resources and capacity resources may be required.[171] To account for these resources, the 2021 IRP includes a set of "placeholder" future energy and capacity resources. BC Hydro does not identify specific portfolios of resources to meet this need, but rather positions these as a set of future choices that could be made from all available resource options as part of future long-term resource plans.[172] BC Hydro submits that this approach balances the competing risks of incurring costs too early or stranded assets, with the risk of not having sufficient resources to meet future needs.[173] BC Hydro notes that these future resources could include additional DSM savings, EPA renewals or greenfield resources.[174]

Positions of the Parties

The CEC recommends that BC Hydro's energy acquisitions include modular staged projects with the potential for expansion to be approved as needed to match supply and demand.[175]

Panel Discussion

While the Panel is satisfied that BC Hydro's approach of identifying an incremental need for future resources beyond the energy acquisitions is sufficient for the purposes of the 2021 IRP, we expect that BC Hydro's upcoming long-term resource plans would benefit from further consideration of the specifics of the resource options that are likely to fill these gaps. This may include qualitative and/or quantitative analysis of the expected generation mix, locations, interconnection needs, and lead times of alternative portfolio(s) of resources that would meet these needs. By turning its attention to the viable alternatives well in advance of the time of need, BC Hydro can take appropriate steps to maintain optionality, particularly for resource options with longer implementation timelines, or for scalable or modular projects where applicable. Further, a longer-term view can provide the market with greater levels of transparency into upcoming procurement opportunities as well as enable BC Hydro to strategically pace and time future procurements.

3.5 Transmission and Distribution System Planning

Section 44.1(2)(d) of the UCA requires a description of the facilities that BC Hydro intends to construct or extend in order to serve its estimated demand. The Panel notes that planning solely to ensure that there are sufficient generation resources to meet total forecast demand is not sufficient to ensure a reliable supply of electricity to

[171] Exhibit B-39, Appendix B1, Attachment 1, pp. 13–16, pp. 21–24.
[172] Exhibit B-9, BCUC IR 1.70.1.
[173] Ibid., BCUC IR 1.78.3.1.
[174] Exhibit B-21, BCUC IR 2.114.2.
[175] CEC Final Argument, pp. 14–15.

customers over the planning horizon. There must also be sufficient transmission and distribution system capability to deliver the electricity that is generated to end users.
BC Hydro divides its electrical grid into three major infrastructure categories:[176]

- The high-voltage bulk transmission network, which carries electricity from where it is generated to the transmission and switching substations in cities and towns;
- The regional transmission network, which transfers electricity to major delivery points around cities, towns and industrial centres; and
- The distribution network, which operates at lower voltages and delivers electricity to individual customers.

BC Hydro states that the 2021 IRP analysis focuses on the high-voltage bulk transmission system.[177]

BC Hydro explains that bulk transmission transfer capabilities are the aggregated capacity limits of the transmission lines that connect adjacent regions on its transmission grid.[178] Some regions contain higher levels of generation than load, while others, like the South Coast region, contain far greater levels of load than generation.[179] Using bulk transmission system transfer capabilities as a constraints on its resource portfolio analysis, BC Hydro identified areas where bulk system reinforcements may be required over the planning horizon.[180] These transmission reinforcements include a set of sequential upgrade projects for transmission infrastructure in the South Coast region by the earliest available in-service date of fiscal 2033, and a further upgrade by 2040.[181] Further, BC Hydro identified the need to continue to advance the Prince George to Terrace Capacitor Project to maintain its earliest in-service date of fiscal 2028.[182]

BC Hydro states that additional bulk transmission system upgrades are not expected to be necessary to accommodate the new energy acquisitions identified in the Updated 2021 IRP. BC Hydro expects that the Call for Power will consider parameters to avoid triggering major network upgrades for new interconnections.[183]

BC Hydro does not address long-term planning for distribution and the non-bulk transmission system in the Updated 2021 IRP.[184] BC Hydro states that it assesses distribution and non-bulk transmission system needs on an ongoing basis, and needed investments are identified annually as part of the capital planning process.[185]
BC Hydro explains that its Capital Plan provides a view of the projected distribution and non-bulk transmission investments over the next decade considering the balance of system performance, cost, and risk.[186] For the

[176] Exhibit B-1, p. 6-27.
[177] Ibid.
[178] Ibid., p. 6-28.
[179] Ibid., Appendix B1, Attachment 1, pp. 7–12.
[180] Exhibit B-1, pp. 6-28 to 6-29.
[181] Exhibit B-43, BCUC IR 4.129.2.
[182] Exhibit B-39, p. 85.
[183] Exhibit B-43, BCUC IR 4.169.3.
[184] Ibid., BCUC IR 4.170.1.
[185] Ibid., BCUC IR 4.170.1.
[186] Exhibit B-9, BCUC IR 1.4.5.

purposes of distribution substation and non-bulk transmission system assessments, BC Hydro uses the Reference Load Forecast after DSM as one of the key inputs into investment decision-making.[187]

Positions of the Parties

Some interveners expressed concerns with BC Hydro's focus solely on bulk transmission system requirements in the 2021 IRP.[188] For example, FortisBC submits that it is important for ratepayers and stakeholders to understand the potential impacts that greater levels of electrification could have on system upgrades over the long-term. In FortisBC's view, relying on individual application processes or regular capital reviews will not provide a comprehensive understanding or the necessary scope of review of the long-term impacts on BC Hydro's infrastructure. FortisBC submits that BC Hydro should study and report on key insights of the system impacts, including distribution, of increased electrification scenarios as part of the next long-term resource plan.[189] FortisBC further submits that for the next long-term resource plan, BC Hydro should "undertake high-level planning of transmission and distribution system and cost impacts in the resource planning guidelines, to allow for a comparison of the impacts of different energy scenarios on the entire energy delivery system."[190]

Similarly, NTC submits that a description of the facilities required to expand and retrofit the distribution and non-bulk transmission systems to meet the expected increase in BC Hydro's demand, including the Accelerated Electrification load scenario, should be included in the next IRP.[191] Local Government Interveners believe that future resource plans should include an evaluation of local distribution system adequacy.[192]

In response, BC Hydro submits that electrification programs are not a filing requirement under the UCA, nor a matter the BCUC is to consider in determining whether to accept the Updated 2021 IRP. BC Hydro notes that the non-bulk transmission and distribution system needs are highly dynamic and dependent on local conditions and therefore long-term planning beyond marginal cost brings minimal additional insights into the regional system impacts and needs. Further, BC Hydro submits that, through a jurisdictional review, it found utilities typically exclude long-term capital planning for non-bulk transmission and distribution systems from long-term resource plans.[193]

Panel Discussion

The Panel considers BC Hydro's approach to transmission system planning to be sufficient for the purposes of the 2021 IRP. However, growing electrification demand, the acquisition of new generation resources, and long lead times associated with new infrastructure developments, are likely to place additional strain on BC Hydro's grid (both at a system and regional level) in the coming years. In this context, long-term, integrated planning of BC Hydro's non-bulk transmission and local distribution networks becomes increasingly important. For instance, the strategic siting of new generation resources can avoid or defer the need for transmission and/or distribution system investments; conversely the interconnection of these resources in the wrong

[187] Exhibit B-21, BCUC IR 2.121.1.
[188] FortisBC Final Argument, pp. 12-13; NTC Final Argument, pp. 22-23; CEBC Final Argument, p. 14.
[189] FortisBC Final Argument, p. 13.
[190] Ibid., p. 15.
[191] NTC Final Argument, p. 22.
[192] LGI Final Argument, p. 4
[193] BC Hydro Reply Argument, pp. 19–20.

locations can exacerbate bottlenecks. Long-term resource plans provide an appropriate forum for review of the directional system impacts that BC Hydro anticipates will result from trends in regional demand and supply, as well as BC Hydro's vision for how it will address these trends. As such, we expect BC Hydro to include consideration of its non-bulk transmission and distribution systems in the next IRP, including regional-level analysis. This may include discussion of the non-bulk transmission system and distribution system needs under the reference load forecast scenario, a qualitative assessment of impacts to these systems should higher load scenarios materialize, and consideration of how different supply or demand side resources might exacerbate or mitigate the need for future transmission and distribution investments.

3.6 Contingency Resource Plans

BC Hydro developed Contingency Resource Plans (CRPs) to address the three load scenarios outlined in Section 3.1.2 above, and a further scenario considering the Accelerated Electrification load scenario with under-delivery of DSM.[194] While BC Hydro notes that the analysis underpinning the CRPs was not as extensive as for the Base Resource Plan,[195] for all the load scenarios, BC Hydro determined that the least-cost portfolio would be the one that best meets the decision-making objectives.[196]

In the Signposts Update, BC Hydro emphasizes ranges rather than static targets for various plan elements, where the lower and upper end of the ranges correspond to the CRPs for the Low load scenario and the Accelerated Electrification with DSM under-delivery scenario respectively.[197]

Regarding energy resources, following the Call for Power, BC Hydro forecasts a small surplus in fiscal 2029. BC Hydro submits this will position it to meet potential electrification load associated with the Province's GHG targets, as represented by the Accelerated Electrification load scenario. The need for additional acquisitions of new clean energy from greenfield facilities would be informed through BC Hydro's living long-term resource planning cycle.[198] If load is higher and/or there is under-delivery from DSM, BC Hydro could temporarily rely on market imports until further domestic resources are available.[199]

Regarding capacity resources, BC Hydro identifies three Near-term Actions to prepare for its CRPs. Firstly, BC Hydro plans to advance utility-scale batteries to achieve approximately 50 MW of additional capacity as early as fiscal 2027 and up to 500 MW of capacity by fiscal 2030. BC Hydro notes the analysis in the 2021 IRP shows utility scale batteries are an effective resource to meet load in the South Coast region due to short lead times and locational flexibility.[200] Secondly, BC Hydro plans to address the North Coast LNG and mining load scenario by continuing the Prince George to Terrace Capacitor Project to maintain its earliest in-service date of fiscal 2028, which will increase transfer capacity of the regional transmission system to meet several customer requests.[201] Finally, BC Hydro seeks BCUC approvals under the Open Access Transmission Tariff (OATT), as outlined in the next section.

[194] Exhibit B-1, p. 8-1.
[195] Exhibit B-1, Appendix B, p. 50.
[196] Exhibit B-9, BCUC IR 1.74.1.
[197] Exhibit B-39, p. 62.
[198] Ibid., p. 75.
[199] Ibid., pp. 75–76.
[200] Ibid., p. 77.
[201] Exhibit B-1, p. 8-7.

Positions of the Parties

BCOAPO submits that the proposed action respecting utility-scale batteries is a reasonable means for Hydro to maintain flexibility to install batteries starting in fiscal 2027, but not necessarily committing BC Hydro to do so.[202] CEBC recommends that given the potential risk of needed additional supply and the relatively low cost of preparing procurements, BC Hydro develop a procurement roadmap that maps how BC Hydro intends to address the Accelerated Electrification load scenario, while also describing out how the procurement processes can be delayed or cancelled should future system needs not materialize.[203] In reply, BC Hydro submits it has been clear in this proceeding that the future is uncertain during a period of energy transition, and BC Hydro's proposal to manage the uncertainties is the living long-term resource planning cycle.[204]

Panel Discussion

The Panel considers BC Hydro's approach to contingency planning is reasonable and supports a flexible approach to resource planning. We disagree with CEBC's proposal as there can be diminishing returns associated with attempting to produce highly specified plans for contingency scenarios which are inherently uncertain. BC Hydro's signposts monitoring, combined with more frequent IRPs, should enable BC Hydro to respond to changing circumstances. Additionally, BC Hydro has identified Near-term Actions associated with CRPs to address certain planning issues which require earlier attention, to prepare for potential future increases in load beyond the Reference load forecast.

Taking BC Hydro's CRPs and its plans for new transmission assets together, the Panel is satisfied that BC Hydro has addressed section 44.1(2)(d) of the UCA.

3.6.1 Approvals Under the Open Access Transmission Tariff

BC Hydro seeks BCUC approval to include the CRPs and high load scenarios of BC Hydro's Updated 2021 IRP in BC Hydro's Network Integration Transmission Services (NITS) update under BC Hydro's OATT.[205]

The OATT sets out the terms of use of BC Hydro's Transmission System, and provides open and non-discriminatory access to BC Hydro's transmission system for BC Hydro and other transmission customers. BC Hydro acts as the Transmission Provider and is also a Transmission Customer under the OATT. Including the CRPs and associated high load scenarios in the NITS application ensures BC Hydro (as the Transmission Customer) is able to serve load if a high load scenario materializes, and allows BC Hydro (as the Transmission Provider) to undertake transmission studies to assess the capacity needed to meet these high load scenarios and CRPs.[206] BC Hydro provides an explanation of the process for releasing transmission capacity if a high load scenario and CRPs do not materialize,[207] and BC Hydro does not anticipate material changes in revenue from point-to-point transmission service resulting from the reservation of capacity for high load scenarios and

[202] BCOAPO Final Argument, p. 62.
[203] CEBC Final Argument, p. 12.
[204] BC Hydro Reply Argument, p. 29.
[205] Exhibit B-39, Appendix A1.
[206] Exhibit B-1, pp. 8-8 – 8-10.
[207] Exhibit B-9, BCUC IR 1.79.13.

CRPs.[208] BC Hydro clarifies that including high load scenarios and CRPs in the NITS application does not result in transmission capital investments, or constitute approval of the need for such investments.[209]

Positions of the Parties

BCOAPO, BCSEA-VEVA, and the CEC express support for granting the approval sought.[210]

RCIA submits capital investments identified in BC Hydro's NITS updates should be supported by an updated high load scenario to reduce the risks to ratepayers from premature or overbuilt infrastructure.[211]

NTC submits that transmission reservation should be determined by BC Hydro on a case-by-case basis, rather than a blanket basis, to avoid restricting third party access to its transmission system.[212] In reply, BC Hydro notes NTC provides no discussion or reasoning in support of its position.[213]

Panel Determination

The Panel approves BC Hydro's request to include the CRPs and high load scenarios of BC Hydro's Updated 2021 IRP in BC Hydro's Network Integration Transmission Services update under the OATT. This approval will enable BC Hydro to serve customers in the event load growth is higher than expected, we are satisfied that BC Hydro's process for periodically releasing transmission capacity will ensure there are minimal impacts upon third party transmission customers, and BC Hydro's transmission revenue.

Additionally, the approval will allow BC Hydro to proactively study the potential future need for upgrades of the transmission system. In a time of uncertainty, and for long lead time resources such as transmission assets, we believe this is an important mechanism for BC Hydro to ensure it is prepared to respond to a range of future scenarios. We reject RCIA's proposal on the basis that BC Hydro's NITS application does not directly trigger transmission investments, and therefore does not present risks to ratepayers of overbuilt infrastructure.

3.7 Resiliency and Climate Change

In this sub-section, the Panel discusses issues related to the resiliency of BC Hydro's system and the impacts of climate change.

BC Hydro submits that resiliency is assessed by its ability to recover quickly from unanticipated changes in electricity demand, supply, or both, and that it has considered this in the selection of future resource options.[214]

[208] Ibid., BCUC IR 1.79.16.
[209] Exhibit B-29, pp. 3–4.
[210] BCOAPO Final Argument, pp. 69–70; BCSEA-VEVA Final Argument, pp. 1–2; CEC Final Argument, p. 10.
[211] RCIA Final Argument, pp. 11–13.
[212] NTC Final Argument, p. 2.
[213] BC Hydro Reply Argument, p. 34.
[214] Exhibit B-21, BCUC IR 2.120.2.

At the long-term planning level, BC Hydro does not directly consider the resiliency of its system infrastructure[215] as this is addressed through the capital planning process.[216]

Based on a range of climate change scenarios, BC Hydro predicts that its system generation capability at the end of the century will be within +/-5 percent of the existing system.[217] As such, BC Hydro considers that any impact of this variance on the Base Resource Plan and CRPs would be immaterial.[218] Nevertheless, BC Hydro states that the potential for drought impacts is an issue that warrants further investigation, and indicates that consideration would be given to how water levels are evaluated in its review of planning criteria in the proposed 'living IRP.'[219]

In terms of climate change impacts on electricity demand, BC Hydro anticipates it may experience a shift in the shape of its seasonal demand curves in response to projected temperature trends. However, BC Hydro expects to remain a winter-peaking utility throughout the planning horizon, where the peak demand for electricity on its system continues to occur on the coldest days of the year.[220]

Panel Discussion

Ensuring BC Hydro continues to provide safe and reliable service in the face of a changing climate is essential. This includes ensuring BC Hydro's long-term plans effectively consider the resiliency of its system to possible changes in water availability and electricity demand patterns. The Panel considers BC Hydro's approach to resiliency in the 2021 IRP to be sufficient for this planning cycle. We look forward to continued discussion of this important issue in future resource plans, which may include consideration of resource diversification and energy storage as means to address potential variability of supply and enhance system resiliency.

3.8 Overall Findings on Section 44.1(2) Requirements

The Panel finds that BC Hydro has addressed each of the filing requirements of a long-term resource plan, as outlined in section 44.1(2) of the UCA. Generally, we note that BC Hydro's methodology and analysis underpinning the 2021 IRP is reasonable, and we encourage BC Hydro to further enhance its next IRP in line with the Panel's comments throughout Section 3 of this Decision.

4.0 Do the Section 44.1(8) Considerations Support Acceptance of the 2021 IRP?

Section 44.1(8) of the UCA requires that in determining whether a long-term resource plan is in the public interest, the BCUC must consider four criteria, which are outlined in turn below.

4.1 British Columbia's Energy Objectives

In its review of the IRP, the BCUC must consider the applicable of British Columbia's energy objectives, which are outlined in section 2 of the *Clean Energy Act* (CEA) and summarized in Appendix B of this Decision. BC Hydro

[215] E.g., generating equipment, substations, transmission and distribution equipment, civil structures.
[216] Exhibit B-9, BCUC IR 1.83.1.
[217] Exhibit B-1, BC Hydro 2021 IRP, Appendix I, p. 1.
[218] Exhibit B-9, BCUC IR 1.61.1.
[219] Workshop, October 16, 2023, Transcript Volume 4, pp. 32–33.
[220] Exhibit B-1, BC Hydro 2021 IRP, Appendix I, p. 1.

submits the 2021 IRP aligns to each of British Columbia's energy objectives, with the exception of objectives (h) (m) and (n), which it states are not applicable.[221]

Positions of the Parties

BCOAPO and BCSEA-VEVA submit the 2021 IRP fosters or aligns with the applicable British Columbia' energy objectives.[222]

Panel Determination

The Panel agrees with BC Hydro's assessment of the applicable energy objectives, and finds the 2021 IRP supports or is consistent with the applicable objectives.

The Panel notes that on February 15, 2024, the CEA was amended by Order in Council (OIC) No. 60, including amendments to British Columbia's energy objectives. As the amendments occurred after the close of the evidentiary record and the filing of arguments, the Panel's assessment of the 2021 IRP considers the energy objectives prior to OIC No. 60. We note that BC Hydro's next IRP will need to be developed in line with the amended CEA.

4.2 Consistency with Sections 6 and 19 of the *Clean Energy Act*

Section 6 of the CEA requires BC Hydro to achieve Electricity Self-Sufficiency by 2016 and each year thereafter. BC Hydro notes section 19 of the CEA deals with prescribed targets and guidelines in respect of clean or renewable resources of which there currently are none. As such, section 19 of the CEA is not applicable.[223]

BC Hydro notes the Electricity-Self-Sufficiency requirements are determined using the mid-level (or Reference) load forecast, under average water conditions. BC Hydro submits the Updated 2021 IRP is consistent with the Electricity-Self-Sufficiency requirements, noting BC Hydro plans to meet its electricity supply obligations solely from facilities within the province, and that its base resource plan maintains an energy and capacity surplus after planned resources.[224]

Panel Determination

The Panel finds BC Hydro has provided evidence to demonstrate the 2021 IRP is consistent with section 6 of the CEA and accordingly has addressed the self sufficiency requirements. We also agree that section 19 of the CEA is not applicable to the 2021 IRP for the reasons given by BC Hydro – namely there are no prescribed targets or guidelines in relation to clean or renewable resources.

[221] Exhibit B-1, pp. 3-12 to 3-15.
[222] BCOAPO Final Argument, p. 36; BCSEA-VEVA Final Argument, p. 11.
[223] BC Hydro Final Argument, p. 19.
[224] Ibid., p. 53.

4.3 Intent to Pursue Adequate and Cost-Effective DSM

Section 44.1(8) of the UCA requires that the BCUC consider whether the plan shows that the public utility intends to pursue adequate, cost-effective demand-side measures. BC Hydro has not provided the information as part of this IRP,[225] and has referred to the DSM Expenditures Schedule[226] provided in the Fiscal 2023 to Fiscal 2025 RRA to demonstrate the intent. BC Hydro stated in the Signposts Update that it expects to file a revised DSM expenditure schedule for fiscal 2025.[227]

In developing the energy efficiency DSM resource options for the 2021 IRP, BC Hydro's Conservation Potential Review used an avoided cost of $80/MWh (fiscal 2019$) as the economic screen. BC Hydro notes the cost-effectiveness of BC Hydro's DSM initiatives improves under the updated LRMC in the Signposts Update, and the amended DSM Regulation which specifies the BCUC must now evaluate DSM using the utility cost test.[228]

BC Hydro confirms that the new construction, customer solar, and customer batteries with solar options are not included in the F2023-F2025 DSM Expenditure Schedules and cost-effectiveness analysis as defined by the DSM Regulation was not performed for these items. This analysis was only performed on the DSM resources considered as part of the Base Resource Plan.[229]

Positions of the Parties

BC Hydro states that according to section 44.1(8)(c) of the UCA, in making its determination on the filed long-term resource plan the BCUC must consider "whether the plan shows that the public utility intends to pursue adequate, cost-effective demand-side measures," [Emphasis in the original] and submits that section 44.2 approvals (expenditure schedules) more appropriately deal with detailed demonstrations of cost-effectiveness.[230] BC Hydro plans to file further DSM expenditure schedules, which will also provide detailed evidence of adequacy and cost effectiveness.[231]

BCSEA-VEVA, BCOAPO and the CEC[232] agree that BC Hydro has demonstrated intent to pursue adequate and cost-effective DSM, and no interveners take the position that BC Hydro has failed to demonstrate their intent.[233]

AMPC submits that, unlike expenditure schedules under section 44.2 of the UCA, cost-effectiveness is not defined for resource planning under section 44.1. Accordingly, AMPC submits that given the absence of measure level data the BCUC does not have sufficient information to make a determination on cost-effectiveness, adding that BC Hydro should be directed to provide measure level detail of its anticipated spending, including the level of incentives proposed to achieve DSM savings. AMPC is concerned that as BC Hydro's LRMC increases with new

[225] Exhibit B-1, pp. 3-10 to 3-11.
[226] BC Hydro Fiscal 2023 to Fiscal 2025 RRA proceeding, Exhibit B-10.
[227] Exhibit B-39, p. 82.
[228] BC Hydro Final Argument, p. 31, 33; See also Exhibit B-39, p. 368 of pdf; Exhibit B-21, BCUC IR 2.95.1.
[229] Exhibit B-9, BCUC 24.1; Exhibit B-1, Appendix B, p. 16.
[230] BC Hydro Final Argument, p. 32; Exhibit B-21, BCUC 2.94.1.
[231] Ibid., pp. 32–33.
[232] BCSEA-VEVA Final Argument, p. 8; 12; BCOAPO Final Argument, p. 39; CEC Final Argument, p. 44.
[233] CEBC, Capital Power, RCIA, Nuu-Chah-Nulth Tribal Council, Gitanyow Hereditary Chiefs, First Nations Energy and Mining Council, Northriver Midstream, Kanaka Bar Indian Band and Move-Updo not address DSM in their final submissions.

energy acquisitions, using the average cost of the DSM portfolio will allow for increasingly poor DSM measures to be included in the portfolio.[234]

In reply, BC Hydro submits that its methodology is consistent with the requirements of section 44.1 of the UCA and the DSM Regulation. BC Hydro also notes that the BCUC has previously determined[235] that it is appropriate for a utility to include a lower level of detail on DSM at the LTRP stage with more refined details to be provided at the section 44.2 expenditure request stage of regulatory oversight.[236]

Panel Determination

The Panel finds that BC Hydro has demonstrated its intent to pursue adequate, cost-effective demand side measures.

The Panel disagrees with AMPC that cost-effectiveness is only defined for section 44.2 expenditure schedules, and not long-term resource plans. Section 4 of the DSM Regulation expressly applies to both sections 44.1(8)(c) and 44.2(5.1)(d) of the UCA. The Panel also declines AMPC's suggestion to direct BC Hydro to provide measure-level information as part of a long-term resource plan. We consider it to be unnecessary, and note BC Hydro has stated its intention to file an updated DSM Expenditure Schedule in 2025.

However, the Panel notes that not all of the measures outlined in the 2021 IRP were included in the F2023-F2025 DSM Expenditure Schedule. New construction and customer solar were not included in the associated DSM Plan, and these measures have not been demonstrated to be cost-effective at this time.

4.4 The Interests of Current and Future Customers in BC

In building the 2021 IRP, BC Hydro states that it conducted a broad consultation with three consultation streams (Indigenous, public/customer, technical) over two phases.[237] BC Hydro submits that engagement efforts were valuable in supporting the alignment of the 2021 IRP elements with broad values and interests, understanding related interests for future planning and subsequent applications, and checking its planning assumptions and analysis with technical experts.[238]

Through the first phase, BC Hydro sought input on the selection and relative priority of the initial planning objectives for the IRP,[239] while the second phase focused on feedback on the draft IRP.[240] The public/customer stream identified the top planning objectives as: reducing greenhouse gas emissions through clean electricity, keeping costs down for customers and limiting land and water impacts. Indigenous participants identified supporting reconciliation and limiting land and water impacts as the top planning objectives. BC Hydro states that while supporting reconciliation was initially framed as a stand-alone objective, it was viewed as being

[234] AMPC Final Argument, p. 34.
[235] FEI 2017 Long-term Gas Resource Plan Decision and Order G-39-19 dated February 25, 2019, p. 25.
[236] BC Hydro Reply Argument, p. 33.
[237] Exhibit B-39, p. 78.
[238] Exhibit B-1, p. 4-2.
[239] Ibid., p. 4-10.
[240] Ibid., p. 4-5.

inappropriately expressed as an objective that could be traded-off against other objectives when comparing alternatives. Based on this, BC Hydro considered Indigenous interests to be part of each planning objective.[241]

BC Hydro states that through Indigenous consultation, it also heard feedback on a variety of topics that it deemed to be outside of the scope of the 2021 IRP such as revenue sharing, historic redress and Indigenous participation in clean generation and/or transmission projects, including Indigenous-owned utilities.[242] BC Hydro explains that these issues were out of scope and they generally fall into three broad categories: implementation issues; issues not related to integrated resource planning; and Government policy issues.[243]

BC Hydro explains that the 2021 IRP is a guidebook for future decisions and engagement on the 2021 IRP is only the first step in Indigenous engagement on meeting its customers' future electricity needs. BC Hydro states that there will be further opportunities to understand and address the unique circumstances of Indigenous Nations during the implementation of Near-term Actions.[244]

Positions of the Parties

FNEMC submits that, in light of recent legal and policy developments, the BCUC has a statutory obligation to interpret the public interest in a manner that effectively advances reconciliation using the UN Declaration as the framework to do so, while upholding the constitutional recognition and affirmation of Aboriginal and Treaty rights.[245] FNEMC suggests that the BCUC issue guidance to all stakeholders on the content of public interest, including how it will be implementing the UN Declaration and advancing reconciliation.[246] Further FNEMC provides a list of recommendations which includes:[247]

- BC Hydro ought to be more expansive in contemplating means to advance reconciliation when undertaking load forecasting;
- Equity and non-equity social and economic benefits for First Nations should be required for new energy acquisitions; and
- BC Hydro should be directed to work with First Nations to develop a properly funded and resourced long-term First Nations engagement plan for ongoing integrated resource planning.

In response to FNEMC, BC Hydro notes that incorporating the principles of UNDRIP and the Truth and Reconciliation Calls to Action into BC Hydro's business and efforts to advance reconciliation are much broader than the Updated 2021 IRP.[248] Further, BC Hydro argues that it would be premature and beyond the scope of the proceeding for the BCUC to issue guidance on the definition of public interest.[249] Additionally, BC Hydro submits

[241] Ibid., pp. 4-10 to 4-11.
[242] Ibid., p. 4-23.
[243] Exhibit B-9, BCUC IR 1.9.1.
[244] Ibid., BCUC IR 1.6.2.
[245] FNEMC Final Argument, p. 22.
[246] Ibid., p. 23.
[247] Ibid., pp. 2–3.
[248] BC Hydro Reply Argument, p. 9.
[249] Ibid., p. 15.

that the creation of First Nations economic opportunities through procurement, including new energy acquisition or employment, are BC Hydro management decisions that are beyond the jurisdiction of the BCUC.[250]

Zone II RPG submits that future regulatory proceedings should be clearly guided by BC Hydro's overarching planning objective and government mandate to advance these issues. Zone II RPG argues that for future long-term resource plans, BC Hydro should include concrete strategies to advance reconciliation and implement UNDRIP, including economic opportunities that contribute to building Indigenous community capacity. Zone II RPG is supportive of BC Hydro's requirement for Indigenous ownership in new energy projects as a pathway to furthering reconciliation.[251]

Panel Determination

The Panel finds BC Hydro's approach to engagement and consultation to be appropriate and adequate for the purposes of the IRP, and the 2021 IRP considers the interests of current and future customers. We view BC Hydro's phased approach to seek alignment on planning objectives and subsequent review of the draft IRP as reasonable given the nature of the IRP.

BC Hydro, as a Crown corporation, must act honourably in its dealings with Indigenous peoples, which includes the advancement of reconciliation and consideration of Indigenous interests in all aspects of its resource planning. With respect to the BCUC's broader mandate beyond this proceeding, although this Panel is unable to issue guidance regarding the public interest aspects of the implementation of the UN Declaration or advancing reconciliation, the BCUC is undertaking several internal initiatives to advance reconciliation within its own work.

BC Hydro has committed to consider the unique circumstances of individual Indigenous Nations through consultation efforts related to implementing Near-term Actions. While the Panel acknowledges FNEMC and Zone II RPG's assertions regarding the implementation of reconciliation and UNDRIP, we note that the 2021 IRP represents one step in BC Hydro's Indigenous engagement, and will expect evidence in the next IRP update that its reconciliation efforts have advanced further.

4.5 Overall Findings on Section 44.1(8) Considerations

Having reviewed the considerations set out in section 44.1(8) of the UCA in turn above, the Panel finds that each of the considerations supports acceptance of the 2021 IRP as being in the public interest.

5.0 Other Issues Arising

5.1 Collaboration with FortisBC Energy Inc.

In December 2021, the BCUC initiated a process to explore energy scenarios that achieve B.C.'s GHG emission reduction targets and indicate long-term implications for FortisBC Energy Inc. (FEI) and BC Hydro via Joint Scenarios. The BCUC requested that FEI and BC Hydro file load forecasts based on each other's resource plan scenarios. Additionally, the BCUC requested commentary regarding the impacts on supply resources, rates and

[250] Ibid., p. 11.

[251] Zone II RPG Final Argument, p. 6.

GHG emissions to meet the load scenarios.[252] BC Hydro filed evidentiary updates which outlined additional electric load forecasts based on the assumptions in three FEI load scenarios used in FEI's 2022 Long-Term Gas Resource Plan.

While BC Hydro notes the value of the work undertaken regarding the Joint Scenarios, it contends that further work in collaboration with FEI could divert resources from other critical analysis, such as developing large industrial load scenarios in its next IRP.[253]

Positions of the Parties

FortisBC submits that investigating decarbonization strategies that encourage cooperation between utilities could yield new options that offer trade-offs between affordability, resiliency, and environmental stewardship.[254]

MoveUp submits that the Joint Scenarios exercise was a good start that should be developed further, and the BCUC cannot satisfy itself that either BC Hydro's or FEI's plans are in the public interest without consideration of the combined dynamics and impacts of the plans.[255]

Local Government Interveners submit that competing roadmaps for low carbon solutions from the two utilities are not efficient or helpful. Coordinated planning would provide a clearer pathway toward decarbonization and local policymaking. To the extent coordinated energy planning is constrained by the BCUC's jurisdiction, Local Government Interveners ask the BCUC to seek legislative amendments from the Province.[256]

NTC recommends the next IRP include a detailed description of how BC Hydro, FEI, and FortisBC Inc.'s plans are being coordinated and synchronized, particularly with respect to the reduction of GHGs.[257]

The CEC recommends that the BCUC direct FEI and BC Hydro to jointly collaborate, with intervener groups, to find an energy transition scenario that both utilities can agree upon and deliver in the public interest.[258]

In reply, BC Hydro submits that in their respective long-term resource plans, BC Hydro and FEI should be able to demonstrate an understanding of the Government of B.C.'s GHG reduction targets, potential pathways to meeting these targets, and the potential roles of BC Hydro and FEI and associated impacts on the demand for electricity and gas. However, while there may be advantages to BC Hydro and FEI filing their next LTRPs in a common timeframe, the overriding factor that determines timing should always be each utility's respective needs to file a plan for their own long-term planning purposes. Additionally, BC Hydro notes the Government of B.C. sets energy policy, and provides support for both FEI and BC Hydro encouraging energy consumers in B.C. to switch from higher carbon fuels to lower carbon fuels through the Greenhouse Gas Reduction (Clean Energy)

[252] https://docs.bcuc.com/documents/arguments/2022/doc_65400_2022-01-21-fei-bch-energy-scenarios-request.pdf
[253] Exhibit B-43, BCUC IR 4.173.4.
[254] FortisBC Final Argument, p. 3.
[255] MoveUP Final Argument, p. 4.
[256] LGI Final Argument, pp. 3, 5.
[257] NTC Final Argument, p. 3.
[258] CEC Final Argument, p. 14.

Regulation and section 18 of the CEA. Finally, undertaking a review of the interactive trajectories of FEI and BC Hydro during the energy transition will not reduce its inherent uncertainty.[259]

Panel Discussion

While the Panel views collaboration between the major utilities in BC as important, we refrain from making any determinations on this matter in this Decision. To facilitate the levels of deep planning collaboration that some interveners are seeking, considerable effort and resources would be required for BC Hydro and FEI to modify their models, assumptions and other inputs into the respective resource plans to enable greater alignment. Regardless, the BCUC cannot force the utilities to agree upon any given view of the future, and we do not wish to be overly prescriptive on provincial planning issues that may be more appropriately in the domain of the government. However, we strongly encourage BC Hydro and FEI to enhance communication on resource planning issues, so that at a minimum, there is greater visibility on the approach and perspective of the other utility. For example, there may be merit in the utilities identifying a set of key assumptions which are common to the development of each plan, and providing information on those assumptions in their next filing with the BCUC. We note several assumptions that would likely be relevant for both utilities' resource plans, for instance:

- Customer growth rates by region;
- Cross-price elasticity;
- Volume of fuel switching;
- Capture rates of new customers for major end-uses (e.g., space and water heating);
- Hydrogen production or other low carbon gas facilities located within BC; and
- Whether Provincial GHG targets are assumed to be met in certain scenarios, and the relative contribution to emissions reductions in BC by gas and electric utilities.

We are not expecting the utilities would necessarily agree on the values of the assumptions themselves, rather, they could provide information that will facilitate easier comparison between the approaches employed by each entity.

Finally, we observe that BC Hydro and FEI are not the only utilities in the province, and there may be further areas for utilities to co-ordinate and collectively enhance the resource planning process. More generally, we recommend that the BCUC consider opportunities within its jurisdiction for fostering greater coherence on matters related to long-term planning between BC's public utilities, and to enable the cost-effective delivery of safe and reliable service while reducing GHG emissions.

5.2 Territorial Resource Access Fee

Gitanyow Hereditary Chiefs and KBIB propose the implementation of a Territorial Resource Access Fee (TRAF) and advocate for a streamlined interconnection process for new electrical loads connected by First Nations on

[259] BC Hydro Reply Argument, pp. 7–8.

traditional territories. This proposal aims to facilitate sustainable industrial development in British Columbia and support Indigenous economic sovereignty.[260]

BC Hydro notes that the IRP is not a capital plan but, separate to this proceeding, commits to further engagement with Gitanyow Hereditary Chiefs and KBIB.[261]

Panel Discussion

While the suggestion of a TRAF and interconnection processes are not issues that affect the Panel's determination on whether the IRP is in the public interest, we encourage BC Hydro to provide an update on any progress in a future BCUC proceeding as appropriate.

5.3 Intermittent Renewable Generation

FortisBC suggests that a key area of study for the next IRP should be BC Hydro's plans for the challenges associated with integrating greater amounts of generation from intermittent renewable sources. FortisBC argues that this will provide an understanding of the tipping point of integrating intermittent resources before requiring a lumpy transmission investment and/or when the existing system capacity cannot meet the system ramping requirements.[262]

Panel Discussion

As the proportion of intermittent generation in the supply mix increases, so do the challenges of ensuring a stable and reliable supply of power to customers. The Panel sees value in exploring these challenges, both at a system and regional level, further in the next IRP. This may include a quantitative and/or qualitative analysis of the point at which transmission and/or other investments would be required in association with planned future resource acquisitions to ensure BC Hydro's ramping, frequency, and other reliability needs will continue to be met over the planning horizon.

6.0 Is the 2021 IRP in the Public Interest?

Positions of the Parties

BCSEA-VEVA, Local Government Interveners, MoveUP and NTC support acceptance of the 2021 IRP.[263] As noted elsewhere in this decision, AMPC and Capital Power submit the BCUC should reject parts of the 2021 IRP.[264]

Panel Determination

Pursuant to section 44.1(6) of the UCA, the Panel finds that carrying out the Updated 2021 IRP is in the public interest, and we accept the Updated 2021 IRP.

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[260] Gitanyow Hereditary Chiefs Final Argument, p. 5; KBIB Final Argument, p. 3.
[261] BC Hydro Reply Argument, pp. 17-19.
[262] FortisBC Final Argument, p. 12.
[263] BCSEA-VEVA Final Argument, pp. 1–2; LGI Final Argument, p. 5; MoveUP Final Argument, p. 4; NTC Final Argument, p. 2.
[264] AMPC Final Argument, p. 2; Capital Power Final Argument, p. 2.

In making this determination, we conclude BC Hydro has provided information to address each of the filing requirements outlined in section 44.1(2) of the UCA, and that the respective components provide a reasonable basis for outlining BC Hydro's Near-term Actions and a range of long-term scenarios that could potentially unfold. Additionally, acceptance of the plan is supported by each of the considerations outlined in section 44.1(8) of the UCA. Finally, we refer to the purpose of BC Hydro's IRP as outlined in Section 1.3 of this Decision. On this basis, we observe that BC Hydro has presented a flexible plan that will allow the utility to adjust its decisions regarding the implementation of new demand and supply side resources during a period of significant change and uncertainty. As discussed below in the final section of the decision, the timing and form of BC Hydro's next IRP will be critical for further enabling the flexibility that has been presented in this plan.

7.0 The Next IRP Filing

BC Hydro submits that this time of energy transition requires a long-term resource plan to focus more on being ready for the potential pace of change. BC Hydro is proposing a new "living" long-term resource planning cycle, with more regular filings, beginning with its next IRP which BC Hydro intends to file 18 months after the BCUC's decision on the 2021 IRP. To accommodate this faster paced approach, BC Hydro plans to make targeted rather than comprehensive updates to load forecast, existing, committed and planned resources forecasts, resource options database and other resource planning inputs.[265]

To achieve the benefits of an 18-month cycle, BC Hydro submits the process to review and reach a decision on each IRP update would need to be completed in less than a year.[266] BC Hydro proposes several steps to enable more timely reviews, including: BC Hydro hosting workshops; BCUC establishing an issues list; and one round of IRs followed by arguments.[267]

While BC Hydro does not believe that an update to the BCUC's Resource Planning Guidelines (Guidelines) is required to facilitate a living long-term resource planning cycle, BC Hydro submits that the BCUC should initiate a process to revise the Guidelines, noting parts of the Guidelines could be read as incompatible with the living resource plan process. Further, the Guidelines were issued in 2003 and could benefit from refreshed expectations about what plans should include and consider, and BC Hydro notes FEI has also identified the need for more frequent resource plans and a review of the Guidelines.[268]

Positions of the Parties

Most interveners that filed arguments expressed general support for BC Hydro's 'living IRP' proposal.[269] FortisBC submits the 'living IRP' proposal should not set precedent for other utilities.[270]

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[265] Exhibit B-39, pp. 87–88.

[266] Exhibit B-44, BCSEA-VEVA IR 4.31.5.

[267] BC Hydro Final Argument, p. 66.

[268] Exhibit B-43, BCUC IR 4.173.11.

[269] MoveUP Final Argument, p. 3; LGI Final Argument, p. 4; BCSEA-VEVA pp. 14-15; Capital Power Final Argument, pp. 8-9; NTC Final Argument, p. 30; ZoneII RPG, Final Argument p. 10; FNEMC pp. 1 – 2; AMPC Final Argument, p. 32; CEC Final Argument p. 7; CAPP Final Argument, p. 2.

[270] FortisBC Final Argument, pp. 14–15.

RCIA disagrees with the 'living IRP' proposal, and proposes that forecasts should be amended in CPCNs and NITS applications to include up-to-date actuals, which would be more regulatorily efficient and sufficiently flexible. Further, IRP updates can be triggered by major events as shown by the Signposts Update.[271] MoveUP submits the 'living IRP' process should be built into a revised framework to replace the Guidelines.[272]

Regarding BC Hydro's suggestion for future regulatory process, some interveners note that future IRPs should include filing of intervener evidence.[273] Capital Power submits regulatory efficiency would be enhanced if BC Hydro adopts a more open approach to providing interveners access to information that is reasonably necessary for interveners to test its IRP, citing examples from this proceeding where the BCUC had to rule on the provision of responses to IRs and confidential information.[274] The CEC submits more collaboration with interveners ahead of the IRP filing would reduce the need for IRs.[275]

In reply, BC Hydro expects that the process to update the Guidelines may take some time and accordingly, submits that the BCUC should provide specific direction on its expectations with regard to BC Hydro's next IRP in its decision. If the BCUC updates its Guidelines, BC Hydro could reflect any revised guidelines in its subsequent IRP, anticipated to be filed in 2027/28.[276]

Panel Determination

Pursuant to section 44.1(2) of the UCA, the Panel determines that BC Hydro file its next long-term resource plan on or before October 31, 2025.

We strongly support BC Hydro's proposal for more frequent and targeted updates to future IRPs, and consider such an approach to be appropriate in the context of a period of increasing change and uncertainty, and enabling BC Hydro greater flexibility to respond to changes.

In determining a filing date for the next IRP, the Panel is cognisant that significant changes in policy or other exogenous factors in the interim period may result in significant and unforeseeable changes which could substantially alter BC Hydro's planning assumptions or Near-term Actions. In the alternate, a period of relative stability may result in few notable changes to BC Hydro's plans. Accordingly, BC Hydro may request an amendment to the filing date where circumstances dictate that commencing the review of the next IRP in October 2025 would not be effective or efficient.

In response to parties' submissions regarding future IRP reviews, it is incumbent upon the BCUC to enable regulatory efficiency in future IRP reviews, however it is not appropriate for this Panel to make determinations regarding the regulatory process for BC Hydro's next IRP, which will be reviewed by another panel. We acknowledge the helpful suggestions in this proceeding regarding future IRPs, and encourage BC Hydro in its next IRP to propose a regulatory process, or multiple options, that would enable a timely BCUC determination while considering fair process and intervener perspectives. The Panel also observes that all parties in the

[271] RCIA Final Argument, pp. 15-17.
[272] MoveUP Final Argument, p. 3.
[273] BCSEA-VEVA Final Argument, p. 18; RCIA Final Argument, p. 24; AMPC Final Argument, p. 32.
[274] Capital Power Final Argument, p. 14.
[275] CEC Final Argument, p. 9.
[276] BC Hydro Reply Argument, pp. 6–7.

proceeding can contribute towards a more efficient process. For instance, we note certain interveners submitted excessive recommendations to the BCUC or information requests to BC Hydro, many of which were at a level of detail not appropriate for a long-term resource plan. Additionally, there was an unnecessary oral hearing day scheduled due to the initial requests and subsequent withdrawal of interest in cross-examining intervener evidence, resulting in additional costs and inconvenience to other parties.

More broadly, the Panel agrees with BC Hydro that a review of the Guidelines is warranted, and we recommend the BCUC undertake such a review. A review should also consider any guidance that would enable more streamlined review processes of long-term resource plans, including the implementation of applicable efficiencies from the BCUC's Regulatory Efficiency Initiative.[277]

DATED at the City of Vancouver, in the Province of British Columbia, this 6th day of March 2024.

Original signed by:

M. Jaccard
Panel Chair / Commissioner

Original signed by:

C. M. Brewer
Commissioner

Original signed by:

T. A. Loski
Commissioner

[277] https://docs.bcuc.com/documents/other/2023/doc_75555_bcuc-regulatory-efficiency-initiative-final.pdf

bcuc
British Columbia
Utilities Commission

Suite 410, 900 Howe Street
Vancouver, BC Canada V6Z 2N3
bcuc.com

P: 604.660.4700
TF: 1.800.663.1385
F: 604.660.1102

ORDER NUMBER
G-58-24

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

and

British Columbia Hydro and Power Authority
2021 Integrated Resource Plan

BEFORE:
M. Jaccard, Panel Chair
C. M. Brewer, Commissioner
T. A. Loski, Commissioner

on March 6, 2024

ORDER

WHEREAS:

A. On December 21, 2021, British Columbia Hydro and Power Authority (BC Hydro) filed its 2021 Integrated Resource Plan (IRP) Application (Application), pursuant to section 44.1 of the *Utilities Commission Act* (UCA) and in accordance with Order G-28-21 dated January 27, 2021;

B. By Orders G-15-22, G-71-22, G-118-22, G-129-22, G-151-22, G-227-22, G-250-22, G-333-22, G-75-23, G-116-23, G-129-23, G-200-23, G-220-23, G-260-23, and G-291-23, the BCUC established and amended regulatory timetables for the review of the Application. The regulatory process included: two rounds of information requests (IRs); a procedural conference; filing of intervener evidence, and IRs on same: BC Hydro rebuttal evidence, and IRs on same; updates to intervener evidence; an oral hearing regarding BC Hydro's load forecast scenarios: a workshop regarding New Energy Acquisitions; and written final argument from BC Hydro and interveners and reply argument from BC Hydro;

C. On June 15, 2023, BC Hydro filed the Signposts Update and Updated 2021 IRP;

D. BC Hydro seeks the following approvals:

   1. Acceptance of the Updated 2021 IRP pursuant to section 44.1(6) of the UCA;
   2. The Contingency Resource Plans and high load scenarios of BC Hydro's Updated 2021 IRP be approved for inclusion in BC Hydro's Network Integration Transmission Services (NITS) update under BC Hydro's Open Access Transmission Tariff (OATT);
   3. Acceptance of BC Hydro's proposal to file long-term resource plans approximately 18 months after the BCUC decision on the prior plan; and

E. The BCUC has reviewed the evidence and arguments filed in this proceeding, and makes the following determinations.

NOW THEREFORE for the reasons outlined in the Decision issued concurrently with this order, the BCUC orders as follows:

1. Pursuant to section 44.1(6) of the UCA, BC Hydro's Updated 2021 IRP is accepted.

2. Pursuant to section 44.1(9) of the UCA, the following matters are conclusively determined for BC Hydro for the purposes of any future hearing or proceeding to be conducted by the BCUC under the UCA:

    a. That there is a need for BC Hydro to acquire approximately 3,000 GWh of clean or renewable energy from greenfield generation facilities in the province for delivery to BC Hydro as early as fiscal 2029; and

    b. That there is a need for BC Hydro to acquire approximately 700 GWh of clean or renewable energy from existing generation facilities in the province for delivery to BC Hydro prior to fiscal 2029.

3. BC Hydro is approved to include the Contingency Resource Plans and high load scenarios of BC Hydro's Updated 2021 IRP in BC Hydro's NITS update under the OATT.

4. BC Hydro is directed to file its next long-term resource plan with the BCUC no later than October 31, 2025, unless otherwise ordered by the BCUC.

DATED at the City of Vancouver, in the Province of British Columbia, this 6th day of March 2024.

BY ORDER

Original signed by:

M. Jaccard
Commissioner

British Columbia Hydro and Power Authority
2021 Integrated Resource Plan

List of Interveners

The table below outlines the parties who registered as interveners in the proceeding:

Association of Major Power Customers (AMPC)	FortisBC Energy Inc. and FortisBC Inc. (FortisBC)
BluEarth Renewables	BC First Nations Energy and Mining Council (FNEMC)
BC Community Solar Coalition	Gitanyow Hereditary Chiefs
British Columbia Old Age Pensioners' Organization et al. (BCOAPO)	Kanaka Bar Indian Band (KBIB)
BC Solar and Storage Industries Association	Kitselas Geothermal Inc.
BC Sustainable Energy Association and Vancouver Electric Vehicles Association (BCSEA-VEVA)	Lulu Island Energy Company Ltd. (LIECL)
Canadian Association of Petroleum Producers (CAPP)	Metro Vancouver Regional District (MetroVan)
Canadian Manufactures and Exporters	Movement of United Professionals (MoveUP)
Capital Power Corporation (Capital Power)	Net Metering Ratepayers Group
City of Richmond (CoR)	NorthRiver Midstream Inc. (NRM)
City of Surrey (Surrey)	Nuu-chah-nulth Tribal Council (NTC)
City of Vancouver (CoV)	Peters First Nation
Clean Energy BC (CEBC)	Residential Consumer Intervener Association (RCIA)
Commercial Energy Consumers Association of British Columbia (the CEC)	Transalta Corporation
Conifex	ZoneII Ratepayers Group (ZoneII RPG)
District of Saanich (Saanich)	ZoneIB Ratepayers Group
District of North Vancouver (District-NV)	

British Columbia's Energy Objectives

Section 44.1(8)(a) of the UCA specifies that in determining whether to accept a long-term resource plan, the BCUC must consider the applicable of British Columbia's energy objectives. Pursuant to section 2 of the *Clean Energy Act* (prior to OIC No. 60 dated February 15, 2024), the following comprise British Columbia's energy objectives:

(a) to achieve electricity self-sufficiency;

(b) to take demand-side measures and to conserve energy, including the objective of the authority reducing its expected increase in demand for electricity by the year 2020 by at least 66%;

(c) to generate at least 93% of the electricity in British Columbia from clean or renewable resources and to build the infrastructure necessary to transmit that electricity;

(d) to use and foster the development in British Columbia of innovative technologies that support energy conservation and efficiency and the use of clean or renewable resources;

(e) to ensure the authority's ratepayers receive the benefits of the heritage assets and to ensure the benefits of the heritage contract under the *BC Hydro Public Power Legacy and Heritage Contract Act* continue to accrue to the authority's ratepayers;

(f) to ensure the authority's rates remain among the most competitive of rates charged by public utilities in North America;

(g) to reduce BC greenhouse gas emissions

(i) by 2012 and for each subsequent calendar year to at least 6% less than the level of those emissions in 2007,
(ii) by 2016 and for each subsequent calendar year to at least 18% less than the level of those emissions in 2007,
(iii) by 2020 and for each subsequent calendar year to at least 33% less than the level of those emissions in 2007,
(iv) by 2050 and for each subsequent calendar year to at least 80% less than the level of those emissions in 2007, and
(v) by such other amounts as determined under the *Climate Change Accountability Act*;

(h) to encourage the switching from one kind of energy source or use to another that decreases greenhouse gas emissions in British Columbia;

(i) to encourage communities to reduce greenhouse gas emissions and use energy efficiently;

(j) to reduce waste by encouraging the use of waste heat, biogas and biomass;

(k) to encourage economic development and the creation and retention of jobs;

(l) to foster the development of first nation and rural communities through the use and development of clean or renewable resources;

(m) to maximize the value, including the incremental value of the resources being clean or renewable resources, of British Columbia's generation and transmission assets for the benefit of British Columbia;

(n) to be a net exporter of electricity from clean or renewable resources with the intention of benefiting all British Columbians and reducing greenhouse gas emissions in regions in which British Columbia trades electricity while protecting the interests of persons who receive or may receive service in British Columbia;

(o) to achieve British Columbia's energy objectives without the use of nuclear power.

(p) [Repealed 2019-24-2.]

British Columbia Hydro and Power Authority
2021 Integrated Resource Plan

Glossary and Abbreviations

GLOSSARY/ABBREVIATIONS	DESCRIPTION
2021 IRP	2021 Integrated Resource Plan
AMPC	Association of Major Power Customers
Application	2021 Integrated Resource Plan Application
BC Hydro	British Columbia Hydro and Power Authority
BCOAPO	British Columbia Old Age Pensioners' Organization et al.
BCSEA-VEVA	BC Sustainable Energy Association and Vancouver Electric Vehicles Association
BCUC	British Columbia Utilities Commission
Capital Power	Capital Power Corporation
CAPP	Canadian Association of Petroleum Producers
CCS	Carbon Capture and Storage
CEA	*Clean Energy Act*
CEBC	Clean Energy BC
CoR	City of Richmond
CoV	City of Vancouver
CPCN	Certificate of Public Convenience and Necessity
CRPs	Contingency Resource Plans
District-NV	District of North Vancouver
DSM	Deman-Side Measures
ELCC	Effective Load Carrying Capability
EPA	Electricity Purchase Agreement
FEI	FortisBC Energy Inc.

GLOSSARY/ABBREVIATIONS	DESCRIPTION
FNEMC	BC First Nations Energy and Mining Council
FortisBC	FortisBC Energy Inc. and FortisBC Inc.
GGRR	Greenhouse Gas Reduction Regulation
GHG	Greenhouse Gas
Guidelines	Resource Planning Guidelines
GWH	Gigawatt hour
IPP	Independent Power Producer
IRP	Integrated Resource Plan
IRs	Information Requests
KBIB	Kanaka Bar Indian Band
LGI	Local Government Interveners
LIECL	Lulu Island Energy Company Ltd.
LNG	Liquefied Natural Gas
LOLE	Loss of Load Expectation
LRMC	Long-Run Marginal Costs
LTERP	Long-Term Electric Resource Plan
LTRP	Long-Term Resource Plan
MetroVan	Metro Vancouver Regional District
Mid-C	Mid-Columbia
MoveUP	Movement of United Professionals
MW	Megawatt
Near-term Actions	The actions that BC Hydro is taking to implement the Base Resource Plan and prepare for contingency scenarios, during the period between the submission of the 2021 IRP and the submission of the next IRP
NITS	Network Integration Transmission Services

GLOSSARY/ABBREVIATIONS	DESCRIPTION
NPVs	Net Present Values
NRM	NorthRiver Midstream Inc.
NTC	Nuu-chah-nulth Tribal Council
OATT	Open Access Transmission Tariff
OIC	Order in Council
RCIA	Residential Consumer Intervener Association
RODAT	Resource Options Database
RRA	Revenue Requirements Application
Saanich	District of Saanich
Surrey	City of Surrey
the CEC	Commercial Energy Consumers Association of British Columbia
TOU	Time-of-Use
TRAF	Territorial Resource Access Fee
UCA	*Utilities Commission Act*
UNDRIP	United Nations Declaration on the Rights of Indigenous People
Updated 2021 IRP	Updated 2021 Integrated Resource Plan
WACC	Weighted Average Cost of Capital
ZoneII RPG	ZoneII Ratepayers Group

British Columbia Hydro and Power Authority
2021 Integrated Resource Plan

EXHIBIT LIST

Exhibit No.	Description
COMMISSION DOCUMENTS	
A-1	Letter dated December 23, 2021 – Appointing the Panel for the review of the BC Hydro 2021 Integrated Resource Plan
A-2	Letter dated January 21, 2022 – BCUC Order G-15-22 with Regulatory Timetable and Public Notice
A-3	Letter dated March 11, 2022 – BCUC Order G-71-22 Amending the Regulatory Timetable
A-4	Letter dated March 31, 2022 – BCUC providing Guidance for Interveners
A-5	Letter dated April 26, 2022 – BCUC Information Request No. 1 to BC Hydro
A-6	**CONFIDENTIAL –** Letter dated April 26, 2022 – BCUC Confidential Information Request No. 1 to BC Hydro
A-7	Letter dated May 3, 2022 – BCUC Order G-118-22 Amending the Regulatory Timetable
A-8	Letter dated May 13, 2022 – BCUC Order G-129-22 Amending the Regulatory Timetable
A-9	Letter dated June 3, 2022 – BCUC Order G-151-22 Amending the Regulatory Timetable
A-10	Letter dated July 14, 2022 – BCUC providing Procedural Conference Information
A-11	Letter dated August 12, 2022 – BCUC Order G-227-22 with Regulatory Timetable and Reasons for Decision
A-12	Letter dated August 19, 2022 – BCUC providing further information regarding Unanswered Information Requests
A-13	Letter dated September 1, 2022 – BCUC request to BC Hydro regarding Unanswered Information Requests
A-14	Letter dated September 9, 2022 – BCUC Order G-250-22 with further Regulatory Timetable
A-15	Letter dated September 13, 2022 – BCUC Order G-252-22 with Reasons for Decision regarding data confidentiality
A-16	Letter dated October 3, 2022 – BCUC response to BC Hydro regarding confidential information requests

A-17	Letter dated October 4, 2022 – BCUC response to Capital Power's request for access to Confidential BC Hydro Information Request responses
A-18	Letter dated October 7, 2022 – BCUC Order G-280-22 with Reasons regarding Information Request confidentiality
A-19	Letter dated October 13, 2022 – BCUC Information Request No. 2 to BC Hydro
A-20	Letter dated November 4, 2022 – BCUC Order G-316-22 amending the regulatory timetable
A-21	Letter dated November 14, 2022 – BCUC providing guidance for filing intervener evidence
A-22	Letter dated November 23, 2022 – BCUC Order G-333-22 with Reasons for Decision and the amended regulatory timetable
A-23	Letter dated February 9, 2023 – BCUC Information Request No. 1 to CEBC on Intervener Evidence
A-24	Letter dated February 9, 2023 – BCUC Information Request No. 1 to RCIA on Intervener Evidence
A-25	Letter dated February 9, 2023 – BCUC Information Request No. 1 to AMPC on Intervener Evidence
A-26	Letter dated February 9, 2023 – BCUC Information Request No. 1 to Capital Power on Intervener Evidence
A-27	Letter dated February 9, 2023 – BCUC Information Request No. 1 to CEC on Intervener Evidence
A-28	Letter dated March 17, 2023 – BCUC request to BC Hydro for further Information on Signposts Update
A-29	Letter dated March 29, 2023 – BCUC Information Request No. 1 to BC Hydro on Rebuttal Evidence
A-30	Letter dated March 30, 2023 – BCUC response to AMPC's request to suspend information request deadline
A-31	Letter dated April 4, 2023 – BCUC Order G-75-23 with Reasons for Decision and regulatory timetable
A-32	Letter dated April 19, 2023 – BCUC response to BC Hydro's extension request to file responses to Information Requests on section four of Exhibit B-29 and Exhibit B-28
A-33	Letter dated May 17, 2023 – BCUC Order G-116-23 amending the regulatory timetable to include placeholder Oral Hearing dates
A-34	Letter dated June 2, 2023 – BCUC Order G-129-23 amending the regulatory timetable

A-35	Letter dated June 21, 2023 – BCUC Order G-157-23 with Reasons for Decision
A-36	Letter dated July 13, 2023 - BCUC Information Request No. 3 to BC Hydro on Signpost Update
A-37	Letter dated July 18, 2023 – BCUC request for submissions on intervener evidence
A-38	Letter dated July 25, 2023 - BCUC request for submission and Order G-200-23 amending the regulatory timetable
A-39	Letter dated July 26, 2023 – BCUC clarification regarding Order G-200-23
A-40	Letter dated August 11, 2023 – BCUC requesting intervener availability for upcoming workshop
A-41	Letter dated August 16, 2023 – BCUC response to Capital Power request for sur-reply submissions
A-42	Letter dated August 18, 2023 – BCUC Order G-220-23 with an amended regulatory timetable with Reasons for Decision
A-43	Letter dated August 30, 2023 – BCUC providing Oral Hearing Information
A-44	Letter dated August 31, 2023 – BCUC response to MVRD extension request
A-45	Letter dated August 31, 2023 – BCUC Information Request No. 2 to CEC on updated intervener evidence
A-46	Letter dated August 31, 2023 – BCUC request parties to submit Interveners to be cross examined
A-47	Letter dated September 7, 2023 – BCUC response to BC Hydro extension request to file Reply Argument and Information Requests response
A-48	Letter dated September 12, 2023 – BCUC Order G-239-23 with Reasons for Decision
A-49	Letter dated September 19, 2023 – BCUC Panel Amendment and Proceeding Adjournment
A-50	Letter dated October 3, 2023 – BCUC Panel Amendment
A-51	Letter dated October 3, 2023 – BCUC Order G-260-23 with Reasons for Decision and the regulatory timetable
A-52	Letter dated October 6, 2023 – BCUC response to BCSEA-VEVA regarding Cross Examination on Intervener Evidence
A-53	Letter dated October 13, 2023 – BCUC request for submissions on further regulatory process
A-54	Letter dated October 26, 2023 – BCUC Order G-291-23 and regulatory timetable with Reasons for Decision

COMMISSION STAFF DOCUMENTS

A2-1	Letter dated February 15, 2022 – BCUC staff submitting BC Hydro Fiscal 2023 to Fiscal 2025 Revenue Requirements Program Application Appendices U & V - F2022 to F2026 Electrification Plan & Low Carbon Electrification Program
A2-2	Letter dated April 22, 2022 – BCUC staff submitting BC Hydro Application to Amend Net Metering Service under Rate Schedule 1289, Compliance with BCUC Order G-168-20 - Net Metering Report No. 5
A2-3	Letter dated October 12, 2022 – BCUC staff submitting BC Hydro's Annual Reporting of Reliability Indices
A2-4	Letter dated December 7, 2022 – BCUC staff submitting FEI and BCH Energy Scenarios – FEI Stage One Submission – Modeling Results and FEI Stage Two Submission
A2-5	Letter dated October 12, 2023 – BCUC staff submitting Witness Aid at the Oral Hearing

APPLICANT DOCUMENTS

B-1	**BRITISH COLUMBIA HYDRO AND POWER AUTHORITY (BC HYDRO) –** 2021 Integrated Resource Plan dated December 21, 2021
B-1-1	**CONFIDENTIAL –** Letter dated December 21, 2021 - BC Hydro Confidential 2021 Integrated Resource Plan
B-1-2	Letter dated July 21, 2022 – BC Hydro submitting Application Errata No. 1
B-1-3	**CONFIDENTIAL** – Letter dated July 21, 2022 - BC Hydro submitting Application Confidential Errata No. 1
B-1-4	Letter dated December 8, 2022 – BC Hydro submitting Application Errata No. 2
B-1-5	Letter dated September 1, 2022 – BC Hydro submitting Application Errata No. 3
B-1-6	Letter dated September 13, 2022 – BC Hydro submitting Application Errata No. 4
B-1-7	Letter dated November 16, 2022 -– BC Hydro submitting Application Errata No. 5
B-2	Letter dated December 21, 2021 – BC Hydro submitting compliance with Order G-15-22 Directives
B-3	Letter dated February 23, 2022 – BC Hydro submitting an independent expert report by Dr. Ahmad Faruqui, Ph. D. entitled "Capacity Savings Estimates in BC Hydro's 2021 IRP: An Independent Review."
B-4	Letter dated March 9, 2022 – BC Hydro submitting request to revise the Regulatory Timetable

B-5	Letter dated March 31, 2022 – BC Hydro submitting evidence of an independent expert report by Mr. Paul J. Hibbard, Analysis Group Inc.
B-6	Letter dated June 1, 2022 – BC Hydro submitting extension request to file Information Request responses
B-7	Letter dated June 13, 2022 – BC Hydro submitting compliance with Order G-151-22 Directive 1
B-8	Letter dated June 15, 2022 – BC Hydro submitting Stage 1 Load Forecast Results
B-9	Letter dated July 21, 2022 – BC Hydro submitting response to BCUC Information Request No. 1
B-9-1	**CONFIDENTIAL –** Letter dated July 21, 2022 – BC Hydro submitting Confidential response to BCUC Information Request No. 1
B-9-1-1	**CONFIDENTIAL –**Letter dated December 8, 2022 – BC Hydro submitting revised Confidential response to BCUC Information Request No. 1.48.10 and 1.62.13 Attachment 1
B-9-2	Letter dated August 12, 2022 – BC Hydro submitting remaining responses to BCUC Information Request No. 1
B-9-3	**PUBLIC** - Letter dated December 8, 2022 – BC Hydro submitting revised public responses to BCUC Information Request No. 1.48.10 and 1.62.13-Redacted
B-10	Letter dated July 21, 2022 – BC Hydro submitting responses to Intervener Information Request No. 1
B-10-1	**CONFIDENTIAL –** Letter dated July 21, 2022 – BC Hydro submitting Confidential responses to Intervener Information Request No. 1
B-10-1-1	**CONFIDENTIAL –** Letter dated September 29, 2022 – BC Hydro submitting supplemental confidential responses to Intervener Information Request No. 1
B-10-2	Letter dated August 12, 2022 – BC Hydro submitting remaining responses to Interveners IR No. 1
B-10-2-1	Letter dated October 4, 2022 – BC Hydro submitting revised responses to CEC Information Request No. 1
B-10-3	**PUBLIC –** Letter dated September 29, 2022 – BC Hydro submitting supplemental public responses to Intervener Information Request No. 1
B-10-4	**PUBLIC –** Letter dated December 8, 2022 – BC Hydro submitting revised supplemental public responses to AMPC Information Request No. 1.13.1 Attachment 1
B-11	**CONFIDENTIAL –** Letter dated July 21, 2022 – BC Hydro submitting Confidential responses to BCUC Confidential Information Request No. 1

B-12	**CONFIDENTIAL –** Letter dated July 21, 2022 – BC Hydro submitting Confidential responses to RCIA Confidential Information Request No. 1
B-13	Letter dated July 21, 2022 – BC Hydro submitting Public responses to RCIA Confidential Information Request No. 1
B-14	Letter dated August 12, 2022 – BC Hydro Stage 2 submission
B-15	Letter dated August 17, 2022 – BC Hydro submitting response to Intervener submissions on unanswered Information Requests
B-16	Letter dated August 25, 2022 – BC Hydro submitting reply to Intervener submissions on unanswered Information Requests
B-17	**PUBLIC** - Letter dated September 8, 2022 – BC Hydro submitting redacted submission on confidentiality of information provided by Hitachi and ICE Data LP
B-17-1	**CONFIDENTIAL** - Letter dated September 8, 2022 – BC Hydro submitting confidential submission on confidentiality of information provided by Hitachi and ICE Data LP
B-18	**PUBLIC** - Letter dated September 20, 2022 – BC Hydro submitting confirmation of submission provided to BCUC on confidentiality of information provided by Hitachi and ICE Data LP
B-18-1	**CONFIDENTIAL** - Letter dated September 20, 2022 – BC Hydro submitting confirmation of confidential submission provided to BCUC on confidentiality of information provided by Hitachi and ICE Data LP
B-19	Letter dated September 29, 2022 – BC Hydro submitting additional information for Stage 2 Energy Scenarios
B-20	Letter dated October 6, 2022 – BC Hydro submitting comments on confidential Information Requests
B-21	**PUBLIC** - Letter dated December 8, 2022 – BC Hydro submitting public responses to BCUC Information Request No. 2
B-21-1	**CONFIDENTIAL -** Letter dated December 8, 2022 – BC Hydro submitting confidential responses to BCUC Information Request No. 2
B-22	**PUBLIC** - Letter dated December 8, 2022 – BC Hydro submitting public responses to Interveners Information Request No. 2
B-22-1	**CONFIDENTIAL** - Letter dated December 8, 2022 – BC Hydro submitting confidential responses to Interveners Information Request No. 2
B-23	**PUBLIC** - Letter dated December 8, 2022 – BC Hydro submitting redacted confidential responses to Zone II RPG Confidential Information Request No. 2

B-23-1	**CONFIDENTIAL** - Letter dated December 8, 2022 – BC Hydro submitting responses to Zone II RPG Confidential Information Request No. 2
B-24	Letter dated February 9, 2023 – BC Hydro submitting Evidence Information Request No. 1 to AMPC
B-25	Letter dated February 9, 2023 – BC Hydro submitting Evidence Information Request No. 1 to Capital Power
B-26	Letter dated February 9, 2023 – BC Hydro submitting Evidence Information Request No. 1 to CEBC
B-27	Letter dated February 9, 2023 – BC Hydro submitting Evidence Information Request No. 1 to RCIA
B-28	Letter dated March 9, 2023 – BC Hydro submitting Dr. Kathleen Spees, Ph. D. Expert Report as evidence
B-29	Letter dated March 9, 2023 – BC Hydro submitting rebuttal evidence
B-30	Letter dated March 16, 2023 – BC Hydro submitting comment on Oral Hearing Scope
B-31	Letter dated March 23, 2023 – BC Hydro submitting further Information on Signposts Update
B-32	Letter dated March 30, 2023 – BC Hydro reply submission on Oral Hearing Scope
B-33	Letter dated April 17, 2023 – BC Hydro submitting extension request to file responses to Information Request No. 1 on Rebuttal Evidence
B-34	Letter dated April 20, 2023 – BC Hydro submitting responses to BCUC Information Requests on BC Hydro Rebuttal Evidence
B-35	Letter dated April 20, 2023 – BC Hydro submitting responses to Interveners Information Requests on BC Hydro Rebuttal Evidence
B-36	Letter dated April 28, 2023 – BC Hydro submitting responses to BCUC Information Requests on BC Hydro Rebuttal Evidence
B-37	Letter dated April 28, 2023 – BC Hydro submitting responses to Interveners Information Requests on BC Hydro Rebuttal Evidence
B-38	Letter dated June 1, 2023 – BC Hydro submitting extension request to file Signposts Update
B-39	Letter dated June 15, 2023 – BC Hydro submitting Signposts Update
B-39-1	Letter dated September 1, 2023 – BC Hydro submitting Signposts Update Errata No. 1
B-39-2	Letter dated September 13, 2023 – BC Hydro submitting Signposts Update Errata No. 2

B-40	Letter dated June 19, 2023 – BC Hydro submitting reply comment on Oral Hearing Need and Scope submissions
B-41	Letter dated August 3, 2023 – BC Hydro submission on regulatory process
B-42	Letter dated August 10, 2023 – BC Hydro reply submission on regulatory process
B-43	**PUBLIC** - Letter dated August 11, 2023 – BC Hydro submitting responses to BCUC Information Request No. 4 regarding Signposts Update
B-43-1	**CONFIDENTIAL** - Letter dated August 11, 2023 – BC Hydro submitting confidential responses to BCUC Information Request No. 4 regarding Signposts Update
B-43-2	**PUBLIC** - Letter dated September 13, 2023 – BC Hydro submitting revised responses to BCUC Information Request No. 4 regarding Signposts Update
B-43-3	**PUBLIC** - Letter dated October 20, 2023 – BC Hydro submitting revised response to BCUC Information Request No. 4.140.5 regarding Signposts Update
B-44	**PUBLIC** - Letter dated August 11, 2023 – BC Hydro submitting responses to Intervener Information Request No. 4 regarding Signposts Update
B-44-1	**CONFIDENTIAL** Letter dated August 11, 2023 – BC Hydro submitting confidential responses to Intervener Information Request No. 4 regarding Signposts Update
B-44-2	Letter dated October 4, 2023 – BC Hydro submitting revised responses to CEC Information Request No. 4 regarding Signposts Update
B-44-3	Letter dated October 20, 2023 – BC Hydro submitting revised responses to CEBC Information Request No. 4.3.3 regarding Signposts Update
B-45	Letter dated August 23, 2023 – BC Hydro submitting reply to sur-reply submissions
B-46	Letter dated September 1, 2023 – BC Hydro submitting extension request to file Reply Argument with respect to MVRD Final Argument extension request
B-47	Letter dated September 13, 2023 – BC Hydro submission for Cross Examination on Intervener Evidence
B-48	Letter dated September 14, 2023 – BC Hydro submission regarding Confidential Process and Scope for Oral Hearing
B-49	Letter dated September 15, 2023 – BC Hydro submitting Rebuttal Evidence on Intervener Evidence on Load Forecast Scenarios
B-50	Letter dated September 18, 2023 – BC Hydro submitting Witness Testimonies and Opening Remarks to the Oral Hearing
B-51	Letter dated September 28, 2023 – BC Hydro reply submission to Exhibit A-49

B-52	Letter dated October 13, 2023 – BC Hydro submitting New Energy Acquisition Workshop Presentation
B-53	Letter dated October 18, 2023 – BC Hydro submission on further process
B-54	Letter dated October 20, 2023 – BC Hydro submitting response to Undertaking Nos. 1 and 5
B-55	Letter dated October 20, 2023 – BC Hydro submitting corrections to Oral Hearing Transcript Volumes 2 and 3
B-55-1	Letter dated October 27, 2023 – BC Hydro submitting corrections to Oral Hearing Transcript Volumes 2 and 3 Errata No. 1

INTERVENER DOCUMENTS

C1-1	**BC SUSTAINABLE ENERGY ASSOCIATION (BCSEA)** – Letter dated January 31, 2022 Request to Intervene by T. Hackney
C1-2	Letter dated May 2, 2022 – BCSEA and VEVA submitting extension request to file Information Request No. 1
C1-3	Letter dated May 10, 2022 – BCSEA and VEVA submitting Information Request No. 1 to BC Hydro
C1-4	Letter dated August 16, 2022 – BCSEA submitting Confidentiality Declaration and Undertakings
C1-5	Letter dated October 13, 2022 – BCSEA and VEVA submitting Information Request No. 2 to BC Hydro
C1-6	Letter dated February 9, 2023 – BCSEA and VEVA submitting Evidence Information Request No. 1 to Capital Power
C1-7	Letter dated February 9, 2023 – BCSEA and VEVA submitting Evidence Information Request No. 1 to RCIA
C1-8	Letter dated February 9, 2023 – BCSEA and VEVA submitting Evidence Information Request No. 1 to CEC
C1-9	Letter dated February 9, 2023 – BCSEA and VEVA submitting Evidence Information Request No. 1 to CEBC
C1-10	Letter dated February 9, 2023 – BCSEA and VEVA submitting Evidence Information Request No. 1 to AMPC
C1-11	Letter dated March 16, 2023 – BCSEA and VEVA submitting comment on Oral Hearing Scope

C1-12	Letter dated March 30, 2023 – BCSEA and VEVA reply submission on Oral Hearing Scope
C1-13	Letter dated March 30, 2023 – BCSEA and VEVA submitting Information Request on BC Hydro's Rebuttal Evidence
C1-14	Letter dated June 7, 2023 – BCSEA and VEVA submission on amended date for submissions on Oral Hearing Need and Scope
C1-15	Letter dated July 13, 2023 – BCSEA and VEVA submitting Information Request No. 1 to BC Hydro on Signpost Update
C1-16	Letter dated July 20, 2023 – BCSEA and VEVA submitting response regarding intervener evidentiary updates
C1-17	Letter dated August 1, 2023 - BCSEA and VEVA submission on regulatory process
C1-18	Letter dated August 10, 2023 - BCSEA and VEVA reply submission on regulatory process
C1-19	Letter dated August 15, 2023 – BCSEA and VEVA submission for Workshop availability
C1-20	Letter dated August 16, 2023 - BCSEA and VEVA submitting no sur-reply
C1-21	Letter dated August 31, 2023 – BCSEA and VEVA Information Request No. 2 to RCIA
C1-22	Letter dated August 31, 2023 – BCSEA and VEVA Information Request No. 2 to CEC
C1-23	Letter dated September 12, 2023 – BCSEA and VEVA submission for Cross Examination on Intervener Evidence
C1-24	Letter dated September 28, 2023 – BCSEA and VEVA reply submission to Exhibit A-49
C1-25	Letter dated October 3, 2023 – BCSEA and VEVA submission in response to Exhibit A-51 regarding Cross Examination on Intervener Evidence
C1-26	Letter dated October 16, 2023 – BCSEA and VEVA submission on further process
C2-1	**FORTISBC ENERGY INC. AND FORTISBC INC. (COLLECTIVELY FORTISBC)** – Letter dated January 6, 2022 submitting request to intervene by Diane Roy
C2-2	Letter dated May 3, 2022 – FortisBC submitting Information Request No. 1 to BC Hydro
C2-3	Letter dated October 13, 2022 – FortisBC submitting Information Request No. 2 to BC Hydro
C2-4	Letter dated February 9, 2023 – FortisBC submitting Evidence Information Request No. 1 to AMPC
C2-5	Letter dated February 9, 2023 – FortisBC submitting Evidence Information Request No. 1 to CEBC

C2-6	Letter dated February 9, 2023 – FortisBC submitting Evidence Information Request No. 1 to CEC
C2-7	Letter dated March 16, 2023 – FortisBC submitting comment on Oral Hearing Scope
C2-8	Letter dated March 30, 2023 – FortisBC reply submission on Oral Hearing Scope
C2-9	Letter dated July 13, 2023 – FortisBC submitting Information Request No. 3 to BC Hydro on Signpost Update
C2-10	Letter dated August 3, 2023 – FortisBC submission on regulatory process
C2-11	Letter dated August 10, 2023 – FortisBC reply submission on regulatory process
C2-12	Letter dated August 15, 2023 – FortisBC submission for Workshop availability
C2-13	Letter dated September 19, 2023 – FortisBC submission on cross-examination in response to Exhibit C30-3
C2-14	Letter dated October 19, 2023 – FortisBC submission on further process
C3-1	**BC SOLAR AND STORAGE INDUSTRIES ASSOCIATION (BCSSIA) –** Letter dated February 17, 2022 – request to intervene by Steve Davis
C3-2	Letter dated October 13, 2022 – BCSSIA submitting Information Request No. 2 to BC Hydro
C4-1	**NUU-CHAH-NULTH TRIBAL COUNCIL (NTC)** – Letter dated March 2, 2022 request to intervene by Judith Sayers
C4-2	Letter dated May 10, 2022 – NTC submitting Information Request No. 1 to BC Hydro
C4-3	Letter dated August 18, 2022 – NTC submission on BCH response on Intervener unanswered Information Requests
C4-4	Letter dated October 13, 2022 – NTC submitting Information Request No. 2 to BC Hydro
C4-5	Letter dated February 9, 2023 – NTC submitting Evidence Information Request No. 1 to CEC
C4-6	Letter dated February 9, 2023 – NTC submitting Evidence Information Request No. 1 to RCIA
C4-7	Letter dated February 9, 2023 – NTC submitting Evidence Information Request No. 1 to AMPC
C4-8	Letter dated March 16, 2023 – NTC submitting comment on Oral Hearing Scope
C4-9	Letter dated March 30, 2023 – NTC reply submission on Oral Hearing Scope
C4-10	Letter dated March 30, 2023 – NTC submitting Information Request on BC Hydro's Rebuttal Evidence

C4-11	Letter dated July 13, 2023 – NTC submitting Information Request No. 4 to BC Hydro on Signpost Update
C4-12	Letter dated July 24, 2023 – NTC submitting response regarding intervener evidentiary updates
C4-13	Letter dated August 3, 2023 – NTC submission on regulatory process
C4-14	Letter dated August 10, 2023 – NTC reply submission on regulatory process
C4-15	Letter dated August 21, 2023 – NTC submitting sur-reply
C4-16	Letter dated September 1, 2023 – NTC submitting Information Request to RCIA
C4-17	Letter dated September 1, 2023 – NTC submitting Information Request to CEC
C4-18	Letter dated September 13, 2023 – NTC submission for Cross Examination on Intervener Evidence
C4-19	Letter dated September 28, 2023 – NTC reply submission on panel amendment
C4-20	Letter dated October 11, 2023 – NTC submitting Witness Aid: BC Hydro IRP Forecasting Processes at the Oral Hearing
C4-21	Letter dated October 11, 2023 – NTC submitting Witness Aid at the Oral Hearing
C4-22	Letter dated October 11, 2023 – NCT submitting Witness Aid: British Columbia's 2022 Oil and Gas Reserves and Production Report at the Oral Hearing
C4-23	Letter dated October 11, 2023 – NCT submitting Witness Aid at the Oral Hearing
C4-24	Letter dated October 11, 2023 – NCT submitting Witness Aid: BC Hydro and Power Authority 2023/24-2025/26 Service Plan at the Oral Hearing
C4-25	Letter dated October 11, 2023 – NCT submitting Witness Aid: at the Oral Hearing
C4-26	Letter dated October 19, 2023 – NTC submission on further process
C5-1	**CLEAN ENERGY BC (CEBC)** – Letter dated March 14, 2022 request to intervene by Cameron Lusztig
C5-2	Letter dated May 2, 2022 – CEBC submitting Information Request No. 1 to BC Hydro
C5-3	Letter dated August 17, 2022 – CEBC submitting request more adequate BC Hydro responses on Intervener unanswered Information Requests
C5-4	Letter dated October 13, 2022 – CEBC submitting Information Request No. 2 to BC Hydro
C5-5	Letter dated December 21, 2022 – CEBC submitting Confidentiality Declaration and Undertaking

C5-6	Letter dated January 19, 2023 – CEBC submitting written evidence by Travis Lusney of Power Advisory LLC
C5-7	Letter dated February 9, 2023 – CEBC submitting Evidence Information Request No. 1 to AMPC
C5-8	Letter dated March 2, 2023 – CEBC submitting response to AMPC Evidence Information Request No. 1
C5-9	Letter dated March 2, 2023 – CEBC submitting response to BCSEA and VEVA Evidence Information Request No. 1
C5-10	Letter dated March 2, 2023 – CEBC submitting response to BCOAPO Evidence Information Request No. 1
C5-11	Letter dated March 2, 2023 – CEBC submitting response to BC Hydro Evidence Information Request No. 1
C5-12	Letter dated March 2, 2023 – CEBC submitting response to BCUC Evidence Information Request No. 1
C5-13	Letter dated March 2, 2023 – CEBC submitting response to CEC Evidence Information Request No. 1
C5-14	Letter dated March 2, 2023 – CEBC submitting response to FortisBC Evidence Information Request No. 1
C5-15	Letter dated March 2, 2023 – CEBC submitting response to RCIA Evidence Information Request No. 1
C5-16	Letter dated March 2, 2023 – CEBC submitting response to ZoneII RPG Evidence Information Request No. 1
C5-17	Letter dated March 16, 2023 – CEBC submitting comment on Oral Hearing Scope
C5-18	Letter dated March 30, 2023 – CEBC reply submission on Oral Hearing Scope
C5-19	Letter dated March 30, 2023 – CEBC submitting Information Request on BC Hydro's Rebuttal Evidence
C5-20	Letter dated July 13, 2023 – CEBC submitting Information Request No. 3 to BC Hydro on Signpost Update
C5-21	Letter dated July 24, 2023 – CEBC submitting response regarding intervener evidentiary updates
C5-22	Letter dated August 3, 2023 – CEBC submission on regulatory process
C5-23	Letter dated August 10, 2023 – CEBC reply submission on regulatory process

C5-24	Letter dated September 8, 2023 – CEBC submit Travis Lusney as Expert Witness on Intervener Evidence
C5-25	Letter dated September 18, 2023 – CEBC submitting Confidentiality Declaration and Undertaking Forms
C5-26	Letter dated October 20, 2023 – CEBC submission on further process
C6-1	**ZONE II RATEPAYERS GROUP (ZONEII RPG) –** Letter dated March 14, 2022 request to intervene by Jana McLean
C6-2	Letter dated May 3, 2022 – ZoneII RPG submitting Information Request No. 1 to BC Hydro
C6-3	Letter dated August 18, 2022 – ZoneII RPG submitting nothing further on Intervener unanswered Information Requests
C6-4	Letter dated September 21, 2022 – ZoneII RPG submitting Confidentiality Declaration and Undertaking form
C6-5	Letter dated October 7, 2022 – ZoneII RPG submitting Confidentiality Declaration and Undertaking
C6-6	Letter dated October 13, 2022 – ZoneII RPG submitting Information Request No. 2 to BC Hydro
C6-7	**CONFIDENTIAL** - Letter dated October 13, 2022 – ZoneII RPG submitting Confidential Information Request No. 2 to BC Hydro
C6-8	Letter dated November 3, 2022 – ZoneII RPG submitting representative contact information update
C6-9	Letter dated February 9, 2023 – ZoneII RPG submitting Evidence Information Request No. 1 to CEC
C6-10	Letter dated February 9, 2023 – ZoneII RPG submitting Evidence Information Request No. 1 to RCIA
C6-11	Letter dated February 9, 2023 – ZoneII RPG submitting Evidence Information Request No. 1 to AMPC
C6-12	Letter dated February 9, 2023 – ZoneII RPG submitting Evidence Information Request No. 1 to CEBC
C6-13	Letter dated February 9, 2023 – ZoneII RPG submitting Evidence Information Request No. 1 to Capital Power
C6-14	Letter dated March 16, 2023 – ZoneII RPG submitting comment on Oral Hearing Scope
C6-15	Letter dated March 28, 2023 – ZoneII RPG submitting Information Request on BC Hydro's Rebuttal Evidence

C6-16	Letter dated March 30, 2023 – ZoneII RPG reply submission on Oral Hearing Scope
C6-17	Letter dated July 13, 2023 – ZoneII-RPG submitting Information Request No. 4 to BC Hydro on Signpost Update
C6-18	Letter dated July 24, 2023 – ZoneII-RPG submitting response regarding intervener evidentiary updates
C6-19	Letter dated August 3, 2023 – ZoneII-RPG submission on regulatory process
C6-20	Letter dated August 10, 2023 – ZoneII-RPG reply submission on regulatory process
C6-21	Letter dated August 18, 2023 – ZoneII RPG submitting no sur-reply
C6-22	Letter dated September 1, 2023 – ZoneII RPG submitting Information Request to CEC
C6-23	Letter dated September 13, 2023 – ZoneII RPG submission for Cross Examination on Intervener Evidence
C6-24	Letter dated October 19, 2023 – ZoneII RPG submission on further process
C7-1	**RESIDENTIAL CONSUMER INTERVENER ASSOCIATION (RCIA)** – Letter dated March 18, 2022 request to intervene by Matthew Matusiak
C7-2	**REVISED** - Letter dated March 22, 2022 – RCIA submitting revised Confidentiality Declaration and Undertaking forms
C7-3	Letter dated May 9, 2022 – RCIA submitting Information Request No. 1 to BC Hydro
C7-4	**CONFIDENTIAL** - Letter dated May 9, 2022 – RCIA submitting Confidential Information Request No. 1 to BC Hydro
C7-5	Letter dated January 10, 2023 – RCIA submitting updated Confidentiality Declaration and Undertaking Forms
C7-6	Letter dated October 13, 2022 – RCIA submitting Information Request No. 2 to BC Hydro
C7-7	Letter dated November 3, 2022 – RCIA submitting intent to file Intervener Evidence
C7-8	Letter dated January 19, 2023 – RCIA submitting written evidence by Midgard Consulting Ltd.
C7-8-1	Letter dated February 7, 2023 – RCIA submitting errata on written evidence by Midgard Consulting Ltd.
C7-9	Letter dated February 9, 2023 – RCIA submitting Evidence Information Request No. 1 to CEBC
C7-10	Letter dated February 9, 2023 – RCIA submitting Evidence Information Request No. 1 to AMPC

C7-11	Letter dated February 9, 2023 – RCIA submitting Evidence Information Request No. 1 to Capital Power
C7-12	Letter dated February 9, 2023 – RCIA submitting Evidence Information Request No. 1 to CEC
C7-13	Letter dated February 22, 2023 – RCIA submitting request for clarification of MoveUP Exhibit C18-4 Information Request No. 2.4
C7-14	Letter dated March 2, 2023 – RCIA submitting response to BCUC Evidence Information Request No. 1
C7-15	Letter dated March 2, 2023 – RCIA submitting response to BC Hydro Evidence Information Request No. 1
C7-16	Letter dated March 2, 2023 – RCIA submitting response to BCSEA Evidence Information Request No. 1
C7-17	Letter dated March 2, 2023 – RCIA submitting response to Capital Power Evidence Information Request No. 1
C7-18	Letter dated March 2, 2023 – RCIA submitting response to CEC Evidence Information Request No. 1
C7-19	Letter dated March 2, 2023 – RCIA submitting response to MoveUP Evidence Information Request No. 1
C7-20	Letter dated March 2, 2023 – RCIA submitting response to NTC Evidence Information Request No. 1
C7-21	Letter dated March 2, 2023 – RCIA submitting response to ZoneII RPG Evidence Information Request No. 1
C7-22	Letter dated March 2, 2023 – RCIA submitting response to AMPC Evidence Information Request No. 1
C7-23	Letter dated March 2, 2023 – RCIA submitting response to BCOAPO Evidence Information Request No. 1
C7-24	Letter dated March 16, 2023 – RCIA submitting comment on Oral Hearing Scope
C7-25	Letter dated March 29, 2023 – RCIA submitting Information Request on BC Hydro's Rebuttal Evidence
C7-26	Letter dated March 30, 2023 – RCIA reply submission on Oral Hearing Scope
C7-27	Letter dated June 12, 2023 – RCIA submission on amended date for submissions on Oral Hearing Need and Scope

C7-28	Letter dated July 13, 2023 – RCIA submitting Information Request No. 4 to BC Hydro on Signpost Update
C7-29	Letter dated July 24, 2023 – RCIA submitting response regarding intervener evidentiary updates
C7-30	Letter dated August 3, 2023 – RCIA submission on regulatory process
C7-31	Letter dated August 10, 2023 – RCIA reply submission on regulatory process
C7-32	Letter dated August 14, 2023 – RCIA submission for Workshop availability
C7-33	Letter dated August 21, 2023 – RCIA submitting sur-reply
C7-34	Letter dated August 21, 2023 – RCIA submitting signposts evidence updates
C7-34-1	Letter dated August 21, 2023 – RCIA submitting signposts evidence updates with track changes
C7-35	Letter dated September 1, 2023 – RCIA submitting Information Request to CEC
C7-36	Letter dated September 8, 2023 – RCIA submitting response to NTC Information Request on updated Intervener Evidence
C7-37	Letter dated September 8, 2023 – RCIA submitting response to BCSEA Information Request on updated Intervener Evidence
C7-38	Letter dated September 11, 2023 – RCIA submission for Cross Examination on Intervener Evidence
C7-39	Letter dated September 18, 2023 – RCIA submission on witness availability for the Oral Hearing
C7-40	Letter dated October 10, 2023 –RCIA submitting Witness Aid for Cross Examination at the Oral Hearing
C7-41	Letter dated October 18, 2023 – RCIA submission on further process
C8-1	**ASSOCIATION OF MAJOR POWER CUSTOMERS (AMPC)** – Letter dated March 21, 2022 request to intervene by Carlo Dal Monte
C8-2	Letter dated May 2, 2022 – AMPC submitting extension request to file Information Request No. 1
C8-3	Letter dated May 10, 2022 – AMPC submitting Information Request No. 1 to BC Hydro
C8-4	Letter dated October 11, 2022 – AMPC submitting Confidentiality Declaration and Undertakings
C8-5	Letter dated October 13, 2022 – AMPC submitting Information Request No. 2 to BC Hydro

C8-6	Letter dated January 19, 2023 – AMPC submitting written evidence by Melissa Davies and Patrick Bowman
C8-7	Letter dated February 9, 2023 – AMPC submitting Evidence Information Request No. 1 to Capital Power
C8-8	Letter dated February 9, 2023 – AMPC submitting Evidence Information Request No. 1 to CEBC
C8-9	Letter dated February 9, 2023 – AMPC submitting Evidence Information Request No. 1 to CEC
C8-10	Letter dated February 9, 2023 – AMPC submitting Evidence Information Request No. 1 to RCIA
C8-11	Letter dated March 2, 2023 – AMPC submitting response to BC Hydro Evidence Information Request No.1
C8-12	Letter dated March 2, 2023 – AMPC submitting response to BCOAPO Evidence Information Request No.1
C8-13	Letter dated March 2, 2023 – AMPC submitting response to BCSEA-VEVA Evidence Information Request No.1
C8-14	Letter dated March 2, 2023 – AMPC submitting response to BCUC Evidence Information Request No.1
C8-15	Letter dated March 2, 2023 – AMPC submitting response to CEC Evidence Information Request No.1
C8-16	Letter dated March 2, 2023 – AMPC submitting response to CEBC Evidence Information Request No.1
C8-17	Letter dated March 2, 2023 – AMPC submitting response to FortisBC Evidence Information Request No. 1
C8-18	Letter dated March 2, 2023 – AMPC submitting response to NTC Evidence Information Request No. 1
C8-19	Letter dated March 2, 2023 – AMPC submitting response to RCIA Evidence Information Request No. 1
C8-20	Letter dated March 2, 2023 – AMPC submitting response to Zone II RPG Evidence Information Request No. 1
C8-21	Letter dated March 16, 2023 – AMPC submitting comment on Oral Hearing Scope
C8-22	Letter dated March 29, 2023 – AMPC reply submission on Oral Hearing Scope

C8-23	Letter dated March 30, 2023 – AMPC submitting Information Request on BC Hydro's Rebuttal Evidence
C8-24	Letter dated June 21, 2023 – AMPC submitting additional issue on Oral Hearing Scope
C8-25	Letter dated July 13, 2023 – AMPC submitting Information Request No. 3 to BC Hydro on Signpost Update
C8-26	Letter dated July 24, 2023 – AMPC submitting response regarding intervener evidentiary updates
C8-27	Letter dated August 3, 2023 - AMPC submission on regulatory process
C8-28	Letter dated September 14, 2023 – AMPC submission for no Cross Examination on Intervener Evidence
C8-29	Letter dated September 29, 2023 – AMPC submission on panel amendment
C8-30	Letter dated October 18, 2023 – AMPC submission on further process
C9-1	**BRITISH COLUMBIA OLD AGE PENSIONERS' ORGANIZATION ET AL. (BCOAPO ET AL)** – Letter dated March 22, 2022 request to intervene by Kristin Barham
C9-2	Letter dated May 10, 2022 – BCOAPO submitting Information Request No. 1 to BC Hydro
C9-3	Letter dated October 13, 2022 – BCOAPO submitting Information Request No. 2 to BC Hydro
C9-4	Letter dated February 9, 2023 – BCOAPO submitting Evidence Information Request No. 1 to CEBC
C9-5	Letter dated February 9, 2023 – BCOAPO submitting Evidence Information Request No. 1 to CEC
C9-6	Letter dated February 9, 2023 – BCOAPO submitting Evidence Information Request No. 1 to Capital Power
C9-7	Letter dated February 9, 2023 – BCOAPO submitting Evidence Information Request No. 1 to AMPC
C9-8	Letter dated February 9, 2023 – BCOAPO submitting Evidence Information Request No. 1 to RCIA
C9-9	Letter dated March 16, 2023 – BCOAPO submitting comment on Oral Hearing Scope
C9-10	Letter dated March 30, 2023 – BCOAPO submitting Information Request on BC Hydro's Rebuttal Evidence
C9-11	Letter dated March 30, 2023 – BCOAPO reply submission on Oral Hearing Scope

C9-12	Letter dated July 13, 2023 – BCOAPO submitting Information Request No. 1 to BC Hydro on Signpost Update
C9-13	Letter dated July 24, 2023 – BCOAPO submitting response regarding intervener evidentiary updates
C9-14	Letter dated August 3, 2023 – BCOAPO submission on regulatory process
C9-15	Letter dated August 10, 2023 – BCOAPO reply submission on regulatory process
C9-16	Letter dated August 16, 2023 – BCOAPO submission for Workshop availability
C9-17	Letter dated September 1, 2023 – BCOAPO submitting Information Request No. 2 to CEC
C9-18	Letter dated September 13, 2023 – BCOAPO submission for Cross Examination on Intervener Evidence
C9-19	Letter dated September 28, 2023 – BCOAPO submission on panel amendment
C9-20	Letter dated October 12, 2023 – BCOAPO submitting spreadsheet: Light-Duty Electric Vehicle Energy Forecast at the Oral Hearing
C9-21	Letter dated October 20, 2023 – BCOAPO submission on further process
C10-1	**CAPITAL POWER CORPORATION (CAPITAL POWER)** – Letter dated March 22, 2022 request to intervene by Matthew Davis
C10-2	Letter dated May 3, 2022 – Capital Power submitting Information Request No. 1 to BC Hydro
C10-3	Letter dated August 18, 2022 – Capital Power submission on BCH response on Intervener unanswered Information Requests
C10-4	Letter dated October 3, 2022 – Capital Power submission on BCH response on Intervener unanswered Information Requests
C10-5	Letter dated October 13, 2022 – Capital Power submitting Information Request No. 2 to BC Hydro
C10-6	Letter dated November 10, 2022 – Capital Power reply submission to BCH Objection to Request for Access to Confidential Information in Exhibit B-10-1-1
C10-7	Letter dated November 24, 2022 – Capital Power submitting Confidentiality Declaration and Undertaking
C10-8	Letter dated January 19, 2023 – Capital Power submitting written evidence by Dragan Brankovich, M.Sc., P. Eng.
C10-9	Letter dated February 9, 2023 – Capital Power submitting Evidence Information Request No. 1 to RCIA

C10-10	Letter dated March 2, 2023 – Capital Power submitting response to multiple Evidence Information Request No. 1
C10-10-1	**CONFIDENTIAL** - Letter dated March 2, 2023 – Capital Power submitting confidential response to BCUC Evidence Information Request No. 1
C10-11	Letter dated March 16, 2023 – Capital Power submitting comment on Oral Hearing Scope
C10-12	Letter dated March 30, 2023 – Capital Power submitting Information Request on BC Hydro's Rebuttal Evidence
C10-13	Letter dated March 30, 2023 – Capital Power reply submission on Oral Hearing Scope
C10-14	Letter dated July 13, 2023 – Capital Power submitting Information Request No. 4 to BC Hydro on Signpost Update
C10-15	Letter dated July 24, 2023 – Capital Power submitting response regarding intervener evidentiary updates
C10-16	Letter dated August 3, 2023 – Capital Power submission on regulatory process
C10-17	Letter dated August 10, 2023 – Capital Power reply submission on regulatory process
C10-18	Letter dated August 14, 2023 – Capital Power submission regarding BC Hydro's reply to Interveners comments
C10-19	Letter dated August 16, 2023 – Capital Power submission for Workshop availability
C10-20	Letter dated August 21, 2023 – Capital Power submitting sur-reply
C10-21	Letter dated September 13, 2023 – Capital Power submission for Cross Examination on Intervener Evidence
C10-22	Letter dated September 28, 2023 – Capital Power reply submission on panel amendment
C10-23	Letter dated October 18, 2023 – Capital Power submission on further process
C11-1	**COMMERCIAL ENERGY CONSUMERS ASSOCIATION OF BC (CEC)** – Letter dated March 22, 2022 request to intervene by David Craig
C11-2	Letter dated May 3, 2022 – CEC submitting Information Request No. 1 to BC Hydro
C11-3	Letter dated July 27, 2022 – CEC submitting Confidentiality Declaration and Undertaking
C11-4	Letter dated August 10, 2022 – CEC submitting Confidentiality Declaration and Undertaking
C11-5	Letter dated October 13, 2022 – CEC submitting Information Request No. 2 to BC Hydro
C11-6	Letter dated December 20, 2022 – CEC submitting summary of intervener evidence

C11-7	Letter dated January 19, 2023 – CEC submitting written evidence by David Ince
C11-8	Letter dated February 9, 2023 – CEC submitting Evidence Information Request No. 1 to RCIA
C11-9	Letter dated February 9, 2023 – CEC submitting Evidence Information Request No. 1 to CEBC
C11-10	Letter dated February 9, 2023 – CEC submitting Evidence Information Request No. 1 to AMPC
C11-11	Letter dated March 2, 2023 – CEC submitting response to BCUC Evidence Information Request No. 1
C11-12	Letter dated March 2, 2023 – CEC submitting response to AMPC Evidence Information Request No. 1
C11-13	Letter dated March 2, 2023 – CEC submitting response to BCOAPO Evidence Information Request No. 1
C11-14	Letter dated March 2, 2023 – CEC submitting response to BCSEA-VEVA Evidence Information Request No. 1
C11-15	Letter dated March 2, 2023 – CEC submitting response to FortisBC Evidence Information Request No. 1
C11-16	Letter dated March 2, 2023 – CEC submitting response to RCIA Evidence Information Request No. 1
C11-17	Letter dated March 2, 2023 – CEC submitting response to Zone II Evidence Information Request No. 1
C11-18	Letter dated March 2, 2023 – CEC submitting response to NTC Evidence Information Request No. 1
C11-19	Letter dated March 16, 2023 – CEC submitting comment on Oral Hearing Scope
C11-20	Letter dated March 30, 2023 – CEC reply submission on Oral Hearing Scope
C11-21	Letter dated March 30, 2023 – CEC submitting Information Request on BC Hydro's Rebuttal Evidence
C11-22	Letter dated July 12, 2023 – CEC submitting Information Request No. 1 to BC Hydro on Signpost Update
C11-23	Letter dated July 24, 2023 – CEC submitting response regarding intervener evidentiary updates
C11-24	Letter dated August 3, 2023 – CEC submission on regulatory process

C11-25 Letter dated August 10, 2023 – CEC reply submission on regulatory process

C11-26 Letter dated August 25, 2023 – CEC submitting updated expert evidence of Mr. David Ince

C11-27 Letter dated September 8, 2023 – CEC submitting response to BCUC Information Request on updated Intervener Evidence

C11-28 Letter dated September 8, 2023 – CEC submitting response to RCIA Information Request on updated Intervener Evidence

C11-29 Letter dated September 8, 2023 – CEC submitting response to BCSEA-VEVA Information Request on updated Intervener Evidence

C11-30 Letter dated September 8, 2023 – CEC submitting response to BCOAPO Information Request on updated Intervener Evidence

C11-31 Letter dated September 8, 2023 – CEC submitting response to NTC Information Request on updated Intervener Evidence

C11-32 Letter dated September 8, 2023 – CEC submitting response to ZoneII RPG Information Request on updated Intervener Evidence

C11-33 Letter dated September 13, 2023 – CEC submission for Cross Examination on Intervener Evidence

C11-34 Letter dated September 28, 2023 – CEC reply submission on panel amendment

C11-35 Letter dated October 10, 2023 – CEC submitting Witness Aid for BC Hydro panel at the Oral Hearing October 11, 2023

C11-36 Letter dated October 20, 2023 – CEC submission on further process

C12-1 **BLUEARTH RENEWABLES (BLUEARTH)** – Letter dated March 17, 2022 request to intervene by Roslyn McMann

C13-1 **PETERS FIRST NATION** – Letter dated March 21, 2022 request to intervene by Drew Lawrenson

C13-2 Letter dated August 18, 2022 – Peters First Nation submission on Intervener unanswered Information Requests

C14-1 **BC FIRST NATIONS ENERGY AND MINING COUNCIL (FNEMC)** – Letter dated March 21, 2022 request to intervene by Andrew McLaren

C14-2 Letter dated May 3, 2022 – FNEMC submitting Information Request No. 1 to BC Hydro

C14-3 Letter dated August 19, 2022 – FNEMC submission on BCH response on Intervener unanswered Information Requests

C14-4 Letter dated October 13, 2022 – FNEMC submitting Information Request No. 2 to BC Hydro

C14-5	Letter dated March 16, 2023 – FNEMC submitting comment on Oral Hearing Scope
C14-6	Letter dated July 13, 2023 – FNEMC submitting Information Request No. 3 to BC Hydro on Signpost Update
C14-7	Letter dated July 18, 2023 – FNEMC submitting update for legal counsel
C14-8	Letter dated August 3, 2023 – FNEMC submission on regulatory process
C14-9	Letter dated August 16, 2023 – FNEMC submission for Workshop availability
C14-10	Letter dated September 27, 2023 – FNEMC submission
C14-11	Letter dated October 20, 2023 – FNEMC submission on further process
C15-1	**KITSELAS GEOTHERMAL INC. (KGI)** – Letter dated March 22, 2022 request to intervene by Alison Thompson
C15-2	Letter dated April 28, 2022 – KGI submitting Information Request No. 1 to BC Hydro
C16-1	**TRANSALTA CORPORATION (TRANSALTA) –** Letter dated March 22, 2022 request to intervene by Akira Yamamoto
C17-1	**VANCOUVER ELECTRIC VEHICLE ASSOCIATION (VEVA)** – Letter dated March 22, 2022 request to intervene by Robert Sparks
C18-1	**MOVEUP** – Letter dated March 23, 2022 request to intervene by Jim Quail
C18-2	Letter dated April 28, 2022 – MoveUP submitting Information Request No. 1 to BC Hydro
C18-3	Letter dated October 12, 2022 – MoveUP submitting Information Request No. 2 to BC Hydro
C18-4	Letter dated February 7, 2023 – MoveUP submitting Information Request No. 1 to RCIA
C18-5	Letter dated February 22, 2023 – MoveUP submitting response to RCIA request for clarification of Exhibit C18-4 Information Request No. 2.4
C18-6	Letter dated March 15, 2023 – MoveUP submitting comment on Oral Hearing Scope
C18-7	Letter dated March 28, 2023 – MoveUP reply submission on Oral Hearing Scope
C18-8	Letter dated July 13, 2023 – MoveUP submitting Information Request No. 1 to BC Hydro on Signpost Update
C18-9	Letter dated July 18, 2023 – MoveUP submitting response regarding intervener evidentiary updates
C18-10	Letter dated July 26, 2023 – MoveUP submission on regulatory process and timetable

C18-11	Letter dated September 14, 2023 – MoveUP submission no Cross Examination on Intervener Evidence
C18-12	Letter dated September 20, 2023 – MoveUP reply submission to Exhibit A-49
C18-13	Letter dated October 17, 2023 – MoveUP submission on further process
C19-1	**CANADIAN MANUFACTURES AND EXPORTERS (CME) –** Letter dated March 24, 2022 request to intervene by Paul Willis
C19-2	Letter dated March 22, 2022 – CME submitting Information Request No. 1 to BC Hydro
C20-1	**CITY OF SURREY (SURREY)** – Letter dated March 25, 2022 request to intervene by Benjie Lee
C20-2	Letter dated May 3, 2022 – Surrey submitting Information Request No. 1 to BC Hydro
C21-1	**NET METERING RATEPAYERS GROUP AND BRITISH COLUMBIA COMMUNITY SOLAR COALITION (NMRG-BCCSC)** – Letter dated March 25, 2022 request to intervene by Fred Weisberg
C21-2	Letter dated May 3, 2022 – NMRG-BCCSC submitting Information Request No. 1 to BC Hydro
C22-1	**ZONE 1B RATEPAYERS GROUP (Zone1B-RPG)** – Letter dated March 25, 2022 request to intervene by Fred Weisberg
C23-1	**CAYOOSE CREEK INDIAN BAND** – Letter dated March 29, 2022 request to intervene by Drew Lawrenson
C23-2	Letter dated August 18, 2022 – Cayoose Creek Indian Band submission on Intervener unanswered Information Requests
C24-1	**BC COMMUNITY SOLAR COALITION (BCCSC)** – Letter dated May 9, 2022 submitting late request to intervene by Kjell Liem
C24-2	Letter dated May 10, 2022 – BCCSC submitting late Information Request No. 1 to BC Hydro
C25-1	**NORTHRIVER MIDSTREAM INC. (NRM)** – Letter dated June 29, 2023 submitting late request to intervene by Tamara Trull
C25-2	Letter dated July 13, 2023 – NRM submitting Information Request No. 1 to BC Hydro on Signpost Update
C25-3	Letter dated August 3, 2023 – NRM submission on regulatory process
C25-4	Letter dated September 28, 2023 – NRM submission on panel amendment
C25-5	Letter dated October 18, 2023 – NRM submission on further process

C26-1	**CANADIAN ASSOCIATION OF PETROLEUM PRODUCERS (CAPP)** – Letter dated August 2, 2023 submitting late request to intervene by Geoff Morrison
C27-1	**ADAMS LAKE INDIAN BAND (ALIB)** – Letter dated August 2, 2023 submitting late request to intervene by Dave Nordquist
C28-1	**CITY OF RICHMOND (COR)** – Letter dated August 15, 2023 submitting late request to intervene by Anthony Capuccinello Iraci
C28-2	Letter dated October 19, 2023 – City of Richmond and the Lulu Island Energy Company Ltd. (collectively the City) submission on further process
C29-1	**LULU ISLAND ENERGY COMPANY LTD. (LULU ISLAND)** – Letter dated August 15, 2023 submitting late request to intervene by Anthony Capuccinello Iraci
C30-1	**GITANYOW HEREDITARY CHIEFS (GITANYOW CHIEFS)** – Letter dated August 14, 2023 submitting late request to intervene by Joel Starlund
C30-2	Letter dated August 31, 2023 - Gitanyow Chiefs submitting Information Request to BC Hydro regarding Load and Capacity Forecast
C30-3	Letter dated September 13, 2023 – Gitanyow Chiefs submission for Cross Examination on Intervener Evidence
C31-1	**KANAKA BAR INDIAN BAND (KBIB)** – Letter dated August 14, 2023 submitting late request to intervene by Jordan Spinks
C31-2	Letter dated August 31, 2023 – KBIB submitting Information Request to BC Hydro
C31-3	Letter dated September 8, 202 – KBIB submitting response to BC Hydro response regarding KBIB Information Requests Scope
C32-1	**CITY OF VANCOUVER (COV)** – Letter dated August 18, 2023 submitting late request to intervene by Brad Badelt
C33-1	**CONIFEX (CONIFEX)** – Letter dated August 17, 2023 submitting late request to intervene by Andrew McLellan
C33-2	Letter dated August 31, 2023 – Conifex submitting Information Request to BC Hydro Transmission Losses
C34-1	**METRO VANCOUVER REGIONAL DISTRICT (METRO VANCOUVER)** – Letter dated August 17, 2023 submitting late request to intervene by Conor Reynolds
C34-2	Letter dated August 30, 2023 – Metro Vancouver submitting extension request to file Final Argument
C34-3	Letter dated October 19, 2023 – Metro Vancouver submission on further process

C35-1	**DISTRICT OF SAANICH (SAANICH)** – Letter dated August 22, 2023 submitting late request to intervene by Rebecca Newlove
C35-2	Letter dated October 19, 2023 – Saanich submission on further process
C36-1	**DISTRICT OF NORTH VANCOUVER (DNV) -** Letter dated August 30, 2023 submitting late request to intervene by Rebecca Bittel
C36-2	Letter dated October 20, 2023 – DNV submission on further process

INTERESTED PARTY DOCUMENTS

D-1	SMILLIE, S (SMILLIE) – Request for Interested Party status dated December 24, 2021
D-2	SYNEX RENEWABLE ENERGY CORP (SYNEX) – Request for Interested Party status by Daniel Russell dated December 27, 2021
D-3	CAPSTONE INFRASTRUCTURE CORPORATION (CAPSTONE INFRASTRUCTURE) – Request for Interested Party status by Patrick Leitch dated January 4, 2022
D-4	ZERO WASTE BC (ZERO WASTE) – Request for Interested Party status by Sue Maxwell dated January 5, 2022
~~D-4-1~~	Moved to Exhibit E-9
D-5	EVOLUGEN BY BROOKFIELD RENEWABLE (EVOLUGEN) – Request for Interested Party status by Julien Wu dated January 17, 2022
D-6	KITO, M. (KITO) – Request for Interested Party status dated January 27, 2022
D-7	LAIL, K. (LAIL) – Request for Interested Party status dated January 27, 2022
D-8	FAIRLEY, P. (FAIRLEY) – Request for Interested Party status dated January 27, 2022
D-9	COCHRANE ENERGY MANAGEMENT CONSULTING (COCHRANE) – Request for Interested Party status by Penny Cochrane dated February 3, 2022
D-10	ZERO EMISSIONS BUILDING EXCHANGE (ZEBX) – Submission dated February 7, 2021 Request for Interested Party Status by Roberto Pecora
D-11	CORNWALL, C. (CORNWALL) – Request for Interested Party status dated February 22, 2022
D-12	CITY OF VANCOUVER (COV)– Request for Interested Party status dated February 23, 2022 by Tina Barisky
D-13	TOWNSHIP OF LANGLEY (LANGLEY) – Request for Interested Party status dated March 18, 2022 by Greg Dennis
D-14	HESPV (HESPV) – Request for Interested Party status dated March 18, 2022 by Ed Knaggs

D-15 WEST MOBERLY FIRST NATION (WBFN) – Request for Interested Party status dated March 21, 2022 by Mackenzie Curran

D-16 EMPOWER ME (EMPOWER) – Request for Interested Party status dated March 21, 2022 by Yasmin Abraham

D-17 HELLER, M. (HELLER) – Request for Interested Party status dated April 1, 2022

D-18 CEBULKO, B. (CEBULKO) – Request for Interested Party status dated April 26, 2022

D-19 BC HYDRO RATEPAYERS (BCH RATEPAYERS) - Request for Interested Party status dated April 28, 2022 by Roger Bryenton

D-20 BOND, M. (BOND) – Request for Interested Party status dated April 30, 2022

D-21 UHL, A. (UHL) – Request for Interested Party status dated October 5, 2022

D-22 POLARIS STRATEGY AND INSIGHT (POLARIS STRATEGY) - Request for Interested Party status dated January 9, 2023 by D. Woynillowicz

D-23 PEMBINA INSTITUTE (PEMBINA) - Request for Interested Party status dated February 21, 2023 by Ian Theaker

LETTERS OF COMMENT

E-1 MARSDEN, P AND J. (MARSDEN) – Letter of Comment dated December 24, 2021

E-1-1 MARSDEN – Additional Letter of Comment dated February 14, 2022

E-1-2 MARSDEN – Additional Letter of Comment dated February 22, 2022

E-1-3 MARSDEN – Additional Letter of Comment dated March 15, 2022

E-1-4 MARSDEN – Additional Letter of Comment dated March 22, 2022

E-1-5 MARSDEN – Additional Letter of Comment dated August 8, 2022

E-2 LITTLE, M. (LITTLE) – Letter of Comment dated January 28, 2022

E-3 BECKETT, D. (BECKETT) – Letter of Comment dated March 5, 2022

E-4 REMOVED AND TRANSFERRED TO EXHIBIT E-1-3

E-5 GREGORY, H. (GREGORY) – Letter of Comment dated March 23, 2022

E-6 CITY OF VANCOUVER (COV) – Letter of Comment dated May 13, 2022

E-7 GIBSON, C. (GIBSON) – Letter of Comment dated May 13, 2022

E-8 BRYENTON, R. (BRYENTON) – Letter of Comment dated June 10, 2022

E-8-1	BRYENTON – Additional Letter of Comment dated July 27, 2022
E-9	ZERO WASTE BC – Letter of comment dated April 2, 2022 – formerly Exhibit D-4-1
E-10	HADLAND – Letter of Comment dated March 22, 2023
E-11	WEST MOBERLY FIRST NATIONS (WEST MOBERLY) – Letter of Comment dated July 19, 2023
E-12	KIRK, P. (KIRK) – Letter of Comment dated July 21, 2023
E-13	HUNDAL, P. (HUNDAL) – Letter of Comment dated November 7, 2023