LAWSON LUNDELL LLP

Suite 1600 Cathedral Place
925 West Georgia Street
Vancouver, BC
Canada V6C 3L2
T: 604.685.3456

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Ian Webb
D: 604.631.9117
F: 604.694.2932
iwebb@lawsonlundell.com

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British Columbia Utilities Commission
Sixth Floor – 900 Howe Street
Vancouver, B.C. V6Z 2N3

Attention: Patrick Wruck, Commission Secretary

Dear Mr. Wruck:

British Columbia Hydro and Power Authority (BC Hydro)
Filing with the British Columbia Utilities Commission (BCUC) of
Electricity Purchase Agreement Renewals for Sechelt Creek Hydro, Brown Lake Hydro and Walden North Hydro
Project No. 1598969

On behalf of BC Hydro, we enclose BC Hydro's final argument for the above-referenced proceeding.

We note that the enclosed final argument relies on and has footnote references to certain evidence that BC Hydro filed in the proceeding on a confidential basis; however, the final argument itself does not contain any confidential information. For greater certainty, the final argument may be placed on the public record without redaction.

Yours very truly,

LAWSON LUNDELL LLP

Ian Webb

Ian Webb

Encl.

BRITISH COLUMBIA UTILITIES COMMISSION

BRITISH COLUMBIA HYDRO AND POWER AUTHORITY

ELECTRICITY PURCHASE AGREEMENT RENEWALS FOR SECHELT CREEK, BROWN LAKE HYDRO, AND WALDEN NORTH HYDRO

British Columbia Hydro and Power Authority
Final Argument

July 5, 2019

A. Introduction

1. On May 31, 2018, British Columbia Hydro and Power Authority (**BC Hydro**) filed (the **Filing**)[1] with the British Columbia Utilities Commission (**BCUC**) three separate Electricity Purchase Agreements (**EPAs**) it had recently entered into:

    - The "**Sechelt Creek EPA**" with an effective date of March 1, 2018 and a term of 40 years between BC Hydro and MPT Hydro LP (**Sechelt Creek IPP**), a subsidiary of Capstone Infrastructure Corporation, for its Sechelt Creek run-of-river hydroelectric project located near Sechelt, British Columbia. The Sechelt Creek IPP and the shíshálh Nation have an agreement providing for collaborative decision-making and governance, and shíshálh Nation equity ownership and profit sharing for the project.[2]

    - The "**Brown Lake EPA**" with an effective date of April 1, 2018 and a term of 40 years between BC Hydro and Innergex Renewable Energy Inc. (**Brown Lake IPP**) for its Brown Lake storage hydroelectric project located by the Ecstall River near Prince Rupert, British Columbia. The storage capability of the Brown Lake project supports local reliability in the Prince Rupert area by allowing BC Hydro to reduce its reliance on the natural gas and diesel fueled Prince Rupert Generating Station which is a more costly and more GHG emitting alternative.

    - The "**Walden North EPA**" with an effective date of April 1, 2018 and a term of 40 years between BC Hydro and Cayoose Creek Power Limited Partnership (**Walden North IPP**) for its Walden North run-of-river hydroelectric project located on Cayoosh Creek near Lillooet, British Columbia. The Walden North IPP is comprised of Cayoose Creek Development Corporation (49%) and

[1] The revised Filing is Ex. B-1-1-2.
[2] A copy of this agreement has not been provided to BC Hydro; however, certain details of it have been provided by the Sechelt Creek IPP and are referenced in the Sechelt Creek EPA section of this Final Argument, below.

Innergex Renewable Energy Inc. (51%).[3] The Sekw'el'was Cayoose Creek Indian Band (**Cayoose Creek Indian Band**) is the sole beneficial shareholder of Cayoose Creek Development Corporation. Cayoose Creek Indian Band is part of the St'at'imc Nation.

2. Each of the three IPP hydroelectric projects is connected to BC Hydro's integrated system and has been operating reliably for 20+ years.

3. The Sechelt Creek EPA, Brown Lake EPA and Walden North EPA are each a renewal of an EPA that BC Hydro entered into with the IPP in the early 1990's, and are collectively referred to in this Final Argument as the "**EPA Renewals**". Each of the original EPAs was exempt from the *Utilities Commission Act* (***UCA***) section 71 filing requirement pursuant to Minister's Order M-22-9801-A1.

4. The EPA Renewals are modeled after the more robust present-day form of EPA BC Hydro uses for purchasing electricity from hydroelectric IPP projects, which BC Hydro has updated to reflect current drafting standards and more robust contractual provisions. These more robust terms and conditions are favourable to BC Hydro and therefore benefit BC Hydro ratepayers as well.[4] The changes are outlined in the comparison table included at Appendix F to the Filing.

5. The EPA Renewals provide for the continued procurement of electricity generated from clean or renewable resources at existing, reliable hydroelectric facilities in British Columbia. In addition to providing energy from clean or renewable resources, each of the EPA Renewals provides incremental benefits as follows:

    - The Sechelt Creek project is located close to BC Hydro's load centre in the Lower Mainland reducing losses on the system, delivers a relatively high

[3] Ex. B-5, BC Hydro's response to BCUC IR 1.2.1. A copy of the partnership agreement has not been provided to BC Hydro; however, certain details of it have been provided by the Walden North IPP and are referenced in the Walden North EPA section of this Final Argument, below.
[4] Ex. B-7, BC Hydro's response to CEC IR 1.2.1 and Ex. 14, BC Hydro's response to BCOAPO IR 2.1.1.

proportion of its annual energy during BC Hydro's peak load months, and is partly owned by the First Nation whose traditional territory the facility is located within.

- The Brown Lake EPA provides storage benefits to BC Hydro. The storage capacity of the Brown Lake project supports local reliability in the Prince Rupert area, and provides an estimated 6 MW of dependable capacity to BC Hydro's system.

- The Walden North EPA provides water diversion benefits to BC Hydro by enabling the continued diversion of water from Cayoosh Creek into Seton Lake, and the project is partly owned by the First Nation whose traditional territory the facility is located within.

6. BC Hydro's analyses as provided in the Filing and responses to IRs in this proceeding shows that, over the 40-year terms of each of the EPA Renewals, the levelized price of the energy BC Hydro and its ratepayers will receive under the EPA will be lower than BC Hydro's opportunity cost under certain sets of assumptions and will higher than BC Hydro's opportunity cost under other sets of assumptions, as considered in this proceeding. The analyses show that the levelized price of each of the EPA Renewals is lower than or generally similar to BC Hydro's opportunity cost in the majority of the model run scenarios. Included with BC Hydro's confidential response to BCUC CONF IR 2.9.1[5] is a spreadsheet file that provides 165 model runs analysing the cost-effectiveness of the EPA Renewals using 165 distinct sets of assumptions, including:

[5] Ex. B-13. Also refer to Ex. B-14-1, BC Hydro's confidential response to BCOAPO IR 2.6.2.

- several vintages of Market Price Forecasts, including the most recent Market Price Forecast available[6]

- several Load/Resource Balance (**LRB**) forecasts based on various high, mid and low load forecast assumptions[7]

- several assumptions of the cost of new greenfield wind energy resources in B.C.[8]

- revised opportunity cost calculations with respect to each of the EPA Renewals,[9] including calculations that use BC Hydro's conservative interim market price assumption for valuing energy during surplus and deficit periods[10]

- a range of capacity credits applicable to the Brown Lake EPA[11]

7. These model runs are confidential; however, the results of the model runs are discussed further below in a general manner that permits this final argument to be placed on the public record unredacted.

8. The benefits of each of the EPA Renewals to BC Hydro and its ratepayers, and to First Nations and local communities are addressed further below.

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[6] Ex. B-5-1, BC Hydro's confidential response to BCUC 1.21.1; and Ex. B-7, BC Hydro's response to CEC IR 1.4.3.
[7] Ex. B-5, BC Hydro's response to BCUC 1.11.2.2.1; and Ex. B-12, BC Hydro's response to BCUC IR 2.18.3.
[8] Ex. B-14, BC Hydro's response to BCOAPO IR 2.6.1.
[9] Ex. B-5-1, BC Hydro's confidential response to BCUC IR 1.8.1.
[10] Ex. B-5, BC Hydro's response to BCUC IR 1.8.4.
[11] The capacity credit is not applicable to the Sechelt Creek and Walden North EPAs as those facilities do not provide dependable capacity.

Review of Hearing Process

9. Each of the EPA Renewals is an "energy supply contract" under Part 5 of the *UCA* and has been filed with the BCUC in accordance with the requirements of section 71 of the *UCA*. The Filing was submitted to the BCUC on May 31, 2018.

10. By Order G-153-18 dated August 16, 2018, the BCUC decided to hold a hearing regarding the filed EPA Renewals and established a regulatory timetable. The timetable was amended on September 7, 2018 by Order G-168-18.

11. Two parties intervened and actively participated in the BCUC's proceeding to consider the EPA Renewals:[12]

    - the British Columbia Old Age Pensioners' Organization et al (**BCOAPO**);[13] and

    - the Commercial Energy Consumers Association of British Columbia (**CECBC**).

12. Capstone Infrastructure Corporation, the owner of MPT Hydro LP, submitted two letters of comments (Exhibit E-1) the first of which is a letter of support for the Sechelt Creek EPA from Capstone Infrastructure and the second is a letter of support for the Sechelt Creek EPA from the shíshálh Nation.

13. BCUC IR No. 1 was submitted to BC Hydro on September 27, 2018 followed by Intervener IR No. 1 on October 5, 2018.

14. On October 16, 2018, BC Hydro requested an extension for providing its answers to BCUC and Intervener IR No. 1 in part because a review of BC Hydro by the Government of British Columbia was underway and expected to provide guidance that could be relevant to BC Hydro's response to IR No. 1.

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[12] The Cayoose Creek Indian Band also registered as an intervener (Ex. C3-1) but did not actively participate in the proceeding.

[13] The BCOAPO did not participate in the first round of IRs, and only became active in the proceeding beginning in or around April 2019.

15. The BCUC granted the extension, and BC Hydro filed its response to BCUC and Intervener IR No. 1 on March 15, 2019, thirty days after the release of the Phase 1 Report of the Government's Comprehensive Review in February.

16. BCUC and Intervener IR No. 2 was submitted to BC Hydro in May 2019, and BC Hydro filed its response on June 21, 2019.

17. By Order G-91-19 the BCUC established that the hearing will proceed to final written arguments directly following the second round of IRs.

B. Facility Descriptions and Benefits of Associated EPA Renewals

Sechelt Creek EPA

18. The Sechelt Creek hydroelectric project is located northeast of Sechelt, B.C., on Salmon Inlet. The project has an installed capacity of 16.7 MW with average annual generation of 85 GWh.

19. The Sechelt Creek project became commercially operational in March 1997 and it has demonstrated the ability to provide consistent and reliable generation output for the past 20+ years during which it has been selling electricity to BC Hydro.

20. The original Sechelt Creek EPA had an evergreen provision that continued the contract on a year-to-year basis following the expiry of the initial 20-year EPA in March 2017. BC Hydro terminated the original Sechelt Creek EPA effective March 1, 2018, immediately prior to the effect date of the Sechelt Creek EPA renewal. Negotiating the EPA renewal and terminating the original EPA allowed BC Hydro to procure the same clean and reliable electricity from the same project but at a significantly lower price because the IPP's initial capital investment is likely to have been fully or largely recovered during the term of the original EPA.

21. The environmental, regulatory and long-term reliability risks associated with the Sechelt Creek project going forward are all considered low.[14]

22. Though the Sechelt Creek EPA does not trigger the duty to consult,[15] the project is within the consultative boundaries of the shíshálh Nation and in March 2017 the Sechelt Creek IPP entered into a long-term equity ownership and profit sharing agreement with the shíshálh Nation that provides for collaborative decision-making and governance, and significant economic benefits to the shíshálh Nation in connection with the project.[16] The Sechelt Creek IPP has not provided the agreement, citing commercial sensitivity, however, it has advised the following:

    - The agreement recognizes and gives effect to shíshálh Nation's indigenous rights and title in view of the facility's ongoing operation in their territory, enshrines collaborative decision-making and governance, and will result in equity ownership and profit sharing for the project, which will provide significant economic benefits to the shíshálh Nation, further details of which are provided in Exhibit E-1 and in the confidential response to BCUC CONF IR 2.1.1.

    - One member of shíshálh Nation is directly employed by the Sechelt Creek IPP on a part-time basis. In addition to this direct employment, shíshálh Nation's Resource Management team facilitates the ongoing maintenance of the facility's man-made salmon spawning channel. shíshálh Nation's Resource Management team is comprised of four full-time staff dedicated to local environmental projects which include the spawning channel.[17] The partnership agreement with the IPP will enable the shíshálh Nation to further train and

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[14] Ex. B-1-1-2, s. 4.7.
[15] Ex. B-1-1-2, s. 4.8.
[16] http://m.marketwired.com/press-release/capstone-infrastructure-corporation-and-shishalh-nation-sign-facility-agreement-tsx-cse.pr.a-2205631.htm.
[17] Ex. B-5, BC Hydro's response to BCUC IR 1.1.2.2.

employ shíshálh members and member contractors in the renewable energy industry.[18]

23. The Sechelt Creek project is an environmentally sustainable project: it has been recognized for its environmental stewardship, including efforts to enhance the salmon run in Sechelt Creek and has received a UNESCO prize for excellence in sustainable hydropower development. The Sechelt Creek IPP provided the following information in relation to salmon migration enhancement and associated environmental and financial benefits attributable to the project:[19]

> "The Sechelt Creek spawning channel is an important natural and financial resource for the shíshálh Nation community.
>
> The people of shíshálh Nation, known as the salmon people, have a clear and direct linkage to the health of Salmon Inlet, and through their actions and management have not only provided more food stock for their people, but have also brought back the salmon and other marine life that comes with them. With porpoise and whale sightings now more common, shíshálh Nation is very supportive and proud of the collaboration with the Sechelt Creek hydro facility, which has contributed to the revitalization of the area.
>
> In 2015, the benefit of the spawning channel to the economy of B.C. was clearly demonstrated with the opening of the commercial fishery for the first time in 50 years and the Nation was directly involved in the management of this fishery. The fishery yielded approximately 95,000 pink salmon.

[18] Exhibit E-1, shíshálh Nation letter of comment.
[19] Ex. B-12, BC Hydro's response to BCUC IR 2.1.2.

> The success of the spawning channel has been celebrated and acknowledged on numerous occasions, including the Sechelt Creek Celebration entitled "Honouring the Vision of the shíshálh Elders", and the Blue Planet Prize awarded by the International Hydropower Association in recognition of excellence in sustainable development.
>
> Decommissioning of the project and its associated spawning and rearing channel would have substantial negative implications not only to the recovering fishery, but also to the natural heritage and biodiversity of the area. Ultimately, the loss of this facility would undermine the legacy of the shíshálh elders who contributed their knowledge and wisdom to this endeavour."

24. The project is located close to BC Hydro's load centre in the Lower Mainland, and delivers a relatively high proportion of its annual energy during BC Hydro's peak load months. The proximity of the project to BC Hydro's load centre is beneficial because it means there are fewer losses on the system.[20] These attributes of the project's location (fewer losses) and annual electricity generation profile (high proportion of energy during peak load months and high annual capacity factor) are beneficial in the cost effectiveness analysis.

25. As noted above, BC Hydro's response to BCUC CONF IR 2.9.1 provides a spreadsheet file with 165 model runs analysing the cost-effectiveness of the EPA Renewals using 165 distinct sets of assumptions. Also refer to Ex. B-14, BC Hydro's response to BCOAPO IR 2.6.2. Those analyses show that, using the revised opportunity cost calculations including the updated LRBs, wind cost estimates and the 2017 and 2018 market price forecasts, the levelized price of the Sechelt Creek EPA is:

[20] Ex. B-5, BC Hydro's response to BCUC IR 1.35.1; and Ex. B-12, BC Hydro's response to BCUC IR 2.13.1.

- lower than BC Hydro's opportunity cost in scenarios that use the high end of the preliminary wind costs assessment range and the mid to large gap LRBs[21]

- generally similar to BC Hydro's opportunity cost in scenarios that use the mid-range of the preliminary wind costs assessment range and the mid to large gap LRBs

- higher than BC Hydro's opportunity cost in scenarios that use BC Hydro's conservative interim market price assumption for valuing energy during surplus and deficit periods, and in scenarios that use the low end of the preliminary wind costs assessment range and the small gap LRB

26. Generally, the analyses summarized above show that the levelized price of the Sechelt Creek EPA is lower than or generally similar to BC Hydro's opportunity cost in the majority of the scenarios.

27. The BCUC requested BC Hydro to estimate the rate impacts of each EPA Renewal to BC Hydro and its ratepayers using the BCUC Staff Model (Ex. A2-3) and range of assumptions and alternatives set out in that Model. On that basis, the estimated rate impacts of the Sechelt Creek EPA over its 40-year term are between -0.020 per cent and +0.045 per cent.[22] The two values represent the low and high end of the range of rate impacts for three portfolio runs (small/mid/large gap) using the BCUC Staff Model.

Brown Lake EPA

28. The Brown Lake hydroelectric project is located near Prince Rupert, B.C. The project has an installed capacity of 7.2 MW and provides average annual

[21] The small, mid and large gap LRBs refer to the LRBs with BC Hydro's low, mid and high load forecast, respectively.
[22] Ex. B-13, BC Hydro's response to BCUC CONF IR 2.8.1.1. The values represent the differential rate impact of pursuing the EPA renewal relative to the alternatives assumed in the BCUC Staff Model.

generation of 52.3 GWh. The project has storage capability that provides an estimated 6 MW of dependable capacity and a high annual capacity factor of 83%.[23]

29. The Brown Lake project became commercially operational in December 1996 and has demonstrated its ability to provide consistent and reliable generation for 20+ years.

30. The original Brown Lake EPA had an evergreen provision that continued the contract on a year-to-year basis following the expiry of the initial 20-year term in December 2016. BC Hydro terminated the original Brown Lake EPA effective April 1, 2018, immediately prior to the effective date of the Brown Lake EPA renewal. Negotiating the EPA renewal and terminating the original EPA allowed BC Hydro to procure the same clean and reliable electricity from the same project but at a significantly lower price because the IPP's initial capital investment is likely to have been fully or largely recovered during the term of the original EPA.

31. The environmental, regulatory and long-term reliability risks associated with the Brown Lake project going forward are all considered low.[24]

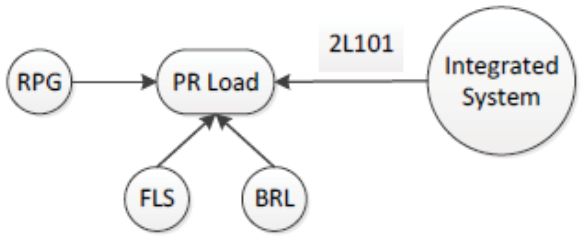
32. The project is within the consultative boundaries of six First Nations, and the Brown Lake EPA does not trigger the duty to consult.[25]

33. The project has storage capability that is beneficial to BC Hydro and its ratepayers because it enables the project to provide dependable capacity and to support local reliability in the Prince Rupert area in case of a forced or planned outage of BC Hydro's transmission line 2L101. In the absence of an EPA with the Brown Lake project , BC Hydro would have to support local reliability by relying on the more

[23] Ex. B-7, BC Hydro's responses to BCUC IRs 1.8.1 and 1.13.1.
[24] Ex. B-1-1-2, s. 5.7.
[25] Ex. B-1-1-2, s. 5.8.

costly and less environmentally friendly Prince Rupert Generating Station (RPG) which is a natural gas and diesel generation facility. As shown in the figure below from BC Hydro's confidential response to BCUC CONF IR 2.4.1, BC Hydro has two generating stations in the Prince Rupert area (RPG and the Falls River Generating Station (FLS)) plus the supply from the Brown Lake project (BRL) pursuant to the Brown Lake EPA.

Figure 1: Prince Rupert Load



34. The 2L101 transmission line is a long radial line[26] that has been forced out of service for extended periods in the past, including total outage durations in excess of 10 days in 2015 and 2018.[27] FLS and RPG can support the local load if 2L101 is not in service, however, as compared to running the RPG facility the Brown Lake EPA is:

- less expensive - each MWh of output from the Brown Lake project under the Brown Lake EPA is estimated to reduce the fuel cost (inclusive of carbon tax) of Prince Rupert generating station by a substantial amount;[28] and

- more environmentally friendly - in the absence of the Brown Lake EPA the increase in GHG emissions from RPG would be around 0.8 tonnes per MWh.[29]

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[26] Ex. B-5, BC Hydro's response to BCUC IR 1.37.1 includes a one-line diagram showing the transmission lines and generation facilities in the Prince Rupert area.
[27] Ex. B-12, BC Hydro's response to BCUC IR 2.14.4.
[28] Ex. B-5-1, BC Hydro's confidential response to BCUC IR 1.37.5.

35. As noted above, BC Hydro's response to BCUC CONF IR 2.9.1 provides a spreadsheet file with 165 model runs analysing the cost-effectiveness of the EPA Renewals using 165 distinct sets of assumptions. Also refer to Ex. B-14, BC Hydro's response to BCOAPO IR 2.6.2. Those analyses show that, using the revised opportunity cost calculations including the updated LRBs, wind cost estimates, the 2017 and 2018 market price forecasts, and the capacity value range[30], the levelized price of the Brown Lake EPA is:

- lower than BC Hydro's opportunity cost in scenarios with:

    (i) low capacity value and that use:

        a. the preliminary wind cost assessment range for the mid and large gap LRBs, or

        b. the high end of the preliminary wind cost assessment range for the small gap LRB

    (ii) high capacity value and that use:

        a. the preliminary wind cost assessment range for the mid and large gap LRBs

        b. the high end of the preliminary wind cost assessment range for the small gap LRB, or

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[29] Ex. B-13, BC Hydro's responses to BCUC CONF IRs 2.4.1 and 2.4.1.2.

[30] Certain of the scenarios run for the Brown Lake EPA assume no capacity value; however, there is a capacity value that should be attributed to the Brown Lake EPA and for this reason the scenarios described in this footnote should be excluded from consideration. In the no capacity value scenarios, the levelized price of the Brown Lake EPA is: (i) lower than BC Hydro's opportunity cost in scenarios with the high end of the preliminary wind cost assessment range for the mid and large gap LRBs; and (ii) higher than BC Hydro's opportunity cost in scenarios with (a) the small gap LRB, (b) the low end of the preliminary wind cost assessment range for the mid and large gap LRBs, or (c) BC Hydro's conservative interim market price assumption for valuing energy during surplus and deficit period.

c. BC Hydro's conservative interim market price assumption for valuing energy during surplus and deficit periods for the large gap LRB

- higher than BC Hydro's opportunity cost in scenarios with:

(i) low capacity value and that use:

a. the low end of the preliminary wind cost assessment range for the small gap LRB, or

b. BC Hydro's conservative interim market price assumption for valuing energy during surplus and deficit periods

(ii) high capacity value and that use:

a. the low end of the preliminary wind cost assessment range for the small gap LRB, or

(iii) BC Hydro's conservative interim market price assumption for valuing energy during surplus and deficit periods for the small and mid gap LRBs

36. Generally, the analyses summarized above show that the levelized price of the Brown Lake EPA is lower than BC Hydro's opportunity cost in the majority of the scenarios.

37. The BCUC requested BC Hydro to estimate the rate impacts of each EPA Renewal to BC Hydro and its ratepayers using the BCUC Staff Model (Ex. A2-3) and range of assumptions and alternatives set out in that Model. On that basis, the estimated rate impacts as a result of the Brown Lake EPA over its 40-year term are between

-0.010 per cent and +0.029 per cent.[31] The two values represent the low and high end of the range of rate impacts for three portfolio runs (small/mid/large gap) using the BCUC Staff Model.

Walden North EPA

38. The Walden North hydroelectric project is located about five kilometers west of Lillooet, B.C. It is on Cayoosh Creek just upstream of the confluence of Cayoosh Creek and the Seton River, which is just downstream of BC Hydro's Seton Dam. The project has five operating generating units with total installed capacity of 16 MW producing average annual generation of 33.8 GWh.

39. The locations of the Walden North project, the adjacent BC Hydro facilities (Cayoosh Diversion Tunnel, Seton Dam, Seton Canal, Seton Generating Station) and the confluences of the Cayoosh, Seton and Fraser rivers are all shown in the site layout and images provided in Appendix G of the Filing. It is recommended that the BCUC review the site layout and images in Appendix G to understand the interactions of these facilities, and how the Cayoosh Diversion Tunnel provides water to Seton Lake that both maintain the necessary 'dilution ratio' for salmon migration from the Fraser River to spawning areas in the Bridge River system and provides incremental heritage generation at the Seton Generating Station.

40. The Walden North project became commercially operational in June 1993 and it has demonstrated the ability to provide reliable generation output for the 25+ years that it has been selling electricity to BC Hydro.

41. The original EPA in relation to the Walden North project remains in effect at this time. That EPA has an evergreen provision that continues the contract following the expiry of the initial 20-year term unless terminated by either party after

[31] Ex. B-13, BC Hydro's response to BCUC CONF IR 2.8.1.1. The values represent the differential rate impact of pursuing the EPA renewal relative to the alternatives assumed in the BCUC Staff Model.

providing six months' notice. Effective April 1, 2014, BC Hydro entered into a Forbearance Agreement[32] with the project owner whereby the project owner agreed to pay compensation to BC Hydro in exchange for BC Hydro's agreement to forebear from exercising its right to terminate the EPA for a specified period of time.[33]

42. The original EPA and the Forbearance Agreement are currently in effect and will continue in accordance with their respective terms unless the Walden North EPA renewal is accepted by the BCUC. That is, the Walden North EPA provides that the original EPA and Forbearance Agreement will terminate (and in effect be replaced by the Walden North EPA) effective the date of BCUC acceptance of the Walden North EPA.

43. BC Hydro also notes that the Forbearance Agreement provides a financial benefit to BC Hydro and its ratepayers, and that BC Hydro does not incur any costs pursuant to the Forbearance Agreement. The costs that BC Hydro is incurring pursuant to the original EPA (whether or not the Forbearance Agreement is in effect) are recoverable pursuant to section 4(1)(b) of Direction No. 8 to the BCUC.[34]

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[32] A forbearance agreement is a common, stand-alone form of commercial agreement where one party agrees to forbear from exercising a right in exchange for consideration from the other party. The contract in which the original rights are set out continues to exist, unamended, during the term of forbearance. Ex. B-12, BC Hydro's response to BCUC IR 2.22.2.

[33] The circumstances that resulted in the Forbearance Agreement are explained in section 6.2 of the Filing. In BC Hydro's view, the Forbearance Agreement does not need to be filed under section 71 of the *UCA* as it is not an energy supply contract as defined in section 68 of the *UCA*. No energy is being purchased or sold under the Forbearance Agreement. Ex. B-12, BC Hydro's response to BCUC IR 2.22.2.1.

[34] The original EPA remains exempt from the U*CA* section 71 filing requirement pursuant to Minister's Order M-22-9801-A1. Section 4(1)(b) of Direction No. 8 provides that in setting rates for BC Hydro, the BCUC must not disallow for any reason the recovery in rates of the costs incurred by BC Hydro with respect to energy supply contracts entered into before April 1, 2016.

44. The environmental, regulatory and long-term reliability risks associated with the Walden North project going forward are all considered low.[35]

45. Though the Walden North EPA does not trigger the duty to consult,[36] the project is within the consultative boundaries of the Cayoose Creek Indian Band and the T'it'q'et Administration. The Cayoose Creek Indian Band and the T'it'q'et Administration are two of the eleven communities constituting the St'át'imc Nation. The Walden North IPP is comprised of Cayoose Creek Development Corporation (**CCDC**) (49%) and Innergex Renewable Energy Inc. (51%).[37] The Cayoose Creek Indian Band is the sole beneficial shareholder of CCDC. All of the shares of CCDC are held in bare trust for the Cayoose Creek Indian Band.

46. If the Walden North EPA renewal is accepted, the Walden North IPP is planning to undertake certain refurbishments to restore the facility to its original condition and bring aspects of the facility to current standards. There are no plans to increase the generating capacity. As noted in section 6.8 of the Filing, the Cayoose Creek Indian Band and the T'it'q'et Administration were informed that EPA discussion were taking place, and:

    - The Cayoose Creek Indian Band has confirmed to BC Hydro that they are comfortable with all aspects of the refurbishment, construction and mitigation plans for Walden North; and

    - BC Hydro has met with the T'it'q'et Administration in relation to the Walden North EPA renewal and has been consulting with them regarding the transfer of land related easements required for the project.

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[35] Ex. B-1-1-2, s. 6.7.
[36] Ex. B-1-1-2, s. 6.8.
[37] Ex. B-5, BC Hydro's response to BCUC IR 1.2.1.

47. The Walden North IPP provided the following information on the benefits to First Nations in connection with the Walden North project:[38]

> "There are First Nations benefits related to contracting, jobs and training under the Limited Partnership Agreement between Cayoose Creek Power Inc., as general partner, and Cayoose Creek Development Corporation and Innergex Renewable Energy Inc., as limited partners; the Partnership Agreement is not available for disclosure. The number of St'at'imc Nation members employed at the Walden North hydroelectric facility is not available."

48. Under the Cayoose Creek Power Limited Partnership Agreement between CCDC and Innergex, if the EPA is not renewed, CCDC (and its shareholder, Cayoose Creek Indian Band) receives zero income. If the EPA is renewed, the income that CCDC would earn over the life of the 40 year Walden North EPA would be determined by the net income (including capital gain) or the net loss (including capital loss) of Cayoose Creek Power Limited Partnership, and by the allocation thereof among the limited partners of record of Cayoose Creek Power Limited Partnership.[39]

49. The Walden North IPP provided the following information in relation to salmon migration enhancement and associated environmental and financial benefits attributable to the project:[40]

> "The Seton/Cayoose salmon population is of great natural importance to the Cayoose Creek Indian Band (Sekw'el'was). Several elements of the operation of the Walden North Hydro Facility provide specific protection and enhancement to the Cayoosh/Seton salmon population. These include Department of Fisheries and Oceans (DFO)-mandated requirements to

[38] Ex. B-5, BC Hydro/s response to BCUC IR 1.2.1.2.
[39] Ex. B-5, BC Hydro's response to BCUC IR 1.2.1.
[40] Ex. B-12, BC Hydro's response to BCUC IR 2.1.2. Also refer to Ex. B-5, BC Hydro's response to BCUC IR 1.3.3.1.

minimize the flow contribution of Cayoosh Creek to the Seton River (by diverting the Walden tailrace to the Seton Reservoir) during two critical 6-week salmon spawning migrations in summer and fall (total 12 weeks annually). Each period matches with a sockeye salmon sub-species (Gates Creek and Portage Creek strains). The maximum flow target ratios (20% and 10%, respectively) are achieved by the Facility remaining on-line during these 12 weeks. Salmon are further enhanced by the operation of the existing Walden salmon enhancement channel which is fed entirely from the Walden Facility tailrace flow. These two elements (water flow targets in Cayoosh Creek and the spawning channel operation) are examples of how the Walden Facility advances salmon populations of great natural importance to the Cayoose.

With respect to Natural Resource considerations: the salmon and other fish species, both resident and anadromous, are a significant food source for the local community and downstream communities. The salmon and other fish species are also a nutrient contribution to the ecosystem; the local wildlife and habitat are dependent on the fish-based nutrients to maintain a healthy population of flora and fauna. This includes locally harvested foodstuffs and wildlife, such as deer populations, that are a critical food source for the local communities.

In addition, the Lillooet-based consulting firm Splitrock Environmental Sekw'el'was LP (Splitrock Environmental) is wholly owned and held in trust by Sekw'el'was Cayoose Creek Indian Band. The Splitrock Environmental management and technical team is over 75% Indigenous and employs several members of Sekw'el'was and neighbouring communities. Splitrock Environmental is a terrestrial and aquatic (fisheries) consulting service firm that offers fish and fish habitat studies (specific to Cayoosh/Seton salmon populations) such as fish salvages, fish habitat assessments, spawning

channel assessments (fish enumeration) and maintenance, and hydro outage and maintenance support for protecting salmon populations. Revenue loss for salmon protection services would have a negative effect on Splitrock Environmental revenues."

50. As mentioned in the Filing and above, there is a tunnel (the **Cayoosh Diversion Tunnel**) running from the tailrace of the Walden North project to Seton Lake (see Appendix G of the Filing).

51. The Cayoosh Diversion Tunnel was built by BC Hydro as part of the construction of BC Hydro's Seton Dam project which was completed in 1956. The Cayoosh Diversion Tunnel diverts up to 1400 cfs of water from Cayoosh Creek to Seton Lake, providing for about 24.4 GWh/yr of incremental heritage generation at the Seton Generating Station, approximately 91% of which is outside the freshet season.[41] Diverting Cayoosh Creek flows into Seton Lake is also critical for salmon migration from the Fraser River, via Seton River and Seton Lake, to spawning areas in the Bridge River system during the sockeye salmon migration period.[42] When the Cayoosh Diversion Tunnel was closed after the Seton Dam project was completed, salmon were observed delaying at Seton Generating Station's tailrace. Subsequently, studies found that salmon migration delays were caused by the dilution of Seton River by Cayoosh Creek when the Cayoosh Diversion Tunnel is closed. When the tunnel is closed, Cayoosh Creek flows into Seton River which then flows into the Fraser River upstream of the Seton Generating Station tailrace. When the tunnel is open, Cayoosh Creek flows into Seton Lake and the same dilution ratio water flows to both the confluence of the Seton and Fraser Rivers

[41] Ex. B-5, BC Hydro's responses to BCUC IRs 1.31.1.1 and 1.39.4.
[42] Ex. B-5, BC Hydro's response to BCUC IR 1.5.1.

and also to Seton Generating Station via the Seton Canal. In the early 1980s, the diversion tunnel was re-activated to help maintain dilution ratios.[43]

52. A Diversion Agreement between BC Hydro and the Walden North IPP dated November 14, 1990 sets out the rights and obligations of the parties with respect to the design, construction, operation and maintenance of the works that the Walden North IPP constructed to divert Cayoosh Creek water into BC Hydro's tunnel. The contract term for the Diversion Agreement is tied to the original EPA, such that if the original EPA terminates, the Diversion Agreement also terminates. If accepted by the BCUC, the Walden North EPA provides for amendment of the Diversion Agreement such that its contract term will be tied to the term of the new Walden North EPA. Without an EPA and Diversion Agreement, there would be uncertainties regarding how the parties will manage water flows in relation to the Cayoosh Diversion Tunnel.[44] The continuation of the Diversion Agreement enables BC Hydro to avoid the cost of alternative diversion works to feed water into the Cayoosh Diversion Tunnel, and enables the parties to avoid disturbing the Cayoosh Creek spawning channels.

53. As noted above, BC Hydro's response to BCUC CONF IR 2.9.1 provides a spreadsheet file with 165 model runs analysing the cost-effectiveness of the EPA Renewals using 165 distinct sets of assumptions. Also refer to Ex. B-14, BC Hydro's response to BCOAPO IR 2.6.2. Those analyses show that, using the revised opportunity cost calculations including the updated LRBs, wind cost estimates and the 2017 and 2018 market price forecasts, the levelized price of the Walden North EPA is:

- lower than BC Hydro's opportunity cost in almost all scenarios

[43] Ex. B-5, BC Hydro's response to BCUC IR 1.39.1.
[44] Ex. B-5, BC Hydro's response to BCUC IR 1.41.2.

- except that it is marginally higher than BC Hydro's opportunity cost in the scenario that uses BC Hydro's conservative interim market price assumption for valuing energy during surplus and deficit periods and the 2018 market price forecast

54. The BCUC requested BC Hydro to estimate the rate impacts of each EPA Renewal to BC Hydro and its ratepayers using the BCUC Staff Model (Ex. A2-3) and range of assumptions and alternatives set out in that Model. On that basis, the estimated rate impacts to BC Hydro and its ratepayers as a result of the Walden North EPA over its 40-year term are between +0.001 per cent and +0.038 per cent.[45] The two values represent the low and high end of the range of rate impacts for three portfolio runs (small/mid/large gap) using the BCUC Staff Model.

C. BCUC Jurisdiction

55. The EPA Renewals are "energy supply contracts" as that term is defined in section 68 of the *UCA*.

56. Section 71(2) of the *UCA* provides that the BCUC may determine whether or not a filed energy supply contract is in the public interest. The test of what constitutes the public interest is a flexible test.

57. Section 71(2.21) of the *UCA* describes the factors and criteria that the BCUC is to consider when assessing whether or not an energy supply contract filed by BC Hydro is in the public interest. The BCUC is to consider:

- the interests of both current and future BC Hydro customers

[45] Ex. B-13, BC Hydro's response to BCUC CONF IR 2.9.1. The estimated rate impacts are based on the results of the BCUC Staff Model (Ex. A2-3). The values represent the differential rate impact of pursuing the EPA renewal relative to the alternatives assumed in the BCUC Staff Model.

- British Columbia's energy objectives as set out in section 2 of the *Clean Energy Act* (***CEA***)

- an applicable Government-approved Integrated Resource Plan (**IRP**)[46]

- the quantity, availability and price of the energy to be supplied under the contract

- the quantity, availability and price of any other form of energy that could be used instead of the energy to be supplied under the contract

58. As noted in Part 7 of BC Hydro's Filing, the EPA Renewals support the following British Columbia Energy Objectives prescribed in the *Clean Energy Act*:

- Objective 2(a) – to achieve electricity self-sufficiency;

- Objective 2(c) – to generate at least 93 per cent of the electricity in B.C. from clean or renewable resources;

- Objective 2(d) – to use and foster the development in B.C. of innovative technologies that support energy conservation and efficiency and the use of clean or renewable resources;

- Objective 2(f) – to ensure BC Hydro's rates remain among the most competitive of rates charged by public utilities in North America;

- Objective 2(k) – to encourage economic development and creation and retention of jobs;

[46] Alignment with the 2013 IRP is discussed in section 7, page 39, lines 8 to 14, of the Filing; and, for example, Ex. B-12, BC Hydro's response to BCUC IR 2.24.1.1.

- Objective 2(l) – to foster the development of First Nation and rural communities through the use and development of clean and renewable resources; and

- Objective 2(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

59. In assessing public interest, section 71(2.21) requires consideration of benefits the contract might provide that are potentially at odds with the interests of current or future ratepayers. For example, support for economic development and development of First Nations and rural communities could potentially be at odds with a narrow view of the interests of ratepayers.

60. BC Hydro also notes that section 71(2.21) of the *UCA* does not specify the weight to be given to each particular prescribed factor and criteria, nor is BC Hydro or the BCUC required to prioritize, or provide different weight to, and particular energy objective.[47] In determining whether to enter into an EPA, BC Hydro is guided by the section 71(2.21) criteria and does not apply weighting to these criteria. Generally, BC Hydro believes that it is not practical or feasible (with a reasonable level of confidence) to apply quantitative weighting to the section 71(2.21) factors and criteria. However, section 71(2.21) of the *UCA* does make clear that in determining whether an energy supply contract filed by BC Hydro is in the public interest the Commission is to consider B.C.'s energy objectives which includes "to foster the development of first nation and rural communities through the use and development of clean or renewable resources.

61. BC Hydro reiterates that relationships with First Nations are important to BC Hydro.

[47] Ex. B-5, BC Hydro's response to BCUC IR 1.1.3; and Ex. B-12, BC Hydro's response to BCUC IR 2.17.1.

D. BC Hydro submits that the EPA Renewals should be accepted as in the public interest

62. The EPA Renewals provide significant benefits to BC Hydro and its current and future ratepayers, as well as broader public interest benefits to First Nations, local communities and the environment (*e.g.*, salmon migration and spawning) all as summarised above.

63. BC Hydro calculated the cost effectiveness of the EPA Renewals at the time of the Filing using the prevailing assumptions at the time. These terms are summarized in Table 3 (Sechelt Creek EPA)[48], Table 5 (Brown Lake EPA),[49] and Table 7 (Walden North EPA)[50] of the Filing, respectively.

64. In response to various requests to BC Hydro through the IR process, BC Hydro provided:

- several vintages of Market Price Forecasts, including the most recent Market Price Forecast available
- several LRB forecasts based on various load forecast assumptions
- several assumptions of the cost of new greenfield IPP wind energy resource in B.C. and a preliminary assessment of a range of wind energy costs
- revised opportunity cost calculations with respect to each of the EPA Renewals, including calculations that use BC Hydro's conservative interim market price assumption for valuing energy during surplus and deficit periods
- a range of capacity credits applicable to the Brown Lake EPA

and ran opportunity cost analyses using 165 distinct sets of assumptions.

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[48] Ex. B-1-1-2, page 12.
[49] Ex. B-1-1-2, page 19.
[50] Ex. B-1-1-2, page 31.

65. The levelized price of each of the EPA Renewals is lower than or generally similar to BC Hydro's opportunity cost in the majority of the model run scenarios BC Hydro analysed in this proceeding.

66. BC Hydro suggests that the BCUC should not rely on any one distinct set of assumptions to make its public interest determinations on each of the EPA Renewals in this Filing; rather the BCUC should consider the entirety of the evidence and the criteria set forth in section 71(2.21) of the *UCA*.

ALL OF WHICH IS RESPECTFULLY SUBMITTED THIS 5TH DAY OF JULY 2019.

Counsel for British Columbia Hydro and Power Authority

Ian D. Webb