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January 14, 2021

Sent via email/eFile

**BC HYDRO 2020 STREET LIGHTING RATE APPLICATION
EXHIBIT A-3**

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

Re: British Columbia Hydro and Power Authority – 2020 Street Lighting Rate Application – Project No. 1599147 – Information Request No. 1

Dear Mr. James:

Further to your November 12, 2020 filing of the above-noted application, enclosed please find British Columbia Utilities Commission Information Request No. 1. In accordance with the regulatory timetable, please file your response by **Thursday, February 4, 2021.**

Sincerely,

Original signed by:

Marija Tresoglavic
Acting Commission Secretary

/ae



British Columbia Hydro and Power Authority
2020 Street Lighting Rate Application

INFORMATION REQUEST NO. 1 TO BRITISH COLUMBIA HYDRO AND POWER AUTHORITY

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A. RATE SCHEDULE 1701

**1.0 Reference: INTRODUCTION
Exhibit B-1 (Application), Section 1.4, p. 8
Proposed effective date**

On page 8 of the British Columbia Hydro and Power Authority (BC Hydro) 2020 Street Lighting Rate Application (Application), BC Hydro states that “BC Hydro also requests BCUC [British Columbia Utilities Commission] approval of RS [rate schedule] 1701 on a final basis effective May 1, 2021...BC Hydro proposes that the supplemental charge not take effect until May 1, 2021.”

1.1 Please explain the significance of the of the May 1, 2021 timeline for the proposed effective date for the approval of RS 1701 and the temporary supplemental charge.

1.1.1 In the event that BC Hydro does not receive a decision from the BCUC by its requested date of May 1, 2021, please explain the potential impacts on the Replacement Program and the proposed rates.

**2.0 Reference: BACKGROUND AND NEED FOR RS 1701 CHANGES
Exhibit B-1, Section 3.1, p. 13
RS 1703 contact charge**

On page 13 of the Application, BC Hydro states:

As part of its 2015 Rate Design Application (2015 RDA), BC Hydro committed to seeking approval of LED street lighting rates under RS 1701. In the 2015 RDA, BC Hydro also committed to review the monthly contact charge under RS 1703; Street Lighting Service under which the customer owns lights on BC Hydro owned poles. BC Hydro believes that the contact charge remains sufficient to recover its costs associated with this service and no amendments are proposed to the contact charge under RS 1703 in the Application.

- 2.1 Please provide a summary of the review of the RS 1703 contact charge undertaken by BC Hydro after the 2015 RDA.
- 2.2 Please explain why BC Hydro has not requested changes to the contact charge in this Application.
- 2.3 Does BC Hydro anticipate any significant changes to the RS 1703 contact charge in its next RDA? Please elaborate.
 - 2.3.1 Please explain the rationale for any anticipated changes and how these might affect the RS 1703 contact charge, if applicable.

**3.0 Reference: BACKGROUND AND NEED FOR RS 1701 CHANGES
Exhibit B-1, Section 3.5, 4, pp. 16, 18, 19; Appendix F, pp. 58–59; Exhibit C7-1, p. 2;
Exhibit E-10, p. 2
LED pilot studies and maintenance**

On page 16 of the Application, BC Hydro states:

With approximately 90,000 street lights to replace, it is important that the appropriate street lighting components are selected and installed...Given this context, BC Hydro undertook two pilot studies to better understand these issues, inform LED purchase specifications, and to help inform customers in their selection of appropriate street lights for each location. In 2016 and 2017, BC Hydro installed 195 LED street lights as part of its LED pilot studies.

On page 18 of the Application, BC Hydro states that it “decided not to include adaptive controls in the Replacement Program due to the findings of the pilot and due to their costs.”

On pages 58 to 59 of the LED Street Lighting Pilot Program report, BC Hydro states:

While the above mentioned benefits of increased public safety and reduced operation costs due to improved asset management and energy conservation (for both BC Hydro and the municipalities) are significant when using ASLC [Adaptive Street Lighting Controls], the logistics of applying it to luminaires under BC Hydro’s 1701 rate schedule bring significant limitations:

- At present, each vendor has its own communication network protocol from the nodes/gateway to CMS [Central Management System] and this further complicates the logistics of adopting ASLC for BC Hydro lease lights across so many municipalities. However, the industry is developing specifications for open IT standards and communication protocols that will allow interoperability at the CMS level so a municipality (or BC Hydro) can use a single/common user interface to monitor and interact with multiple networks/ controllers from various vendors.
- Measurement Canada needs to rule in favour of exempting the ASLC network metering from existing regulations and allow it to be used for revenue metering.

- 3.1 Please provide a summary any new developments to open IT communication standards and protocols since the conclusion of the LED Pilot Study in 2017, if applicable.
 - 3.1.1 Please discuss how these developments may facilitate greater interoperability at the CMS level between BC Hydro and its customers, if applicable.
- 3.2 Has Measurement Canada issued a ruling on the ASLC network metering exemption since the

- conclusion of the LED Pilot Study? Please discuss.
- 3.3 Please discuss how a favourable ruling might affect BC Hydro's capacity in implementing adaptive controls to LED streetlights in the future.
 - 3.4 Please discuss how adaptive lights might affect (i) BC Hydro's Replacement Program; (ii) LED rates; and (iii) potential bill impacts to customers.
 - 3.5 Please confirm, or explain otherwise, that the LED luminaires procured by BC Hydro have the capacity to add ASLC modules to the luminaire.
 - 3.5.1 If confirmed, please discuss the process and potential costs incurred to install ASLC modules.
 - 3.5.2 If not confirmed, please explain how BC Hydro has ensured its LED luminaires remain suitable, given the potential technological advances.

On page 19 of the Application, BC Hydro states:

Where failure of the LED street light occurs, the entire luminaire must be replaced. While this has a higher cost than re-lamping the street light, failures are expected to be much less frequent thus requires less labour costs.

By letters dated December 17 and 18, 2020, respectively, the City of Burnaby and the City of North Vancouver provided comments regarding luminaire replacement. On page 2 of Exhibit D-8-1, the City of Burnaby states:

The application claims that when an LED light fails, it requires the entire luminaire to be replaced (page 19). This is not accurate. Parts can be replaced depending upon the problem. Burnaby has converted all our streetlights to LED and we have cost effectively repaired streetlights by replacing parts only. The full replacement assumption made by Hydro suggests that their estimated operating cost for LED street light maintenance in Appendix G Table G-6 may be high and should be reviewed further.

Similarly, on page 2 of Exhibit E-10, the City of North Vancouver states:

The application claims that when an LED light fails, it requires the entire luminaire to be replaced (page 19). This is not accurate. Parts can be replaced depending upon the problem. The City of North Vancouver has converted all our streetlights on major roads to LED and we have cost effectively repaired streetlights by replacing parts only. Our new LED fixtures are the same LRL NXT Type, identical to the LED Type that BC Hydro is planning to install. The full replacement assumption made by Hydro suggests that their estimated operating cost for LED maintenance in Appendix G Table G-6 may be high and should be reviewed further.

- 3.6 In the event of a failed LED light, please discuss whether the entire luminaire, or only failed components of the luminaire, needs be replaced. In your response, please explain why BC Hydro's approach may differ from the City of Burnaby and the City of North Vancouver.
- 3.7 Please discuss how BC Hydro's replacement of any failed LED lights might affect the marginal financial benefits and costs referenced in Table G-5 of Appendix G and the proposed pricing of RS 1701 shown in Table G-6 of Appendix G. To the extent possible, please update Table G-6 to reflect different replacement and repair assumptions.
- 3.8 Compared with High Pressure Sodium (HPS) and Mercury Vapour (MV) street lights, please explain BC Hydro's anticipated frequency of regular maintenance required for the LED luminaires procured by BC Hydro.

**4.0 Reference: RS 1701 LED STREET LIGHT REPLACEMENT PROGRAM
Exhibit B-1, Section 4.1, p. 20; Appendix E, p. 47
LED installation plan and procurement process**

On page 20 of the Application, BC Hydro states:

The Program conducted a multi-phased procurement process to identify the luminaires and photocell supplier. To support the installation of LED street lights across the province, BC Hydro also conducted multiple procurement events to obtain regional installation services contractors.

- 4.1 Please discuss the potential impact to BC Hydro’s procurement events and deployment schedule in the event of a delay in regulatory process. In your response, please include potential cost impacts and the effects to ratepayers, if any.
- 4.2 Please explain BC Hydro’s selection process and how it finalized its LED vendor(s) and products.

On page 20 of the Application, BC Hydro describes the process whereby customers will select LED types and their locations. BC Hydro further states that “[c]ustomers will have the ability to select from a number of lights, with the initial offering of four wattages and two colour temperature options.”

- 4.3 Please discuss if BC Hydro plans to introduce additional wattage and colour temperature options to customers.
- 4.3.1 If confirmed, please discuss how this may affect the proposed LED rates and regular maintenance costs.
- 4.4 Please explain if there are any secondary markets to sell BC Hydro’s current inventory of HPS and MV lights.
- 4.5 Did BC Hydro consider the potential resale value of its existing HPS and MV lights when calculating the total capital cost requirements for LED replacement? Please elaborate.

Page 47 of the Customer Engagement Materials states the following was raised as a community/public concern:

Is house side shielding going to be an option?

- The LED lighting provides better cut-off, so there should be less light spill into the residence.
 - Most light spill can be minimized by adjusting light angles.
 - We do not anticipate light spill issues whereby light shields are needed but can assess individual circumstances during LED deployment.
- 4.6 In the event that light shields are needed to address the community/public concern referenced above, please discuss the potential added cost of installing the light shields and how these costs would be recovered.
- 4.6.1 Please explain how BC Hydro would assess these requests on an individual basis.

**5.0 Reference: SPECIAL CONDITIONS
Exhibit B-1, Section 5.4.3, p. 37–38
Proposed amendments**

On page 37 and 38 of the Application, BC Hydro states:

BC Hydro proposes the following amendments to the RS 1701 Special Conditions. Details can be found in Appendix B:

- BC Hydro proposes amendments to provide that both MV fixtures and HPS fixtures are not available for new installations following the commencement of the Replacement Program;
- BC Hydro proposes an amendment to allow BC Hydro to recover the undepreciated value and removal costs when customers request the removal of street lights before they are fully depreciated for any reason. The current provision in RS 1701 only allows BC Hydro to recover this cost if the street light is to be replaced with a different street light. However, as the cost implications of removing a light are identical whether or not the light is replaced, the amendment further protects other BC Hydro customers from incurring expenses due to decisions made by a customer taking service under RS 1701 to discontinue such service. BC Hydro further proposes that a Customer be assessed the undepreciated amount of the fixture plus the removal cost when BC Hydro removes the fixture as a result of the Customer's failure to comply with the Electric Tariff. BC Hydro notes that it does not typically disconnect street lighting when a customer's service is disconnected for other reasons such as non-payment, and so this represents an extreme circumstance. RS 1755 customers include commercial and residential accounts, and some are proposed to be migrated from RS 1755 to RS 1701 as explained in section 6. In addition, with the changes to RS 1701, new requests to illuminate private property can be made. BC Hydro recognizes that property ownership can change and that a new residential or business owner may not wish to continue receiving RS 1701 lighting service. As the new customer had not requested RS 1701 service initially, in such a situation it would not be appropriate to assess the new owner the undepreciated book value of the lighting assets or the cost of removal. As a result, BC Hydro proposes to exclude these Customers from being assessed these costs provided that the Customer requests removal within one year of initiating Service at the Premises. When initiating service, BC Hydro will notify the customer of the existence of RS 1701 lighting service at their Premises and also explain their option to accept the terms of service or request termination;
- BC Hydro proposes to substitute references to "lamps" with "street lights" since LED street light luminaires do not contain lamps. Should an LED luminaire fail, the entire luminaire would require replacement;
- BC Hydro proposes to include direct language to specify BC Hydro's right to terminate the service when the pole is no longer suitable for the RS 1701 service. Most initial RS 1701 service agreements were signed decades ago, and this special condition is obsolete in practice. There are situations where BC Hydro cannot practically continue to provide the RS 1701 service at certain locations, e.g., a relocation or alteration of a pole or the distribution system in an area goes underground, BC Hydro needs to reserve the discretion to terminate the RS 1701 service providing it provides the customer a minimum of 24-month notification to seek alternative lighting;
- BC Hydro proposes a new Special Condition to specify that BC Hydro reserves the sole

right to determine whether or not a street light will be installed on a pole that is part of BC Hydro's distribution system and located on public property. In applying this Special Condition BC Hydro would include consideration of, but not be limited to: the appropriateness of the requested street lighting service; the availability of space on distribution poles to allow the installation of the street light according to BC Hydro standards; unhindered access to the location and pole where the street light would be installed, any safety concerns related to installation, operation or maintenance of the street light; and the expectation that the customer will continue to receive street light service for a sufficient period for BC Hydro to recover its investment in the lighting fixture; and

- BC Hydro proposes a new Special Condition No. 10 to reflect that while BC Hydro undertakes vegetation maintenance as required to manage its distribution system, it is not responsible for vegetation maintenance around the street light that is required for illumination purposes. Similarly, while BC Hydro installed and maintains the lighting fixtures, it is not responsible for the lighting fixture selection.

- 5.1 Please discuss the consultation that took place with regards to all proposed Special Conditions amendments to the RS 1701.
- 5.2 Please explain how BC Hydro currently addresses situations where a customer requests the removal of street lights before the street lights are fully depreciated for any reason.
 - 5.2.1 Please explain who is responsible for the undepreciated amount and how it is currently recovered.
- 5.3 Please explain how BC Hydro currently addresses situations where a customer fails to comply with the Electric Tariff.
 - 5.3.1 Please explain who is responsible for the undepreciated amount of the fixture and the removal cost.
 - 5.3.1.1 Please explain how the undepreciated amount is currently recovered.
- 5.4 Please explain how the undepreciated book value of the lighting assets or the cost of removal will be recovered in situations where a recent change in property ownership occurred and the new residential or business owner does not wish to continue receiving RS 1701 lighting service.
 - 5.4.1 Please discuss how the method of cost recovery discussed satisfies the 'fairness' grouping of the Bonbright criteria.
- 5.5 Please explain why a pole may no longer be suitable for the RS 1701 service.
- 5.6 Please provide a list of all circumstances where BC Hydro would not be able to continue to provide the RS 1701 service at certain locations.
 - 5.6.1 In such situations, are there any alternative options available to the customer besides termination of its service? If yes, please provide those alternatives.
 - 5.6.1.1 If there are no alternatives available, is the customer left without service for its street light? Please explain the implications of this scenario, if applicable.
 - 5.6.2 Please discuss how BC Hydro currently addresses situations where BC Hydro cannot practically continue to provide the RS 1701 service at certain locations.
- 5.7 Please discuss the options available to customers if BC Hydro cannot practically continue to provide the RS 1701 service at certain locations.
- 5.8 In regard to BC Hydro's right to terminate the service when the pole is no longer suitable for the RS 1701 service, BC Hydro states "[m]ost initial RS 1701 service agreements were signed

decades ago, and this special condition is obsolete in practice.” Please indicate what special conditions are obsolete.

5.8.1 Please confirm, or otherwise explain, that some RS 1701 service agreements include this special condition.

5.9 Please explain who currently has the right to determine whether a street light will be installed on a pole that is part of BC Hydro's distribution system and located on public property.

5.10 Please provide all criteria that BC Hydro will use to determine whether a street light will be installed on a pole that is part of BC Hydro's distribution system and located on public property if it is granted sole discretion.

5.10.1 Please indicate how BC Hydro will address disputes as it relates to its decision.

5.11 Please explain who is currently responsible for vegetation maintenance around the street light that is required for illumination purposes.

B. RATE DESIGN

**6.0 Reference: RATE DESIGN PRINCIPLES
Exhibit B-1, Section 5.1, p. 25
Bonbright criteria**

On page 25 of the Application, BC Hydro provides Table 5, which includes a summary of the Bonbright Assessment of RS 1701 Final Rate Proposal:

Table 5 Bonbright Assessment of RS 1701 Final Rate Proposal

Bonbright Criteria	Grouping	Performance	Remarks
1. Price signals to encourage efficient use and discourage inefficient use	Economic Efficiency	Good	The marginal value of electric energy and capacity related savings are reflected in the RS 1701 rate
2. Fair apportionment of costs among customers	Fairness	Very Good	Savings, and costs associated with the LED conversion are reflected in the proposed new rate
3. Avoid undue discrimination			
4. Customer understanding and acceptance; practical and cost effective to implement	Practicality	Good/Fair	The proposed rate is easy to understand and practical to administer. The proposed rate results in a temporary bill increase which may not align with customer expectations
5. Freedom from controversies as to proper interpretation			
6. Recovery of the revenue requirement	Stability	Good	The only element of the rate that changes is the supplemental charge – this temporary charge ends when deployment completes. Otherwise the rate will be stable over time, changing only with general rate increases or decreases
7. Revenue stability			
8. Rate stability			

6.1 Please describe the process undertaken by BC Hydro to assess the performance of the RS 1701

Final Rate Proposal against the Bonbright criteria, including, but not limited to:

- The range of potential performance rating levels (i.e. what ratings were available other than “Good”, “Fair” and “Very Good”);
- The criteria used to evaluate performance into each rating level (i.e. How did BC Hydro define the performance as “Good,” “Fair,” etc.); and
- How the assessment was reviewed and evaluated.

6.2 Please discuss how the RS 1701 Final Rate Proposal meets the Bonbright criteria described as "price signals that encourage efficient use and discourage inefficient use."

6.3 Please discuss how the proposed RS 1701 Final Rate meets the Bonbright criteria grouped under “Practicality”.

**7.0 Reference: CALCULATION OF THE TEMPORARY SUPPLEMENTAL CHARGE
Exhibit B-1, Section 5.2.2, p. 28; Section 5.3.2, p. 33; Appendix G, p. 17
Rate design principles**

On page 28 of the Application, BC Hydro states:

The early retirement of existing street lights results in unrecovered depreciation for those assets that are removed before the end of their service life; specifically, the light fixtures. As these street lights are replaced by LEDs, the remaining Net Book Value of the replaced street light needs to be written off. In order to contain this write-off within RS 1701 (i.e., and not paid for by other ratepayers), BC Hydro is proposing that a temporary supplemental charge be included in the rate schedule. Based on the Net Book Value of existing street lights to be replaced with LED lights as of November 1, 2020 and considering on-going depreciation from then until the Replacement Program is complete, it is estimated that a total \$6.55 million unrecovered depreciation of existing street lights needs to be recovered through the supplemental charge...

...The proposed supplemental charge is in accordance with the Bonbright fairness criteria because BC Hydro’s proposal would recover these costs only from RS 1701 customers through a supplemental charge that applies during the period in which these costs are incurred. BC Hydro calculated the supplemental charge as a fixed charge per month per light (see section 5.3.2). The supplemental charge is calculated as \$2.06 /month/street light and is proposed to be in effect from May 1, 2021 to March 31, 2024 (35 months).

On page 33 of the Application, BC Hydro states that “[t]he supplemental charge is calculated based on the postage stamp rate principle that the cost is shared by all customers under this rate schedule and at the same time.”

On page 17 of Appendix G to the Application, BC Hydro provides the following table regarding the calculation of the supplemental fee:

Table G-7 Calculation of the Supplemental Charge

Item	Amount
Total NBV of HPS Street Lights (\$ million)	6.55
Number of Street Lights	90,850
NBV Per Street Light (\$/unit)	72.10
Assumed Recovery (months)	35
Supplemental Charge (\$/light/month)	2.06

- 7.1 Please confirm, or explain otherwise, that the \$6.55 million unrecovered depreciation is a cost estimate.
- 7.2 Please explain how BC Hydro calculated the \$6.55 million unrecovered depreciation estimate. Please provide any supporting analysis and calculations in your response.
- 7.3 In a scenario where the \$6.55 million unrecovered depreciation estimate changes, please explain the effects on the \$2.06/month/street light supplemental charge. Please provide any supporting analysis and calculations in your response.
- 7.4 Please explain BC Hydro's rationale for choosing a postage stamp rate for the supplemental charge.
- 7.5 Please discuss any alternatives BC Hydro considered with respect to the regulatory treatment of unrecovered depreciation for those assets that are removed before the end of their service life and explain why those alternatives were rejected.
 - 7.5.1 Please discuss why unrecovered depreciation costs should be borne by ratepayers.
- 7.6 Please discuss how utilities have treated the unrecovered depreciation amount for street lights replaced as a result of the Federal PCB Regulation in other jurisdictions.
 - 7.6.1 In these jurisdictions, are unrecovered depreciation costs borne by the ratepayer, shareholder, or combination of the two? Please discuss.
- 7.7 Please clarify whether HPS lights of 100 watts, 150 watts and 200 watts and MV lights of 175 watts, 250 watts and 400 watts, have different depreciation rates.
 - 7.7.1 If yes, please indicate why the supplemental charge is not different for different wattage lights and indicate how this aligns with the Fairness grouping of the Bonbright criteria.

**8.0 Reference: CALCULATION OF THE STREET LIGHT CHARGE
Exhibit B-1, Appendix G, pp. 1–6, 9, 12
Rates**

On Page 1 of Appendix G to the Application, BC Hydro states:

To develop the target revenue estimate after the LED conversion program, a marginal cost model was developed by adjusting fiscal 2021 RS 1701 revenue for the savings and marginal costs directly attributed to the program, which are: a) maintenance savings, b) electricity savings, c) program capital and installation costs, and d) undepreciated value of existing lights removed before their end of life.

On page 2 of Appendix G to the Application, BC Hydro provides the following table of the Maintenance Budget for Existing RS 1701 street lights:

Table G-1 Maintenance Budget for Existing RS 1701 Street Lights

Fiscal Years	Maintenance Budget (\$ million)
F2016	1.10
F2017	1.14
F2018	1.49
F2019	1.41
F2020	1.11
Five year average	1.25

On page 4 of Appendix G to the Application, BC Hydro states:

The Replacement Program is estimated to result in energy savings of approximately 28 GWh/yr. after it is fully implemented. These savings are valued at BC Hydro’s market energy price forecast. The most recent market energy price forecast is BC Hydro’s June 2020 Market Price Forecast, which is based on the ABB Spring 2020 Reference Case forecast. The average annual value of the energy savings is \$1.1 million per year.

On page 5 of Appendix G to the Application, BC Hydro states:

Once it is fully implemented the Replacement Program is expected to reduce BC Hydro’s peak demand by 6.7 MW. This reduction results in capacity savings associated with generation capacity, transmission and distribution. Capacity savings are based on BC Hydro’s Long Run Marginal Costs (LRMCs) for generation and bulk transmission capacity, for non-bulk transmission and for distribution. The average value of the annual capacity related savings is estimated to be \$1.1 million per year.

On page 6 of Appendix G to the Application, BC Hydro provides the following table of the Calculation of Electricity Savings of the Replacement Program:

Table G-3 Calculation of Electricity Savings of the Replacement Program

Fiscal Years	A Demand Reduction (kW)	B Energy Reduction (MWh)	C Marginal Energy Cost per Unit (\$/MWh)	D Generation & Bulk Transmission Capacity Marginal Unit Cost (\$/kW-yr)	E Distribution Capacity Marginal Unit Cost (\$/kW-yr)	F Non-bulk Transmission Marginal Unit Cost (\$/kW-yr)	G Energy Savings (\$ million) (=BxC)	H Capacity Savings (\$ million) (=(D+E+F)xA)	I Total Savings (\$ million) ³ (=G+H)
2021	330	1,385	27.9	40.7	26.1	52.2	0.0	0.0	0.1
2022	2,255	9,471	30.5	41.5	26.6	53.2	0.3	0.3	0.6
2023	5,206	21,865	28.7	42.4	27.1	54.3	0.6	0.6	1.3
2024	6,611	27,768	32.1	43.2	27.7	55.4	0.9	0.8	1.7
2025	6,661	27,978	35.7	44.1	28.2	56.5	1.0	0.9	1.9
2026	6,661	27,978	36.9	45.0	28.8	57.6	1.0	0.9	1.9
2027	6,661	27,978	37.4	45.9	29.4	58.8	1.0	0.9	1.9
2028	6,661	27,978	38.4	46.8	30.0	59.9	1.1	0.9	2.0
2029	6,661	27,978	41.1	47.7	30.6	61.1	1.1	0.9	2.1
2030	6,661	27,978	42.3	48.7	31.2	62.4	1.2	0.9	2.1
2031	6,661	27,978	42.1	78.4	31.8	63.6	1.2	1.2	2.3
2032	6,661	27,978	45.6	79.9	32.4	64.9	1.3	1.2	2.5
2033	6,661	27,978	46.2	81.5	33.1	66.2	1.3	1.2	2.5
2034	6,661	27,978	47.5	83.2	33.7	67.5	1.3	1.2	2.6
2035	6,661	27,978	49.6	84.8	34.4	68.8	1.4	1.3	2.6
2036	6,661	27,978	51.8	86.5	35.1	70.2	1.5	1.3	2.7
2037	6,661	27,978	53.7	88.3	35.8	71.6	1.5	1.3	2.8
2038	6,661	27,978	58.3	184.6	36.5	73.1	1.6	2.0	3.6
2039	6,661	27,978	61.1	188.3	37.3	74.5	1.7	2.0	3.7

2040	6,661	27,978	64.9	192.0	38.0	76.0	1.8	2.0	3.9
Average	6,049	25,407	43.6	79.7	31.7	63.4	1.1	1.1	2.2

On page 9 of Appendix G to the Application, BC Hydro provides the following table of the total program costs:

Table G-4 Total Program Costs (Inclusive of LED Installation for RS 1755, RS 1701, and Contingency)

Program Costs	Total Request Amount (\$ million)
Direct Deployment Costs (Materials + Installation)	
Labour	20.14
Materials	24.55
Indirect Program Costs	
Program Management	1.34
Deployment Management	3.21
Supporting Technology	2.24
Customer Engagement	0.83
Other (Change Management, Material Management, Procurement, Regulatory)	0.64
Dismantling	2.41
Total Program Costs before Loadings and Contingency	55.36
Contingency	7.55
Inflation	2.92
Capital Overhead	7.53
Program Expected Cost	73.36
Program Reserve (Loaded)	9.92
Requested Total Authorized	83.28

- 8.1 Please explain how BC Hydro calculated the \$7.55 million contingency amount. Please provide any supporting analysis and calculations in your response.
- 8.2 Please provide the contingency and reserve percentages as it relates to the total program costs and explain why these percentages are reasonable. Please include how the contingency and reserve percentages were calculated.
- 8.3 Please provide the level of confidence BC Hydro has in the total program cost estimates (i.e. cost estimating accuracy range) and the equivalent Advancement of Cost Engineering (ACE) International cost estimate classification.
- 8.4 Please identify any known risks to the cost estimate and indicate how BC Hydro has mitigated those risks.
- 8.5 Please explain if any of the total program costs provided in Table G-4 are fixed costs. If yes, please indicate the amount of costs that are fixed.

On page 12 of Appendix G to the Application, BC Hydro provides the following table of the RS 1701 Marginal Cost Model Outcomes:

Table G-5 RS 1701 Marginal Cost Model Outcomes

Fiscal Year	Electricity Savings (\$ million)	Undepreciated Value of Existing HPS Lights (\$ million)	One-time Investment Replacement Program Cost (\$ million)	Maintenance Savings (\$ million)	Net Savings (\$ million)	Revenue without Replacement Program (\$ million)	Planned Revenue after Savings ⁴ (\$ million)
F2021	(0.1)	2.2	1.2	(0.5)	2.8	23.0	25.8
F2022	(0.6)	2.2	2.3	(1.3)	2.6	23.6	26.2
F2023	(1.3)	2.2	3.2	(1.3)	2.8	23.5	26.4
F2024	(1.7)	-	3.0	(1.3)	0.0	24.2	24.2
F2025	(1.9)	-	3.0	(1.3)	(0.2)	24.7	24.6
F2026	(1.9)	-	3.0	(1.4)	(0.2)	25.2	25.0
F2027	(1.9)	-	3.0	(1.4)	(0.3)	25.7	25.4
F2028	(2.0)	-	3.0	(1.4)	(0.4)	26.2	25.9
F2029	(2.1)	-	3.0	(1.4)	(0.5)	26.8	26.3
F2030	(2.1)	-	3.0	(1.5)	(0.6)	27.3	26.7
F2031	(2.3)	-	3.0	(0.8)	(0.1)	27.8	27.8
F2032	(2.5)	-	3.0	(0.2)	0.4	28.4	28.8
F2033	(2.5)	-	3.0	(0.3)	0.3	29.0	29.2
F2034	(2.6)	-	3.0	(1.4)	(0.9)	29.5	28.7
F2035	(2.6)	-	3.0	(1.4)	(1.0)	30.1	29.1
F2036	(2.7)	-	3.0	(1.4)	(1.1)	30.7	29.6
F2037	(2.8)	-	3.0	(1.4)	(1.2)	31.3	30.2
F2038	(3.6)	-	3.0	(1.4)	(1.9)	32.0	30.0
F2039	(3.7)	-	3.0	(1.4)	(2.0)	32.6	30.6
F2040	(3.9)	-	3.0	(1.3)	(2.2)	33.3	31.1

- 8.6 Please explain how BC Hydro calculated energy savings of 28 GWh/year after 2023. Please provide any supporting analysis and calculations in your response.
- 8.7 Please explain how BC Hydro calculated capacity savings of 6.7 MW/year after 2023. Please provide any supporting analysis and calculations in your response.
- 8.8 Did BC Hydro perform sensitivity analysis on costs, revenues and program savings? Please discuss.
- 8.8.1 If yes, in a workable Excel spreadsheet, please provide any sensitivity analysis, including any assumptions and calculations.
- 8.8.2 If no, in a workable Excel spreadsheet, please provide a sensitivity analysis on costs, revenues and program savings for a variety of realistic scenarios.
- 8.9 Please explain BC Hydro’s rationale for choosing a 20-year analysis period for the calculation of the electricity savings of the replacement program included in the Marginal Cost Model.
- 8.10 Please provide a workable Excel spreadsheet of the calculations included in Table G-3 and Table G-5.
- 8.11 Please explain why the Generation & Bulk Transmission Capacity Marginal Unit Cost increases, provided in column D of Table G-3, from \$88.3 kw/year in 2037 to 184.6 kw/year in 2038.
- 8.12 Please explain the difference between program reserve costs and program contingency costs provided in Table G-4 and how each was calculated.
- 8.13 Please explain how BC Hydro calculated the “Revenue without Replacement Program” values, as included in Table G-5. Please provide any supporting analysis and calculations in your response, where appropriate.

9.0 Reference: PROPOSED PRICING
Exhibit B-1, Section 5.3, p. 30; Appendix G, pp. 15–16
Final Rates

On page 30 of the Application, BC Hydro states:

BC Hydro proposes four wattage groups for the new LED street light rates: 50 watts or less, 51 to 80 watt, 81 to 120 watt and greater than 120 watts. HPS and MV street lights have fixed industry standard wattages that are available in the market. LED street lights, however, do not have industry standard wattages and vendors continue to improve the efficiency of LED products.

On page 15 and 16 of Appendix G to the Application, BC Hydro provides the following Rate Design and Pricing Model Summary:

Table G-6 RS 1701 Rate Design and Pricing Model Summary

			1	2	3	4	5
	LED RATE CATEGORY	Formula	Average	< 50W	51-80W	81-120W	> 120W
	BASIS FOR CALCULATION						
1	RS 1701 Street Lights	No.	90,480	5,217	46,952	35,958	2,353
2	RS 1755 Lights Converted	No.	370	30	269	71	-
3	Number of Fixtures	L1 + L2	90,850	5,247	47,222	36,029	2,353
	LED REPLACEMENT COSTS						
4	Total Installed cost	\$/Unit	693.51	557.76	629.86	790.39	790.39
5	NBV of Re-Used equipment (Arms)	\$/Unit	158.55	158.55	158.55	158.55	158.55
6	Total Investment Related Costs	L4 + L5	852.06	716.31	788.41	948.94	948.94
	LED OPERATING COSTS						
7	Depreciation of Investment Related Costs	\$/Unit/Year	40.69	33.90	37.51	45.54	45.54
8	LED Maintenance Cost	\$/Unit/Year	6.10	6.10	6.10	6.10	6.10
9	Total Cost Excluding Electricity	L7 + L8	46.79	40.01	43.61	51.64	51.64
	COST OF ELECTRICITY						
10	Average Wattage	W	90.6	39.0	75.0	114.0	162.0
11	Electricity Rate (from F2019 FACOS ²)	\$/W/Month	0.0398	0.0398	0.0398	0.0398	0.0398
12	Cost of Electricity	L10 * L11 * 12	43.29	18.63	35.82	54.45	77.37
	RATE DETERMINATION - F2021						
13	Annual LED Cost - Incl Electricity	L9 + L12	90.09	58.63	79.43	106.09	129.01
14	Shared and Electrical Infrastructure Costs	To match R/C	157.88	122.34	145.84	175.96	201.87
15	Recovered through Billing	L13 + 14	247.97	180.97	225.28	282.05	330.88
16	LED Rate	L15 / 12	20.66	15.08	18.77	23.50	27.57

- 9.1 Please explain how BC Hydro selected the four wattage groups for the new LED street light rates.
- 9.2 Please provide a workable Excel spreadsheet for the RS 1701 Rate Design and Pricing Model Summary as included in Table G-6.
 - 9.2.1 Please include all assumptions made associated with this pricing model and provide any supporting rationale.

10.0 Reference: BILL IMPACTS
Exhibit B-1, Section 5.3.1, p. 32
Billing

On page 32 of the Application, BC Hydro provides the following table showing the illustrative pricing for RS 1701 customers:

Table 8 Illustrative RS 1701 Final Pricing – Fiscal 2021

1	2	3	4	5
Street Light Type/Wattage	Current Pricing	Illustrative New Pricing		
		Street Light Charge	Temporary Supplemental Charge	Effective Charge with Supplemental Charge
LED 50 W or less	n/a	15.08	2.06	17.14
HPS 100 W	19.40	18.77	2.06	20.83
LED 51 W – 80 W	n/a			
HPS 150 W	23.14	23.50	2.06	25.56
LED 81 W– 120 W	n/a			
HPS 200 W	26.72	27.57	2.06	29.63
LED >120 W	n/a			

10.1 Please confirm, or explain otherwise, that upon replacement of HPS or MV lighting, customers will receive an LED street light wattage comparable to the wattage they currently receive.

10.1.1 If not confirmed, please discuss if customers are aware of the potential bill impact associated with HPS or MV being replaced with LED.

11.0 Reference: CUSTOMER CONSULTATION AND INFLUENCE ON RATE DESIGN
Exhibit B-1, Section 5.3.2, pp. 34–35
Consultation

On page 34 of the Application, BC Hydro states

BC Hydro specifically sought feedback on the following rate design elements: Whether the supplemental charge should be applied as a fixed charge per light or a percentage of customers’ bills.

Of the 26 complete feedback forms received, twelve customers, including City of Burnaby, City of Coquitlam and City of Surrey, indicated the preference of the charge being a fixed charge per light. Five customers prefer the charge being a percentage of the total billed amount. These customers include City of Fort St. John, Municipality of North Cowichan, and the Tsawwassen First Nation. Other comments are related to customers who do not understand or disagree with the supplemental charge due to the age of existing lights in their areas.

Accordingly, BC Hydro is proposing a fixed charge per light supplemental charge. The same charge will be applied to each street light regardless of the wattages.

On page 34 and 35 of the Application, BC Hydro states:

The Early Removal Fee would allow BC Hydro to recover the undepreciated value and removal costs of the LED fixtures if they are removed before they are fully depreciated.

Nine customers provided feedback on this matter. One customer, City of Surrey, voiced support for recovering costs from customers who requested early removals. Most customers expressed interest to see more details about this proposed charge. City of Burnaby does not support the charge and believes if an early removal charge is applied, the removed asset should be given to the customer to reuse.

- 11.1 Please discuss how customer feedback impacted BC Hydro’s decision on whether the supplemental charge should be applied as a fixed charge per light or a percentage of customers’ bills.
- 11.1.1 Please confirm, or explain otherwise, that BC Hydro’s decision to use a fixed charge was selected based on a simple majority of customers who had indicated that preference on the feedback form.
- 11.1.2 If not confirmed, please indicate what other factors, if any, contributed to this decision.
- 11.2 Please indicate how BC Hydro responded to the feedback received regarding the early removal fee.

C. RATE SCHEDULE 1755

- 12.0 Reference: AVAILABILITY AND APPLICABILITY
Exhibit B-1, Section 5.4.1, p. 35–36; Section 6.3, pp. 47–48
RS 1755 migration to RS 1701**

On page 35 of the Application, BC Hydro states:

BC Hydro proposes to maintain the Availability Provision of RS 1701, with addition of amendments to make the service available for the illumination of private property where the light is mounted on a pole that is on public property, or mounted on a pole that is on non-public property under certain conditions.

On page 36 of the Application, BC Hydro states:

...BC Hydro has included proposed amendments to allow the provision of overhead street lighting service to illuminate private property at BC Hydro’s sole discretion provided that:

- The street lights must be installed on existing BC Hydro distribution system infrastructure that is located on public property with appropriate secondary wiring. BC Hydro will not install new poles for the sole purpose of supporting these street lights. RS 1701 rates do not contemplate the recovery of costs to install and maintain poles and its intent is only that street lighting attachments can be made to existing poles provided there is sufficient available pole space to allow the attachment and wire the street light to the existing secondary electrical system that is also attached to the pole;
- The customer making the request owns or has the legal rights to the property being illuminated;
- The street lights are only installed on poles where there are no access or safety issues related to the installation and ongoing operation and maintenance of the street light including clearances for initial installation and long-term unhindered access to the pole location;

- There are no other social, public nuisance or environmental sensitivities related to the installation of overhead street lighting at the requested location; and
- There is a reasonable expectation that the customer will continue to receive service under RS 1701 for a sufficient period for BC Hydro to recover its investment in the lighting fixture.

On pages 47 and 48 of the Application, with respect to RS 1755, BC Hydro states:

BC Hydro proposes a four-year phase-out plan for Group 2 lights that are mounted on poles that are part of BC Hydro’s distribution system, including the following:

- Provided the lighting locations are deemed to be suitable for migration to RS 1701 (i.e., the pole the light is mounted on is still part of BC Hydro’s distribution system and meets the proposed new RS 1701 Availability criteria), BC Hydro would give customers the option to migrate their service onto RS 1701 if they still require outdoor lighting
- Any lights that are unsuitable for migration would be removed from service 5 starting October 1, 2022 and before March 31, 2024. Further, any lights for which customers do not elect to accept migration onto RS 1701 will be removed from service when requested by customers as soon as practicable.

- 12.1 Please discuss how BC Hydro will communicate to RS 1755 customers that these conditions will need to be met in order to migrate to RS 1701.
- 12.2 Please discuss how BC Hydro will assess that these conditions are met by RS 1755 customers who elect to migrate their service to RS 1701.
- 12.2.1 Please discuss how BC Hydro intends to resolve any dispute should a customer disagree with BC Hydro’s assessment.
- 12.3 Please confirm, or otherwise explain, that a customer who does not meet BC Hydro’s conditions, as per their discretion, will be left without service for its street light. In your response, please indicate what, if any, communication has already been sent to RS 1755 customers regarding this proposed amendment.
- 12.3.1 If confirmed, please discuss the options the customer has to continue receiving street lighting service.
- 12.4 Please explain whether customers who migrate from RS 1755 to RS 1701 will experience a rate change.
- 12.4.1 If yes, please provide details of the expected rate change.

**13.0 Reference: PROPOSED TERMINATION OF RS 1755
Exhibit B-1, Section 6.1, 6.2.2, 6.3.8, 6.4.1, 6.4.2, pp. 44, 46, 48, 50, 51;
Appendix C, p. 6; Utilities Commission Act, section 59
Customer consultation and feedback**

Page 46 of the Application states:

The feedback indicated that many customers are not aware of being on this legacy service [RS 1755]. The letter raised customer awareness to review their bill or lighting needs and take appropriate actions. Several customers indicated that the RS 1755 light mentioned in our letter does not exist anymore and they were not aware they were being billed for this charge.

13.1 Please confirm that all feedback received from RS 1755 customers is currently on the evidentiary record.

13.1.1 If not confirmed, please provide all RS 1755 customer feedback received to date.

With respect to RS 1755 service, on pages 44 and 48 of the Application, BC Hydro states:

There is no commitment from customers to continue to take this service on an on-going basis, and certainly not for the full life of the assets to be installed, which is up to 50 years in the case of new poles. This leads to the risk of unrecovered investments that would need to be recovered from all ratepayers. Further, while conceptually it would be possible to implement a removal fee, as noted in section 5.4.3, BC Hydro does not view it as being appropriate to impose such a charge in cases where a property with lighting served under RS 1755 is transferred to a new owner and the new owner does not want to continue RS 1755 service...

[...]

Any [Group 2] lights that are unsuitable for migration would be removed from service starting October 1, 2022 and before March 31, 2024. Further, any lights for which customers do not elect to accept migration onto RS 1701 will be removed from service when requested by customers as soon as practicable.

13.2 Please discuss the options the customer has to continue receiving street lighting service.

13.3 Would Group 2 customers be subject to a removal fee if they do not wish to be migrated to RS 1701? Please discuss.

13.4 Please explain how the removal fee is calculated. Please include any relevant calculations and assumptions in your response.

With respect to Group 1 and Group 3 customers still requiring service, BC Hydro states:

Following termination of the rate [RS 1755], Group 1 and Group 3 customers that still require outdoor lighting to illuminate their property will be required to install new poles and lights at their own cost, and to take electricity service under the applicable rate schedule.

13.5 Please explain why migrated Group 1 and Group 3 customers are required to install new poles.

Page 50 of the Application states:

...of the remaining 3,400 RS 1755 services, around 3,000 are dual services where the RS 1755 service is included as an additional service under customers' base accounts, which include various residential and general services rates as well as E-Plus and Net Metering services. Ideally, if customers decide to install new lighting, the new lighting fixtures will be wired to their base service meter to accurately measure electricity consumption and apply the appropriate rates.

13.6 Please confirm, or explain otherwise, that all RS 1755 customers with dual services will be placed onto a metered service after migration.

Page 51 of the Application states:

To assist customers with the search and installation of appropriate new lighting solutions, BC Hydro will recruit qualified outdoor lighting contractors from its Alliance of

Energy Professionals network. Customers can contact BC Hydro for outdoor lighting contractor referrals. BC Hydro estimates that the cost to a customer of installing a replacement light could range from \$1,000 to \$7,000.

[...]

...BC Hydro will explore with its alliance network the development of a financing program such that customers can avoid an upfront investment and instead allow repayment of the costs of installing replacement lighting over a period of time. Such a financing plan would assist RS 1755 customers that may find the cost of installing a replacement light to be unaffordable, which was a concern identified through customer consultation.

- 13.7 Please explain how the estimated lighting installation costs were calculated and why there is a significant variance in the price range.
- 13.8 Please discuss the current status of the financing program and when BC Hydro anticipates an official rollout to customers.
- 13.9 Please confirm, or explain otherwise, that BC Hydro intends to file an application with the BCUC for changes to the Electric Tariff if a financing program is finalized.
- 13.9.1 If confirmed, please provide an anticipated application filing date.
- 13.10 Please specify what the financing plan may include and how it will be structured. In your response, please explain if there is the potential for the costs of installing replacement lighting to be recovered twice, through both the street light charge and the financing program.
- 13.11 Please explain how BC Hydro intends to recover the costs of the program from ratepayers.
- 13.11.1 Pursuant to section 59 of the *Utilities Commission Act*, in BC Hydro's view, is the implementation of a transition assistance program unduly preferential towards RS 1755 customers? Please discuss.

On page 6 of the RS 1755 tariff sheets (Appendix C), BC Hydro states:

BC Hydro will maintain all equipment owned by BC Hydro and will replace lamps which have failed until September 30, 2022. Any breakage will be repaired by BC Hydro at the Customer's expense until September 30, 2022.

- 13.12 Please clarify the type of lighting fixture that will replace any failed lamps.

D. PROPOSED BACK-BILLING AMENDMENTS

- 14.0 Reference: PROPOSED ELECTRIC TARIFF AMENDMENTS FOR BACK-BILLING OF UNMETERED SERVICES Exhibit B-1, Section 7.1, p. 54 Unmetered services**

Page 54 of the Application states:

...[T]here are approximately 19,000 unmetered accounts and 86 GWh of consumption billed under Small General Service rates [SGS], which is about nine per cent of all SGS accounts and 2 per cent of the total consumption by BC Hydro customers.

On page 76 of Appendix E, BC Hydro provides a summary of customer feedback regarding the billing of unmetered services:

Q13 - Do you have suggestions on how BC Hydro can better manage accurate billing on unmetered services?

- SLIM website does not send notifications to customers to inform them that a change has been completed. This may result in customers not self report on time. It is suggested that customers be notified regarding a timeline/completion of a request.
- Yes, provide metered services. Hydro can update their service panels to meter them over time. If necessary, financial incentives can be provided to municipalities to help with the conversion program for new and existing service panels.
- Slim can be made user friendly
- If BC Hydro was involved in the development process they could be notified at time of approval and request number of ornamental lights, etc that are being added/deleted or changed. RDNO is changing 30 ornamental lights in Silver Star Mountain Resort to LED in September. We assume we would notify you in some way but I'm not sure how this is done. This needs to be a process/procedure local government can follow when this occurs instead of hunting down the department or person to notify. I imagine we could go through our local account manager, but confirmation would be good.
- Streetlight reporting is done through the SLIM online software. Please consider improving the SLIM technology so that it is more accessible for staff responsible for reporting.
- We report our changes in the SLIM program, but still these changes don't seem to be picked up by BC Hydro. I would like information on what processes need to be followed to update BC Hydro on lighting changes.
- The SLIM system needs a major overhaul/update. A better GIS based system allowing users to better manage their billing would significantly improve the ongoing accuracy. Being able to identify which items are attached to which meters and which accounts would give customers the ability to update accounts with accuracy. Ideally it would appear similar to google earth and a user could click on the streetlight and get the associated billing information. It is currently very difficult to identify where we have infrastructure on a meter that is being duplicated on an unmetered account. Searching for poles for SLIM requests is extremely frustrating as the intersection addresses are frequently not found in the system and lat/long is not searchable. Having to obtain pole ids in the field is often a reason for delay in updating billing information.
- A more detailed data base that unmetered service owners can review on a more frequent basis. The current GIS system is not useful at all.

14.1 Considering customer feedback regarding billing accuracy of unmetered services, please discuss whether BC Hydro has explored the possibility of providing metered services to larger customers.

14.1.1 If yes, please discuss which rate schedules may apply.

14.1.2 If not, why not?

14.2 Please discuss if BC Hydro has considered upgrading the Street Light Information System in the near term.

15.0 Reference: PROPOSED ELECTRIC TARIFF AMENDMENTS FOR BACK-BILLING OF UNMETERED SERVICES Exhibit B-1, Section 7.1, 7.2.1, p. 55–59 Back-billing Amendments

Page 55 of the Application states:

Section 5.7 of the Electric Tariff defined the way in which BC Hydro is required to address an adjustment to billing that extends into prior billing periods... In short, if a customer is determined to have been over-billed, section 5.7.6 generally requires BC Hydro to provide a customer with a credit for the over-billed amounts to the time the error is deemed to have started... if a customer is determined to have been under-billed, section 5.7.7 limits the period for which BC Hydro can recover the under-billed amount. These periods are:

- Six months for Residential, Small General Service and Irrigation Service customers; and
- Twelve months for all other rate schedules.

Pages 56 to 57 of the Application states:

During BC Hydro's recent billing reviews of RS 1702 billing, four customers were identified to be undercharged for periods potentially ranging from two years to 20 years, resulting in estimated under-collected revenues of approximately \$500,000 or more because the customer did not provide timely notification of changes.

[...]

- In the case of under-billing, for an extended period BC Hydro had incurred the direct costs of providing electricity to the streetlights or equipment, and also did not recover the customer's allocation of BC Hydro's fixed costs. As a result of lower revenues, these costs were borne by other customers.
- The existing back-billing provisions do not provide customers with an incentive to make timely and accurate declarations because there are no financial consequence.

- 15.1 Please confirm how often BC Hydro conducts billing reviews of its rate schedules.
- 15.2 Please discuss how approximately \$500,000 in under-collected RS 1702 revenue affected rates. In your response, please confirm who these customers are and whether this amount has been recovered or is yet to be recovered.
- 15.2.1 Please confirm if the under-collected revenue was due to billing issues or payment issues.
- 15.3 Please provide, to the extent possible, the total identified under and over billing amounts (in GWh and dollars) by year and by rate schedule (RS 1701, RS 1702, RS 1703, RS 1704, and RS 1755).
- 15.3.1 Please provide the dollar amount, if any, that BC Hydro has subsequently collected or refunded to customers under section 5.7 of the Electric Tariff.
- 15.4 Please discuss if BC Hydro has considered other incentives to encourage more timely notification from customers.

Page 57 of the Application states:

The proposed [back-billing] changes described below would apply to rate schedules in situations where the customer is required to notify BC Hydro of the addition, removal, or modification of unmetered street lights or equipment connected to BC Hydro's distribution system:

- RS 1702 – Public Area Ornamental Street Lighting;
- RS 1703 – Street Lighting Service;
- RS 1704 – Traffic Control Equipment; and
- Small General Service rate schedules RS 1234, RS 1300, RS 1301, RS 1310, and RS 1311.

These proposed changes are not applicable to street lighting rate schedules RS 1701 or RS 1755.

- 15.5 Please explain why BC Hydro proposes back-billing amendments which also apply to rate schedules unrelated to street lighting (i.e. RS 1234, RS 1300, RS 1301, RS 1310 and RS 1311).

- 15.6 Please discuss if customers from RS 1234, RS 1300, RS 1301, RS 1310, and RS 1311 were consulted on the proposed back-billing amendments. Please provide any customer consultation and feedback in your response.
- 15.7 Given that the proposed back-billing changes are not applicable to RS 1701 or RS 1755, please confirm, or explain otherwise, whether there would be one set of back-billing provisions applicable for street lighting rate schedules RS 1702, RS 1703 and RS 1704 and another set of back-billing provisions used for RS 1701 and RS 1755.
- 15.7.1 If confirmed, please elaborate on the reasons why time limitation and interest rate terms for back-billing need not be consistent for all street lighting customers.

On pages 58 to 59 of the Application, BC Hydro describes its proposed amendments to under and over-billed charges. BC Hydro states the following:

BC Hydro proposes to remove the six- or 12-month time limitation for back-billing for self-reported unmetered accounts so that under-billed accounts can be adjusted for actual consumption to the date of the addition or alteration of the customer's assets that resulted in a change in electricity usage by an unmetered electrical load.

[...]

...BC Hydro proposes to charge interest on under-billed amounts at BC Hydro's Weighted Average Cost of Debt (WACD).

[...]

BC Hydro proposes to follow a business practice to allow BC Hydro flexibility and discretion such that interest will not be applied provided that notification is timely (e.g., generally provided within six months of a change that affects billing) or when the amount of interest to be applied is less than the associated administrative cost.

[...]

In cases where the over billing occurred because a Customer did not provide timely notification of changes to their load or load, refunds for over-billing will be for the lesser of the date of the billing error or six months. Further, interest will not be applied to the refund as the billing adjustment would relate only to current bills.

- 15.8 Please explain why a time limitation is proposed for over-billed amounts but removed for under-billed amounts. In your response, please discuss any relevant statutory and/or regulatory justification for each of these limitations.
- 15.8.1 Please confirm, or explain otherwise, that these proposed limitations are consistent across BC Hydro's other rate schedules and tariffs.
- 15.9 For under-billed amounts, please explain why BC Hydro considers the WACD an appropriate interest charge.
- 15.9.1 Please discuss any other interest rates that were considered by BC Hydro and why they were rejected in favour of the WACD.
- 15.9.2 Please confirm whether the use of the WACD as an interest charge is consistent across BC Hydro's rate schedules and tariffs. If not confirmed, please explain why the WACD interest charge is appropriate in this circumstance but not for others.
- 15.10 For over-billed amounts, please discuss any relevant statutory and/or regulatory justification for

interest to be charged to customers for under-billed amounts but not credited to customers for over-billed amounts.

15.10.1 In the event the BCUC does not approve the proposed changes to time limitations, what does BC Hydro propose is an appropriate interest rate for customer refunds and why?

15.10.2 In the event the BCUC does not approve the proposed changes to back-billing, including the use of WACD as an interest charge, what does BC Hydro propose are appropriate back-billing amendments and why?

15.10.3 Pursuant to section 59 of the *Utilities Commission Act*, in BC Hydro's view, how are the proposed amendments not considered unjust or unreasonable? Please discuss.

15.11 Please provide references to other instances in the Electric Tariff where BC Hydro is granted similar "flexibility and discretion" with respect to the proposed application of interest charges. In your response, please discuss the rationale for this discretion.

15.11.1 Please confirm, or explain otherwise, that BC Hydro seeks approval of this discretionary provision to rate schedules related only to street light services.

E. PROPOSED TARIFF & HOUSEKEEPING AMENDMENTS

16.0 Reference: PROPOSED TARIFF AMENDMENTS Exhibit B-1, Section 8.2, p. 67 General Service

On page 67 of the Application, BC Hydro states:

BC Hydro is proposing the following amendments to the Electric Tariff be made to allow combined loads, including customer owned street lighting or traffic equipment, to be served under the applicable General Service rate schedule.

- Amend the definition of General Service to remove the current language that excludes street lights from the definition; and
- Add content in section 6, Rate Schedules 1702 and 1704 clarifying that General Service applies to mixed use loads...

BC Hydro expects these amendments to have a favourable economic impact on all ratepayers because the amendment removes barriers to electrification and load growth. Further, for a given street light, BC Hydro would collect somewhat more revenue under the General Service Rate Schedules than it would under RS 1704 or RS 1702. For example, an additional 200W light would increase a customer's bills by approximately \$3.70 per month under either RS 1702 or RS 1704, versus \$4.10 under the Small General Service Rate...

...BC Hydro has received a number of mixed service connection requests from City of Vancouver; and therefore, consulted with the City regarding this proposed Electric Tariff amendment. City of Vancouver believes allowing mixed loads to be charged under the General Service rates will lead to cost savings for their small load connections.

16.1 Please explain why BC Hydro included amendments to the Electric Tariff that allow for combined loads, including customer owned street lighting or traffic equipment, to be served under the applicable General Service rate schedule.

16.2 Please specify what specific barriers the proposed amendments remove and how this will affect RS 1702 and RS 1704 customers.

- 16.2.1 Please identify and explain any risks associated with the proposed amendments.
- 16.3 Please explain how the proposed amendments have a favourable economic impact on all ratepayers.
- 16.4 Please discuss whether BC Hydro consulted any other interested parties in regard to this proposed amendment.
- 16.4.1 If yes, please provide a summary of their feedback.
- 16.4.2 If not, why not?

**17.0 Reference: OTHER RELATED HOUSEKEEPING AMENDMENTS
Exhibit B-1, Section 9, p. 68; Appendix D, pp. 14–15
Electric Tariff changes**

On page 68 of the Application, BC Hydro states:

As a housekeeping activity, BC Hydro proposes further language changes to 3 section 5 of the Electric Tariff to address the following:

- Add references to unmetered accounts as required for clarity in Electric Tariff 5 references to back-billing; and
- Clarify that BC Hydro does not charge interest on under-billing resulting from 7 minor billing adjustments or on the delayed billing of standard charges.

This proposal addresses what we believe to be a typographical error and aligns the Electric Tariff with BC Hydro's business practice.

On Pages 14 and 15 of Appendix D to the Application, BC Hydro includes the following blacklined changes to the Electric Tariff:

5. The provisions of paragraph 7 below do not apply and, subject to the applicable limitation period provided by law, back-billing may be applied for the whole period of under-billing ~~or over-billing~~if:
- (a) There are reasonable grounds to believe that the Customer has tampered with or otherwise used BC Hydro's Service in an unauthorized way, or evidence of fraud, theft or another criminal act exists, or if a reasonable Customer should have known of an under-billing and failed to promptly bring it to the attention of BC Hydro; or
- (b) The required adjustment to the Customer's bill is minor, such as in the case of an estimated bill under section 5.2.1 (Regular Billing) or section 5.6 (Monthly Equal Payments); or
- (c) The required adjustment to the Customer's bill relates to the under-billing ~~or over-billing~~ of a standard charge set out in section 11 (Schedule Standard Charges), except Legacy Meter Charges and Radio-off Meter Charges under section 11.4 (Miscellaneous Standard Charges); ~~or~~
- (e)(d) The Service is provided on an unmetered basis in accordance with the applicable rate schedule and the billing error occurred because the Customer did not immediately notify BC Hydro of changes in load, or load characteristics, or hours of use.

Under-billing resulting from circumstances described in ~~this~~ paragraph 5.7.5 (a) will bear interest at the rate normally charged by BC Hydro on unpaid accounts from the date of the original under-billed invoice until the amount under-billed is paid in full.

Under-billing resulting from circumstances described in ~~this~~ paragraph 5.7.5 (b) and 5.7.5 (c) not will bear interest.

Under-billing resulting from circumstances described in paragraph 5.7.5 (d) will bear interest at BC Hydro's weighted average cost of debt, calculated for BC Hydro's most recent fiscal year, from the date of the date of the changes in load, or load characteristics, or hours of use, except when BC Hydro is notified of the change in load, load characteristics or hours of use within six months of the Customer making the change.

6. Other than as set out below, in every case of over-billing, BC Hydro will refund to the Customer all money incorrectly collected for the duration of the error, except that if the date the error first occurred cannot be determined with reasonable certainty, the maximum refund period will be two years back from the date the error was discovered.

In the case of an over-billing in the circumstances described in paragraph 5.7.5(d) above, BC Hydro will refund to the Customer all money incorrectly collected for the duration of the error back to the date on which it received from the Customer notification of the changes in load, or load characteristics, or hours of use, up to a maximum of six months.

Over-billing resulting from the circumstances described in paragraph 5.7.5 (b), (c) and (d) will not bear interest. For all other cases of over-billing, interest will be paid to the Customer at a rate equal to BC Hydro's weighted average cost of debt, calculated for BC Hydro's most recent fiscal year.

7. ~~Subject to paragraph 5 above, in~~ every case of under-billing, BC Hydro will back-bill the Customer for the duration of the error up to a maximum of:

- (a) Six months for Residential Service, small General Service (commercial) or Irrigation Service Customers; and

- 17.1 Please explain why the reference to overbilling in section 5 of the Electric Tariff was removed.
- 17.2 Please explain BC Hydro's rationale for charging interest as it relates to under-billing for circumstances described in 5.7.5 (d), but those customers will not bear interest in cases of overbilling.
- 17.3 Please confirm, or otherwise explain, if affected customers of these propose tariff amendments were consulted.
 - 17.3.1 If confirmed, please provide a summary of feedback received.
 - 17.3.2 If not confirmed, please explain why no consultation took place.