bcuc
British Columbia
Utilities Commission

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

P: 604.660.4700
TF: 1.800.663.1385
F: 604.660.1102

British Columbia Hydro and Power Authority
2020 Street Lighting Rates Application

Decision
and Order G-312-21

November 1, 2021

Before:
W. M. Everett, QC, Panel Chair
C. M. Brewer, Commissioner
A. K. Fung, QC, Commissioner
B. A. Magnan, Commissioner

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Executive Summary

On November 12, 2020, the British Columbia Power and Hydro Authority (BC Hydro) filed with the British Columbia Utilities Commission (BCUC) a street lighting rate application pursuant to sections 58 to 61 and section 63 of the *Utilities Commission Act* (UCA) (Application).

On November 30, 2020, the BCUC established a written process to review BC Hydro's Application. Fourteen interveners participated in the proceeding, and the BCUC received 34 letters of comment from interested parties and BC Hydro customers. The regulatory process included two rounds of BCUC and intervener information requests followed by written final and reply arguments.

Pursuant to the Federal Poly-chlorinated Biphenyls (PCB) Regulations, BC Hydro is required to remove or replace, by December 31, 2025, all light ballasts that were in use on September 5, 2008 containing PCBs exceeding the prescribed 50 mg/kg concentration limit. As a result, BC Hydro has designed a street light replacement program (Replacement Program) to remove and replace all existing BC Hydro-owned high pressure sodium (HPS) and mercury vapour (MV) street lights possibly containing PCBs with light emitting diode (LED) lights by December 31, 2025.

BC Hydro proposes several changes to its Electric Tariff Terms and Conditions (Electric Tariff) to enable it to undertake its Replacement Program and to establish LED rates, terms, and conditions applicable to its street lighting rate schedules. Specifically, BC Hydro seeks BCUC approval to:

1. amend Rate Schedule (RS) 1701 – Overhead Street Lighting to:
    - allow for LED streetlighting services as specified by the Replacement Program by setting LED street light rates under RS 1701 (LED Rate);
    - to recover, through a time-limited supplemental charge the undepreciated value of existing HPS and MV street lights that are removed before the end of their service life (Supplemental Charge); and
    - make other service-related tariff changes to RS 1701.
2. rescind RS 1755 – Private Outdoor Lighting on December 31, 2025 and amend the tariff to facilitate this rescindment, migrate certain customers to RS 1701 and waive certain Service Connection Charges if certain eligible RS 1755 customers choose to migrate to private lighting service under RS 1701; and
3. amend the Electric Tariff with respect to back-billing of unmetered services, mixed-use services, and to make other housekeeping amendments.

BC Hydro submits that the proposed changes to the Electric Tariff relating to its street lighting services are necessary to respond to changes in technology, customer and business needs, and changes in the regulatory environment.

Changes to RS 1701

BC Hydro's proposed LED rates are designed to maintain the current structure of RS 1701, with amendments to reflect the inclusion of the new LED rates for each respective wattage class of street lights. BC Hydro intends for its proposed LED rates to fully allocate all estimated incremental LED costs to RS 1701 customers. In addition to the new rates, BC Hydro proposes a temporary Supplemental Charge, to be in effect from May 1, 2021 to March 31, 2024, in order to recover the undepreciated value of the street lighting assets being removed. BC Hydro also seeks various housekeeping and Special Condition amendments to RS 1701 and the Electric Tariff.

The Panel is persuaded that the proposed changes to RS 1701 arising from the Replacement Program are needed in order to allow BC Hydro to continue to provide street lighting service to RS 1701 customers. Further, the Panel considers that the Replacement Program will result in the replacement of HPS and MV street lights and related assets prior to the end of their useful life, thereby creating an unrecovered depreciation cost in respect of those assets that should be recovered from customers. The Panel finds BC Hydro's estimate of the undepreciated amount to be reasonable. Therefore, the Panel considers the proposed changes to RS 1701 for LED rates and the Supplemental Charge are not unjust, unreasonable, unduly discriminatory, or unduly preferential in the context of sections 58 to 60 of the UCA. Finally, the Panel is generally satisfied with respect to BC Hydro's proposed housekeeping and Special Condition amendments to RS 1701 as set out in the Application and approves these changes.

RS 1755 and Waiver of Service Connection Charges

Under RS 1755, BC Hydro provides outdoor lighting service to its customers located on private property. RS 1755 is currently a legacy service that was closed to new customers in 1975. BC Hydro categorizes its RS 1755 customers into three groups:[1]

1. **Group 1**: lights are mounted on poles installed by the customer, or by BC Hydro at the customer's expense on the customer's private property;
2. **Group 2**: lights are mounted on BC Hydro-owned poles that are part of BC Hydro's distribution system and are on either public property or an existing BC Hydro easement on private property; and
3. **Group 3**: lights are on the customer's private property and mounted on poles installed by BC Hydro, at BC Hydro's expense, solely for the purpose of supporting the light.

BC Hydro wishes to rescind RS 1755 effective December 31, 2025 and seeks to amend RS 1755 accordingly. BC Hydro proposes to remove all BC Hydro-owned equipment for Group 1 and Group 3 customers and to transition eligible Group 2 customers, at their request, to RS 1701 service where they would be included in the light Replacement Program. In the Application, BC Hydro requests approval to waive any service connection fees that would be incurred by Group 1 and 3 customers should a new, metered electrical service be required to continue illuminating the customer's property.

[1] Exhibit B-1, Section 6.1, pp. 41–42.

The Panel approves BC Hydro's request to rescind RS 1755 effective December 31, 2025 and to migrate eligible Group 2 customers to RS 1701. Further, the Panel approves BC Hydro's request to waive the Service Connection fees for Group 1 and Group 3 customers installing new lighting as a result of the rescindment of RS 1755.

Electric Tariff Amendments

BC Hydro seeks approval of amendments to the tariff to allow mixed-use loads through the same service connection. The advancement of technologies has resulted in a growing need for municipalities to attach other equipment to their street light or traffic signal service connections. However, the rate schedules currently serving these municipal customers are generally not applicable for mixed-use load uses, and the present configuration of metered service does not provide the flexibility needed for customers to offer the services desired. BC Hydro states no current rate schedule can accommodate the mixed-use load request from its customers. As a result, the proposed changes to mixed-use loads would enable one or more customer-owned street lights or traffic control equipment on a metered basis to be served under the applicable General Service Rate Schedule.

The Panel is of the view that these mixed-use load amendments are practical and beneficial to eligible customers as they remove barriers to electrification and load growth while lowering metering, service connection and administrative costs. Therefore, the Panel approves the proposed Electric Tariff amendments to mixed-use loads. The Panel notes that these amendments are likely to benefit street lighting ratepayers who may also face the issue of dealing with mixed-use loads.

BC Hydro also seeks amendments to the existing provisions of its Electric Tariff related to back-billing of unmetered services as well as for General Service rates. Further, as housekeeping amendments, BC Hydro proposes amendments to Section 5 of the Electric Tariff to add references to unmetered accounts with respect to back-billing. The Panel notes that generally tariff amendments are best set through a fulsome and transparent process open to impacted stakeholders before approvals are granted by the BCUC. As the proposed amendments to the Electric Tariff impact all of BC Hydro's customers, the Panel considers, in this instance, there was insufficient opportunity provided to the members of all impacted rate classes to participate. The Panel does not believe it would be regulatorily efficient to extend this proceeding to allow for adequate participation by all potentially impacted parties nor does the Panel believe that these proposed amendments are essential for implementation of the Replacement Program. Therefore, the Panel rejects all the proposed back-billing and general housekeeping amendments to the Electric Tariff.

1.0 Introduction

1.1 Application and Approvals Sought

Pursuant to the Federal Poly-chlorinated Biphenyls (PCB) Regulations (PCB Regulations), British Columbia Power and Hydro Authority (BC Hydro) is required to remove or replace, by December 31, 2025, all light ballasts containing PCBs exceeding the prescribed 50 mg/kg concentration limit.[2] As a result, BC Hydro is preparing to replace the existing overhead mercury vapour (MV) and high pressure sodium (HPS) street lights used to serve customers under Rate Schedule (RS) 1701- Overhead Street Lighting (RS 1701) and certain eligible customers under RS 1755 with light emitting diode (LED) lights (Replacement Program).

On November 12, 2020, BC Hydro filed with the British Columbia Utilities Commission (BCUC) a street lighting rate application pursuant to sections 58 to 61 and section 63 of the *Utilities Commission Act* (UCA) to execute the Replacement Program and make various other amendments to existing tariffs that impact RS 1701 and 1755 customers (Application).

In the Application, BC Hydro's seeks BCUC approval to:[3]

1. amend Rate Schedule (RS) 1701 – Overhead Street Lighting to:
    - allow for LED streetlighting services as specified by the Replacement Program by setting LED street light rates under RS 1701 (LED Rate);
    - to recover, through a time-limited supplemental charge the undepreciated value of existing HPS and MV street lights that are removed before the end of their service life (Supplemental Charge); and
    - make other service-related tariff changes to RS 1701.
2. rescind RS 1755 – Private Outdoor Lighting on December 31, 2025 and amend the tariff to facilitate this rescindment, migrate certain customers to RS 1701 and waive certain Service Connection Charges if certain eligible RS 1755 customers choose to migrate to private lighting service under RS 1701; and
3. amend the Electric Tariff with respect to back-billing of unmetered services, mixed-use load services, and to make other housekeeping amendments.

[2] Pursuant to the *Canadian Environment Protection Act,* the PCB Regulations came into effect on September 5, 2008 by SOR/2008-273, with amendments effective January 1, 2015. Section 16(2) provides that equipment (light ballasts) in use on September 5, 2008 containing PCBs in a concentration of 50 mg/kg or more may only be used until December 31, 2025. Retrieved from https://laws-lois.justice.gc.ca/eng/regulations/SOR-2008-273/index.html

[3] BC Hydro Final Argument, pp. 6–7.

BC Hydro is not seeking a Certificate of Public Convenience and Necessity nor approval of capital expenditures as part of the Application, or separately, under sections 45 or 44.2 of the UCA, respectively, because the project is not an extension as defined by the UCA and BC Hydro's authorized cost estimate for the Replacement Program is below the threshold amount of $100 million for power system projects established by BC Hydro's 2018 Capital Filing Guidelines.[4] As such, the Panel considers that the Replacement Program is a BC Hydro management decision, and consideration of the appropriate alternatives, including their implementation and execution is, in this circumstance, a management/operational decision and not within the BCUC's purview. The primary purpose of the Application is to seek approvals to set rates and amend rate schedules to allow for the provision of LED service resulting from the implementation of the Replacement Program.

1.2 Legislative Framework

Sections 58 to 61 of the UCA confer broad discretion on the BCUC with respect to the setting and approval of rates. Section 58 enables the BCUC to amend rate schedules where the amended rates are just, reasonable, and sufficient. However, section 58.1 does not permit the BCUC to set rates for the purpose of changing the revenue-cost ratio for a class of customers, except on application by the public utility.

Section 59(1) to (4), and section 60 identify the criteria the BCUC must consider in setting rates and making determinations regarding rates. Section 59(5) sets out the circumstances when a rate is "unjust" or "unreasonable."

Section 60(1)(b.1) enables the BCUC to use any mechanism, formula, or other method of setting the rate that it considers advisable and may order that the rate derived from such a mechanism, formula or other method is to remain in effect for a specified period.

Section 61(2) provides that any rate schedule filed with the BCUC must not be rescinded or amended without the BCUC's consent.

Section 63 states that a public utility must not charge, demand, collect or receive from any person for a regulated service provided by the utility compensation that is greater than, less than, or other than that specified in the approved rate schedule without the consent of the BCUC.

The Panel's review of this Application is pursuant to this legislative authority.

1.3 Regulatory Process and Participation

By Order G-302-20 dated November 30, 2020, the BCUC approved, effective December 1, 2020, BC Hydro's RS 1701 proposed LED rates on an interim, refundable, and collectable basis, and granted interim approval of certain amendments to RS 1701 related to the provision of the RS 1701 LED service.

[4] Exhibit B-1, p. 5.

Order G-302-20 also established a written public hearing process and a regulatory timetable for review of the Application.[5]

The regulatory timetable consisted of, among other things, intervener registration, BC Hydro public notice, a letter of comment period, one round of BCUC and intervener information requests (IRs) and further process as outlined below.

The following 14 interveners registered to participate in the proceeding:

1. BC Sustainable Energy Association (BCSEA);
2. Kwadacha Nation and Tsay Keh Dene Nation, together the Zone II Ratepayers Group (Zone II RPG);
3. District of Lillooet;
4. Corporation of the Village of Ashcroft (Ashcroft);
5. Manufactured Home Park Owners Alliance of BC (MHPOABC);
6. Mr. Larry Hill, acting on behalf of the Village of Alert Bay;
7. City of North Vancouver;
8. British Columbia Agriculture Council (BCAC);
9. British Columbia Old Age Pensioners' Organization *et al.* (BCOAPO);
10. Commercial Energy Consumers Association of BC (the CEC);
11. City of Surrey (Surrey);
12. City of Vernon (Vernon);
13. Residential Consumer Intervener Group (RCIG); and
14. City of Kamloops (Kamloops).

Thirteen interested parties registered in the proceeding and filed six letters of comment.

The BCUC also received another 28 letters of comment from other parties.

By Order G-43-21 dated February 12, 2021, the Panel amended the regulatory timetable to allow for a further round of BCUC and intervener IRs and approved, on a collectable and refundable basis, BC Hydro's interim RS 1701 temporary Supplemental Charge of $2.06 per month per street light, effective May 1, 2021.[6]

[5] Order G-302-20 dated November 30, 2020.
[6] Order G-43-21 dated February 12, 2021.

BC Hydro filed its final argument on May 6, 2021 and intervener final arguments were filed by May 20, 2021. BC Hydro filed its reply argument on June 3, 2021.

1.4 Decision Framework

In this Decision, the Panel reviews the relevant evidence, considers the positions of the parties, discusses the issues arising in the course of the proceeding and outlines the reasons for its determinations. The Panel considers each requested approval listed in section 1.1 of this Decision. The Panel reviews the Application pursuant to sections 58 to 61 and 63 of the UCA, which provide the criteria to determine whether the proposed LED Rate and Supplemental Charge and other proposed tariff amendments are not unjust, unreasonable, unduly discriminatory, or unduly preferential for the service provided.

Section 2 of the Decision considers the proposed amendments to RS 1701 related to the Replacement Program. Specifically, in Section 2 of the Decision, the Panel reviews BC Hydro's proposed LED Rate, the Supplemental Charge and the Other RS 1701 tariff amendments.

In considering the proposed LED Rate, the Panel will review the following:

(i) the background of the Replacement Program;

(ii) use of the Bonbright Criteria for the purposes of rate design;

(iii) BC Hydro's estimate of LED costs including the use of a marginal cost methodology;

(iv) BC Hydro's calculation of the proposed LED rates including the use of a pricing model (Pricing Model);

(v) an assessment of the LED rate against the Bonbright Criteria; and

(vi) a final Panel Decision on the LED rates.

Section 3 of the Decision reviews the proposed amendments to RS 1755 including the planned rescindment on December 31, 2025, migration of certain eligible customers to RS 1701 and the request to waive the Service Connection Charges if certain eligible RS 1755 customers choose to migrate to private lighting service under RS 1701. In reviewing the proposed amendments of RS 1755, the Panel also considers BC Hydro's proposed rescindment of RS 1755 at a specified future date and the proposed treatment of the various RS 1755 customer groups as RS 1755 is transitioned out of service.

Specifically, Section 3 of the Decision discusses the following:

(i) whether the proposed rescindment on December 31, 2025, and associated tariff changes are appropriate in light of the criteria set out in sections 58 to 61 of the UCA;

(i) the exclusion of Group 1 and Group 3 customers from taking service under the Replacement Program; and

(ii) the implementation of BC Hydro's transition plan to assist those Group 1 and Group 3 customers that are affected by the future rescindment of RS 1755 and waiving of the Service Connection Charges for eligible Group 2 customers choosing to migrate to service under RS 1701.

Sections 4 and 5 of the Decision will consider other proposed amendments to Section 5 of the Electric Tariff with respect to back-billing of unmetered services, mixed-use load services, and other housekeeping amendments. Specifically, these sections of the Decision address the following:

(i) the practicality of the proposed amendments to mixed-use loads; and

(ii) the issues arising from considering approval of the proposed back-billing amendments to rate schedules unrelated to street lighting and the exclusion of affected rate classes in the regulatory process.

Section 6 provides a summary of directives as referenced throughout this Decision.

Lastly, Appendix A provides a list of the reporting requirements as directed by the Panel by way of various annual reports and compliance filings to be made by BC Hydro in respect of the Replacement Program and Electric Tariff amendments going forward.

2.0 Proposed Amendments to Rates Schedule 1701 – Overhead Street Lighting

Currently, RS 1701 provides for HPS and MV street light services but does not provide for LED street light service. To implement the Replacement Program, BC Hydro will need to establish LED rates and amend RS 1701 to incorporate LED services into the tariff. Therefore, BC Hydro seeks approval or consent to make the following amendments to RS 1701:[7]

a) allow for LED streetlighting services as specified by the Replacement Program by setting LED rates;

b) establish a Supplemental Charge to recover the undepreciated value of existing HPS and MV street lights that are removed before the end of their service life; and

c) other service-related tariff changes to RS 1701.

This section of the Decision will consider each of these requests. First, the Panel will examine the background of the Replacement Program in Section 2.1 of the Decision and then evaluate BC Hydro's use of the Bonbright Criteria in Section 2.2 of the Decision. After that, the Panel will consider the LED rates, the Supplemental Charge and other RS 1701 tariff changes in Sections 2.3–2.5, respectively, of the Decision.

[7] BC Hydro Final Argument, pp. 6–7.

2.1 Background

BC Hydro states that it currently owns and maintains approximately 90,000 street lights, with customers taking service under RS 1701.[8] The majority of these street lights are HPS, while some are MV.[9] Street lights used to serve customers under RS 1701 are generally installed on existing BC Hydro-owned power poles and connected, in most cases, to a secondary electrical service.

RS 1701 customers are located across the BC Hydro service territory, including in Non-Integrated Areas (NIA), and consist primarily of municipalities, regional districts, government ministries and First Nation Communities.[10] Rather than a metered rate, BC Hydro currently leases street lights to these customers at all-inclusive, fixed monthly rates that vary by lighting technology (HPS or MV) and wattage. BC Hydro owns and maintains the lights.[11]

Following the completion of the Replacement Program, BC Hydro states that LED street lights will be the only street light service it will offer under RS 1701. BC Hydro submits that because RS 1701 does not currently include rates applicable to LED lights, amendments to its Electric Tariff are required.[12]

In addition to street light customers served under RS 1701, BC Hydro currently provides private outdoor lighting service to approximately 3,500 customers across the province under RS 1755.[13] As part of the Replacement Program, BC Hydro intends to replace approximately 370 HPS and MV lights mounted on poles that are part of BC Hydro's distribution system and serve RS 1755 Group 2 customers with LED street lights.[14] BC Hydro proposes to ultimately terminate RS 1755 at a specified date and to migrate RS 1755 Group 2 customers to RS 1701.[15] BC Hydro's proposal to amend RS 1755 to specify its future termination is discussed further in Section 3.0 of the Decision.

BC Hydro hosted a virtual rate design engagement session on August 12, 2020, in which over 170 customers and other interested parties participated. Following the session, BC Hydro sought feedback on aspects of the proposed RS 1701 rate design. BC Hydro received 26 completed forms and incorporated that customer feedback into elements of the RS 1701 rate design, Replacement Program deployment and customer communications plans.[16]

[8] BC Hydro notes that at the time the Application was submitted there were 373 customers served under RS 1701. Exhibit B-1, p. 12.
[9] Exhibit B-1, p. 12.
[10] Ibid., p. 12.
[11] Ibid., p. 12.
[12] Ibid., pp. 2, 11–12; BC Hydro Final Argument, p. 6.
[13] Exhibit B-1, Section 6.1, p. 41.
[14] Ibid., p. 21.
[15] Exhibit B-1, pp. 21, 47–48.
[16] Ibid., p. 15; Exhibit B-4, BCUC IR 11.1.

2.2 Bonbright Criteria

BC Hydro submits that it has assessed its proposed LED rates and the Supplemental Charge in accordance with the well-recognized rate design criteria derived from Bonbright's text on the Principles of Public Utility Rates (Bonbright Criteria). In BC Hydro's view, the Bonbright Criteria form an appropriate foundation for evaluating rate design proposals or rate structures as they are consistent with the requirement under the UCA that rates be "fair, just and not unduly discriminatory."[17]

BC Hydro submits that the BCUC has held that the Bonbright Criteria form an appropriate foundation for rate structures as they are consistent with the requirement under the UCA that rates be "fair, just and not unduly discriminatory.[18]

Positions of the Parties

Surrey submits the use of the Bonbright Criteria for establishing the revised RS 1701 rate design or structure is appropriate.[19]

Zone II RPG supports the use of the cost causation principle, acknowledging that BC Hydro's Bonbright grouping of Fairness states that "costs should be recovered from customers who impose the costs."[20]

Vernon does not raise objection with the use of the Bonbright Criteria for rate setting purposes.[21]

Panel Determination

The Panel believes that a fair apportionment of costs is necessary to determine whether a rate is just, reasonable, and not unduly discriminatory or unduly preferential. Key to this principle is the concept of 'cost causality', which involves identifying which customer classes cause specific expenses to be incurred by the utility. In other words, generally when setting rates for customers, a key consideration is the recovery of costs that a utility incurs to provide service to that customer. The Panel notes that parties generally agree that the Bonbright Criteria adequately take cost causation into account and provide a reasonable framework for setting rates in the Application. The Panel also acknowledges that the Bonbright Criteria are commonly applied in rate setting proceedings.

Therefore, the Panel finds that BC Hydro's use of the Bonbright Criteria as a framework to set LED rates and the Supplemental Charge is appropriate as these criteria incorporate the principle of cost causality. The Panel considers BC Hydro's application of the Bonbright Criteria for setting LED rates in Section 2.3.8 of the Decision and for the Supplemental Charge in Section 2.4 of the Decision.

[17] BC Hydro Final Argument, p. 13.
[18] BCUC Reasons for Decision to Order No. G-124-08 dated August 28, 2008, p. 51.
[19] Surrey Final Argument, p. 5.
[20] Zone II RPG Final Argument, p. 9.
[21] Vernon Final Argument, pp. 15–16.

2.3 Proposed Amendments to RS 1701 to Set LED Rates

As noted above, BC Hydro applies to amend RS 1701 to establish LED rates. Establishing the proposed LED rates would allow BC Hydro to offer LED services to its customers in accordance with the Replacement Plan.

In evaluating the proposed LED rates, the Panel will first consider BC Hydro's estimated LED incremental costs resulting from the Replacement Program. BC Hydro submits that these costs have been calculated using a marginal cost analysis which is intended to fully allocate the expected cost and benefits of the Replacement Program to the RS 1701 rate class.[22] BC Hydro estimates incremental costs and savings resulting from the Replacement Program as follows:[23]

- Replacement Program capital and installation costs: These costs are considered by the Panel in Section 2.3.2 of the Decision;
- Maintenance cost savings: These costs are considered by the Panel in Section 2.3.3 of the Decision;
- Electricity cost savings: These costs are considered by the Panel in Section 2.3.4 of the Decision; and
- Costs related to the undepreciated value of existing lights removed before their end of life: BC Hydro indicates that it has excluded Replacement Program costs related to the undepreciated value of existing lights removed before their end of life from the LED costs for the purposes of setting LED rates as BC Hydro has proposed to recover these costs separately as a Supplemental Charge.[24] The Panel examines the Supplemental Charge in Section 2.4 of the Decision.

The Panel will also consider other LED cost considerations raised by parties during the proceeding in Section 2.3.5 of the Decision. Then, taking into consideration the various LED cost matters examined above, in Section 2.3.6 of the Decision the Panel will make its finding related to the total LED incremental costs.

Next, the Panel will review BC Hydro's proposed LED rates which BC Hydro indicates are calculated using LED incremental costs discussed above and BC Hydro's Pricing Model. That Model allocates revenues based on various factors related to LED wattage groups as discussed in Section 2.3.7 of the Decision. In Section 2.3.8, the Panel will then consider if BC Hydro's proposed LED rates are consistent with the Bonbright Criteria described in Section 2.2 of the Decision. Finally, based on the forgoing, the Panel will evaluate whether to approve BC Hydro's proposed LED Rates.

[22] Exhibit B-1, pp. 6, 26.
[23] Exhibit B-1, Appendix G.
[24] Exhibit B-1, p. 29.

2.3.1 Marginal Cost Methodology

As noted above, BC Hydro submits that the Replacement Program costs have been calculated using a marginal cost analysis and this methodology fully allocates the expected cost and benefits of the Replacement Program to the RS 1701 rate class.[25]

BC Hydro submits that the marginal cost analysis adjusts the total revenue from RS 1701 by the amount of any increases or decreases in costs due to the Replacement Program, to arrive at an updated (net) revenue estimate for each year of the 20-year expected life for the LED luminaires.[26]

Positions of the Parties

BCSEA submits that BC Hydro's approach to fully allocate the expected costs and benefits of the Replacement Program to the RS 1701 rate class is the correct approach.[27]

Zone II RPG agrees with BC Hydro that the marginal cost analysis is an appropriate methodology for assessing the Replacement Program. [28]

The CEC submits that, excluding the Supplementary Charge, the use of the Marginal Cost model is appropriate for allocating costs and savings of the Replacement Program.[29]

BCOAPO submits that it has no issues with the BC Hydro's calculation of the Replacement Program cost.[30]

No other interveners made submissions with respect to BC Hydro's use of marginal cost to determine LED Rates.

Panel Discussion

The Panel finds that using the marginal cost methodology is reasonable for the purposes of determining RS 1701 LED rates as the methodology adjusts the revenues of RS 1701 by the incremental costs associated with the Replacement Program with the exception of undepreciated assets. The Panel believes that this approach achieves cost causation and therefore ensures that costs of providing service to RS 1701 customers are appropriately borne by those customers. The Panel reviews the undepreciated asset costs and their recovery in section 2.4 of this Decision.

[25] Ibid., p. 26.
[26] BC Hydro Final Argument, p. 6; Exhibit B-1, p. 26; Appendix G, p. 11.
[27] BCSEA Final Argument p. 8.
[28] Zone II RPG Final Argument, p. 5.
[29] CEC Final Argument, pp. 8–9.
[30] BCOAPO Final Argument, p. 10.

2.3.2 Replacement Program Capital and Installation Costs

To implement the Replacement Program, BC Hydro estimates that it will incur one-time, start-up costs.[31] This Decision refers to these costs as Replacement Program capital and installation costs.

BC Hydro's current estimate of the Replacement Program capital and installation costs is $61.85 million for the conversion of RS 1701 and RS 1755 Group 2 Lights to LED technology. BC Hydro proposes to amortize these capital costs over a 20-year expected life period for the LED luminaries, with average annual amortization cost of approximately $3.0 M.[32]

Table 1 below summarizes these itemized expected costs as follows:

Table 1: Replacement Program Capital and Installation Costs (Inclusive of LED Installation of RS 1701 and RS 1755 Group 2 Lights)[33]

Program Costs	$ million
Direct Deployment Costs (Materials + Installation)	
Labour	15.65
Materials	20.84
Indirect Program Costs	
Program Management	1.28
Deployment Management	3.05
Supporting Technology	2.07
Customer Engagement	0.78
Other (Change Management, Material Management, Procurement, Regulatory)	0.62
Dismantling	2.06
Total Program Costs before Loadings and Contingency	46.29
Contingency	6.50
Inflation	2.52
Capital Overhead	6.53
Program Expected Cost	**61.85**

Developments in Cost Estimates

BC Hydro notes the Replacement Program's expected capital and installation costs were originally forecast at $63.5 million. BC Hydro submits that this estimate was later revised down to $61.85 million based on more current information from the procurement process which updated the luminaire material costs from $20.6 million to $18.95 million. BC Hydro states, however, that the direct cost contingency and inflation amounts were not updated to reflect the lower luminaire costs.[34]

[31] Exhibit B-1, p. 27.
[32] Ibid.
[33] Exhibit B-6, BCUC IR 23.2.1.
[34] Ibid..

BC Hydro submits that if different contingency and inflation amounts are assumed, then the Pricing Model used to calculate the proposed RS 1701 rates, which is discussed in Section 2.3.7, will simply adjust so that the same average rate is calculated to recover the revenue calculated in the marginal cost model. The effect will be to alter the differences between the LED wattage category rates but not the average LED rates itself.[35] The direct cost contingency is 14 percent of the total direct costs, including installation and dismantling labour costs and materials.[36] The assumed inflation rate is 2.5 percent for 2021 and 2.0 percent for 2022 through 2024.[37]

Positions of the Parties

BCOAPO submits that it has no issues with the BC Hydro's calculation of the Replacement Program capital and Installation costs.[38]

No other interveners made submissions with respect to the Replacement Program capital and installation costs.

Panel Determination

The Panel finds that BC Hydro's cost estimate for the Replacement Program capital and installation costs is reasonable and accepts BC Hydro's treatment of the direct cost contingency and inflation. The Panel notes that the Replacement Program capital and installation cost estimates went through an evolution during the review of the Application. The Panel takes comfort that BC Hydro is continuing to update its estimate of Replacement Program capital and installation costs based on the most recent pricing information from procurement activities up to time of the filing of the Application.[39] However, the Panel observes that BC Hydro confirms that the corresponding direct cost contingency and inflation costs were not updated with the current procurement information.[40]

Since Replacement Program capital and installation costs are an important component of the total LED costs, and ultimately an input in setting of LED rates, the Panel is concerned that the direct cost contingency and inflation amounts embedded in the proposed LED rates may be excessive. Therefore, the Panel considers it important for the BCUC to review Replacement Program capital and installation costs on a regular basis and to evaluate whether any change to the approved LED rates is warranted upon completion of the Replacement Program.

For the foregoing reasons, the Panel directs BC Hydro to file within 30 days of the end of each annual reporting period, a report on the Replacement Program (Annual Replacement Program Report), with

[35] Ibid.
[36] Ibid.
[37] Ibid.
[38] BCOAPO Final Argument, p. 10.
[39] Exhibit B-6, BCUC IR 23.2.1.
[40] Exhibit B-6, BCUC IR 23.2.1.

the first report covering the period ending March 31, 2022. Each Annual Replacement Program Report must provide the information set out in Reporting Requirement #1 of Appendix A.

The Panel also directs BC Hydro to provide a final report within three months of substantial completion of the Replacement Program (Final Replacement Program Report). The Final Replacement Program Report must provide the information set out in Reporting Requirement #2 of Appendix A.

2.3.3 Maintenance Cost Savings

In respect of the LED maintenance costs savings resulting from the Replacement Program, BC Hydro submits that these savings are estimated to be $1.2 million per year (including inflation) over the 20-year rate design period.[41]

BC Hydro estimated the LED maintenance cost savings by subtracting forecast LED maintenance costs from the following amount:[42]

i) For fiscal 2021 (F2021), BC Hydro used the HPS maintenance budget of $0.5 million included in BC Hydro's F2021 Revenue Requirements Application (RRA); and

ii) For years after F2021, BC Hydro used the most recent five-year average of budgeted maintenance costs from BC Hydro's RRAs for fiscal 2016 (F2016) to fiscal 2020 (F2020) of $1.25 million and escalated each year by the Consumer Price Index (CPI).[43]

In BC Hydro's view, using the five-year average budgeted maintenance figures for existing HPS street lights as they relate to years after F2021 is appropriate because:

(i) budget figures are transparent, having already been subject to BCUC review in BC Hydro's RRAs; and

(ii) budget figures represent the actual value that BC Hydro was able to spend on a planning basis, without negatively impacting other critical maintenance programs.[44]

BC Hydro explains that it also examined two other alternatives (historical actuals and forecast potential costs) for valuing the maintenance costs savings for the years after F2021, as discussed further below.

[41] Exhibit B-1, p. 27; Exhibit B-6, BCUC IR 27.1.
[42] Exhibit B-6, BCUC IR 27.9: LED street light ongoing costs include, i) amortization of LED failure replacement which is the amortization cost of replacement LED street lights after LED street lights installed in the Replacement Program have failed (BCUC IR 27.2); dismantling cost of failed LED street lights; and allowance to clean all LED street lights after 10 years of ownership (BCOAPO IR 10.3). BC Hydro described the ongoing costs stating, "Given the expected low frequency of failures expected, the balance of maintenance will be reactive spot repairs as failures are reported to BC Hydro by its customers." (Exhibit B-7, Surrey IR 3.2).
[43] Exhibit B-6, BCUC IR 27.5.
[44] Exhibit B-1, Appendix G, p. 2.

Alternative Approach 1: Historical Actuals

BC Hydro states that valuing maintenance cost savings using historical actuals would have also been based on the most recent five years (F2016 to F2020) to maintain existing street lights, where historical actuals reflect the completion of all repairs reported by RS 1701 customers.[45] Table 2 below compares BC Hydro's budgeted maintenance to actual maintenance spending for existing street lights for F2016 to F2020:

Table 2: Maintenance Budget versus Maintenance Actual Spend

	Maintenance Budget ($ million)[46]	Maintenance Actual Spend ($ million)[47]	Variance ($ million)
F2016	1.10	1.75	0.65
F2017	1.14	1.79	0.65
F2018	1.49	1.81	0.32
F2019	1.41	1.99	0.58
F2020	1.11	1.96	0.85
Five-year average	**1.25**	**1.86**	**0.61**

BC Hydro explains that historic actual spend has been higher than budget due to unplanned re-lamping costs.[48] Specifically, BC Hydro has experienced an increasing number of spot repairs over the past five years, exceeding the estimated number included in the F2016 to F2020 maintenance budgets, because the practice of group re-lamping of street lights was discontinued in fiscal 2014 in anticipation of a conversion to LED street lights in the near future.[49] BC Hydro states that the historic differences between budgeted and actual maintenance costs for street lights have been offset by reductions in other maintenance.[50] In BC Hydro's view, this situation is not sustainable, nor are its cost outcomes suitable for use as an input to the rate design.[51]

In a sensitivity analysis, BC Hydro states that the impact of applying historical actual spend on HPS street light maintenance, rather than the budgeted amount, is an average decrease of about 2.5 percent of planned revenue after savings over the 20-year analysis period.[52]

Alternative Approach 2: Forecast Potential Costs

BC Hydro explored a second alternative for valuing maintenance cost savings, by forecasting potential future costs if the Replacement Program were not undertaken, including an estimate of the future

[45] Exhibit B-1, Appendix G, p. 2.
[46] Ibid., Appendix G, p. 2, Table G-1.
[47] Ibid., Appendix G, p. 3, Table G-2.
[48] Ibid., Appendix G, p. 3.
[49] Exhibit B-7, BCOAPO IR 28.1; Exhibit B-5, BCOAPO IR 10.2.
[50] Exhibit B-7, BCOAPO IR 33.2.
[51] Exhibit B-1, Appendix G, p. 3.
[52] Exhibit B-4, BCUC IR 8.8.

failure rates of HPS street lights. BC Hydro submits that the average annual maintenance savings calculated using this approach are $2.7 million per year (excluding inflation).[53] BC Hydro acknowledges that this approach provides useful insight into the decision and cost assessment of the Replacement Program, but submits that it is not applicable to the LED rate design for the following reasons:

- The approach relies on developing a "counterfactual future scenario" that will not occur. As a result, there is considerable uncertainty in the forecast, and it cannot be verified; and
- The estimated maintenance cost savings exceed the value historically budgeted for or spent on maintenance for the existing lights. As a result, it may overstate the amount that BC Hydro could dedicate to maintaining the existing lighting technology.[54]

For these reasons, BC Hydro states it rejected the two alternative approaches for valuing the maintenance costs savings after F2021.[55]

Other Considerations

With respect to forecast LED costs, BC Hydro states where failure of the LED street light occurs, the entire luminaire must be replaced.[56] Given the significantly lower volume of expected LED failures, BC Hydro submits that the combined costs of stocking LED street light components and keeping crews trained to troubleshoot LED units across the province are greater than the costs to return the units back to the street light vendor at no extra cost for repairs or replacements in the first 10 years of ownership under the negotiated warranty.[57]

BC Hydro acknowledges that actual future maintenance costs will vary from year to year following the completion of the Replacement Program, but expects, over the long run, the budgeted maintenance values used in the Application to be reasonable. As a result, BC Hydro submits that the proposed LED rates should be approved on a permanent basis. BC Hydro states it does not have an actual maintenance cost "threshold" which would trigger an application to change LED rates. Rather, BC Hydro submits that its periodic RRAs will be the appropriate mechanism used to return any unplanned savings to, and to collect any unplanned costs from, BC Hydro ratepayers.[58]

Positions of Parties

BCSEA submits that it is unable to determine whether the LED rates should be based on budgeted or actual historical HPS maintenance costs and takes no position on this point.[59]

[53] Exhibit B-1, Appendix G, p. 3.
[54] Ibid., Appendix G, pp. 3–4.
[55] Ibid., Appendix G, p. 2.
[56] Ibid., p. 19.
[57] Exhibit B-4, BCUC IR 1.3.6.
[58] Exhibit B-7, Surrey IR 3.3.
[59] BCSEA Final Argument, pp. 3, 9.

Surrey and Kamloops disagree with the calculation of expected maintenance cost savings, stating that BC Hydro ought to use historical actual maintenance spending to calculate the expected savings.[60] Surrey submits that historical actual maintenance expenditures are the costs which BC Hydro would otherwise pay and will be avoided once the Replacement Program is completed. Accordingly, "[t]he actual savings enjoyed by BC Hydro should be allocated fairly between RS 1701 customers and BC Hydro."[61] Three letters of comment received also commented that BC Hydro has underestimated its maintenance cost savings by using budgeted maintenance costs.[62]

In addition, Surrey submits that there are other options which would result in increased cost savings that BC Hydro has not considered. The first relates to light repair. Surrey submits that BC Hydro should consider options for repairing any LED light that fails after the warranty period rather than replacing it in its entirety.[63] The second relates to light reuse. Surrey submits that BC Hydro should adopt an approach of reusing any LED street lights with remaining asset life that have been removed at the customer's request or through BC Hydro's right to end service pursuant to the proposed *Special Condition 8*.[64]

BC Hydro's Reply

BC Hydro states the evidence demonstrates it is more appropriate to use budgeted maintenance costs because historic actual maintenance spending has been higher than budget due to unplanned re-lamping costs, which are not expected once street lights are converted to LEDs. As such, actual maintenance spending will not be reflective of the maintenance costs following the completion of the Replacement Program because LED lights are not expected to fail at the same rate as the HPS and MV lights currently in place.[65]

Regarding light repair, BC Hydro replies that it intends to rely on the 10-year warranty period which provides for a failed LED light to be repaired or replaced with a new LED by the vendor. BC Hydro does not propose to repair any failed LED lights because of the provincial scope of BC Hydro's RS 1701, which makes stocking the components necessary to repair the lights and training the crews to do repair work ineffective and costly compared to a blanket replacement warranty. BC Hydro states that it may consider repair options after the warranty period expires, if it determines at that time that such options are appropriate.[66] BC Hydro submits that it does not propose to reuse any LED lights that have been removed due to logistical and potential reliability issues that may arise. Furthermore, it believes this decision does not impact the rates proposed in this Application and is an operational decision.[67]

[60] Surrey Final Argument, p. 4; Kamloops Final Argument, p. 2.
[61] Surrey Final Argument, p. 4.
[62] BC Hydro Final Argument, p. 10.
[63] Surrey Final Argument, p. 4.
[64] Ibid., pp. 4–5.
[65] BC Hydro Reply Argument, p. 5.
[66] Ibid., p. 20.
[67] Ibid.

Panel Discussion

The Panel finds that BC Hydro's estimated maintenance cost savings is reasonable and is persuaded that the methodology used by BC Hydro to calculate maintenance cost savings is appropriate.

The Panel agrees that determining the estimated maintenance savings over the 20-year rate design period requires an estimate of both future ongoing costs associated with LED street lights and the "normal" cost of maintenance of existing HPS and MV lights.[68] The Panel finds that the cost of maintenance for HPS and MV lights is reasonably estimated using BC Hydro's approved budgets in the RRAs as these amounts have been calculated for budgeting purposes, used for rate setting purposes and are reflective of normal operating costs associated with maintaining HPS and MV lights.

While the Panel acknowledges that various parties would prefer the use of historical maintenance costs rather than the budgeted amounts when calculating the estimated cost savings, the Panel is persuaded that using these historical amounts would not be appropriate as they include impacts of the policy to cease re-lamping. As BC Hydro notes, it discontinued the practice of re-lamping in 2014 in anticipation of a future LED conversion for RS 1701 customers.[69] The Panel acknowledges that it is reasonable to expect that efforts to extend the service life of aged assets would drive up maintenance costs temporarily. As such, the Panel accepts that historical maintenance costs would not reflect "normal" maintenance costs. Further, the Panel believes that if the Replacement Program was not adopted, BC Hydro would need to restart re-lamping and therefore the maintenance costs to extend the service life of aged assets would not be incurred.

2.3.4 Electricity Cost Savings

Starting from fiscal 2025, which is the first year after full implementation of the Replacement Program, BC Hydro estimates that the energy savings resulting from the Replacement Program are approximately 28 GWh, or an average of $1.1 million per year. These savings are valued at BC Hydro's marginal cost of energy, which is approximated by the wholesale market price[70] and determined as follows:[71]

[68] Exhibit B-5, BCUC IR 27.1.
[69] Exhibit B-7, BCOAPO IR 28.1; Exhibit B-5, BCOAPO IR 10.2.
[70] Exhibit B-1, p. 27.
[71] Exhibit B-4, BCUC IR 8.6.

Annual energy savings = Energy Savings per Street Light × number of the street lights × (1+T&D Loss Factor)

= ($Wattage_{HPS}$ - $Wattage_{LED}$)× HOU × 365 × the number of the street lightings× (1+T&D Loss Factor)

= (159.2 w -90.7 w)/1000 × 11.5 hour per day*365 days × 90,850 × (1+7 per cent)

≈28 GWh

Where $Wattage_{HPS}$ denotes the weighted average of wattage per HPS street light, and it was estimated as 159.2 w per HPS street light;

$Wattage_{LED}$ denotes the weighted average of wattage per to be installed LED street light, and it was estimated as 90.7 w per LED street light;

HOU denotes the average hour of use per street light per day;

T&D loss factor denotes the transmission and distribution loss factor and was assumed to be 7 per cent for street lighting.

BC Hydro states that the wholesale market price is BC Hydro's June 2020 Market Price Forecast, based on the Hitachi-ABB (ABB) Spring 2020 Reference Case forecast.[72] BC Hydro explains that the ABB forecast was chosen as the basis or starting point for developing the BC Hydro forecast given the comparability of ABB's forecast with forecasts from other entities and the compatibility of ABB's forecast modelling tool and data with other models used by BC Hydro.[73]

In addition, as use of street lights occurs during BC Hydro's system peak period, BC Hydro submits that there will be capacity savings (also starting from fiscal 2025) of 6.7 MW per year, or $1.1 million per year, valued at BC Hydro's long-run marginal cost of generation capacity and bulk transmission and marginal costs for non-bulk transmission and distribution.[74] The estimated annual capacity savings are determined as follows:[75]

[72] Exhibit B-1, Appendix G, p. 4; Exhibit B-7, Zone II RPG IR 3.4.
[73] Exhibit B-7, Zone II RPG IR 3.4.
[74] Exhibit B-1, p. 27.
[75] Exhibit B-4, BCUC IR 8.7.

Annual capacity savings = capacity savings per street light × the number of street lightings × (1 + T&D Loss Factor)

$=(Wattage_{HPS} - Wattage_{LED}) \times 90{,}850 \times (1+7 \text{ per cent})$

$=(159.2w - 90.7w)/1{,}000{,}000 \times 90{,}850 \times (1+7 \text{ per cent})$

$\approx 6.7MW$

Where $Wattage_{HPS}$ denotes the weighted average of wattage per HPS street light, and it was estimated as 159.2 w per HPS street light;

$Wattage_{LED}$ denotes the weighted average of wattage per LED street light to be installed, and it was estimated as 90.7 w per LED street light;

T&D loss factor denotes the transmission and distribution loss factor and was assumed to be 7 per cent for street lighting.

Positions of Parties

BCOAPO submits that the value attributed to non-bulk transmission and distribution capacity savings "in the early years" may be overstated due to the lead times involved in constructing such facilities.[76] BCOAPO recommends that the BCUC direct BC Hydro to recalculate the capacity savings based on a "more realistic valuation" for the likely volume savings. Notwithstanding, given the "modest size" of the savings relative to the RS 1701 revenues overall, BCOAPO submits it does not expect this information to change the cost benefits analysis such that RS 1701 rates should not be approved.[77]

Zone II RPG disagrees with the marginal cost of energy used by BC Hydro for evaluating NIA energy savings because it is based on costs in BC Hydro's integrated system only. By using integrated system costs only, Zone II RPG submits that BC Hydro has undervalued the marginal energy cost. For NIA communities, Zone II RPG argues that the marginal fuel is diesel. Therefore, the marginal energy costs should be based on the avoided cost of diesel generation, which is $300 per MWh in F2021 compared to the $27.90 per MWh (low) to $64.90 per MWh (high) used by BC Hydro. Zone II RPG calculates the impact of using the avoided cost of diesel generation for the NIA as the marginal energy costs represents annual savings of $84,459 for RS 1701 customers.[78]

BC Hydro's Reply

In reply to BCOAPO's submissions, BC Hydro submits it does not see benefit in undertaking the requested analysis of net present value because the purpose of the information put forward in the Application is to support the inputs to the LED rates, which rates BCOAPO does not oppose. Accordingly, BC Hydro submits that the BCUC should decline the requested analysis.[79]

[76] BCOAPO Final Argument, p. 13. Per Exhibit B-5, BCOAPO IR 9.5, the lead time in constructing non-bulk transmission facilities is three to ten years and one to three years for constructing distribution facilities.
[77] BCOAPO Final Argument, p. 13.
[78] Zone II RPG Final Argument, pp. 5–7.
[79] BC Hydro Reply Argument, p. 9.

With respect to Zone II RPG's concerns, BC Hydro states that it cannot use the marginal cost of energy for the NIA regions in designing the RS 1701 LED street light rates because it does not have location specific marginal energy and demand cost estimates. BC Hydro submits it has used reasonable assumptions based on the best available information at the time to determine the costs and savings that will arise as a result of the Replacement Program. While changing the assumptions may increase or decrease the RS 1701 LED street light rates, BC Hydro continues to submit its assumptions are reasonable.[80]

Panel Discussion

The Panel finds that BC Hydro's estimated electricity cost savings is reasonable. The Panel is persuaded that there is little benefit in undertaking BCOAPO's request to recalculate the capacity savings based on a "more realistic valuation" for the likely volume savings given the modest size of savings relative to the RS 1701 revenues overall. Further, the Panel is not persuaded that such an undertaking will have any material impact on the outcome of the approval of RS 1701 LED street light rates.

Regarding NIA, the Panel notes that BC Hydro cannot use the marginal cost of energy for the NIA regions in designing the RS 1701 LED street light rates because it does not have location specific marginal energy and demand cost estimates. The Panel accepts that BC Hydro's Application has been made based on the best available estimates using available data.

2.3.5 Other Matters

In addition to the above, parties raised other matters related to the LED costs.

BCOAPO submits that BC Hydro has not made any allowance for the additional financing cost that will be required due to additional capital spending associated with the Replacement Program. It submits the incremental financing costs should be taken into consideration and, in doing so, financing charges associated with the undepreciated balances of the remaining HPS and MV lights being removed should also be deducted from the RS 1701 rates.[81] BCOAPO also submits that the revenue streams considered in BC Hydro's marginal cost analysis do not appropriately account for the time value of money. BCOAPO submits the analysis should have been done on a net present value (NPV) basis and rates established accordingly.[82]

Vernon submits there is uncertainty as to whether the proposed LED street light rates have captured the expected reduction in costs from the replacement of HPS and MV street lights with LED units. Notwithstanding, Vernon states that it does not oppose the proposed charges.[83] However, Vernon also submits the BCUC should consider, "perhaps through the mechanism of an inquiry under the UCA,"

[80] Ibid., p. 16.
[81] BCOAPO Final Argument, p. 12.
[82] Ibid., p. 15.
[83] Vernon Final Argument, pp. 2–3, 6.

whether current RS 1701 ratepayers should pay for the entirety of the cost of street lights because of the broad societal benefit of street lighting.[84]

BC Hydro's Reply

In reply to BCOAPO, BC Hydro explains that existing finance charges associated with BC Hydro's service to RS 1701 customers are captured in the cost of service used to calculate the LED rates based on BC Hydro's Fully Allocated Cost of Service studies. BC Hydro has not separately itemized finance charges specific to the Replacement Program for the purpose of calculating the proposed RS 1701 LED street light rates.[85]

BC Hydro submits that its proposed revenue calculations are appropriate for the purpose of the LED rate design. BC Hydro states a NPV approach is commonly used to assess an investment decision in the current period, which is not the intended purpose of the rate design calculations and pricing. It is not standard practice to use NPV as a direct input to pricing. In BC Hydro's view, it would not be appropriate to discount all the costs of service to the current period because the pricing is not entirely based on an investment decision in the current period alone. Rather, the majority (i.e., 90 percent) of the cost of service is associated with the use of BC Hydro infrastructure, which is the accumulation of prior investments and ongoing costs.[86] Instead, BC Hydro has factored in an inflation rate which assumes revenues will increase each year by the assumed RRA increases to reflect the time value of money.[87]

BC Hydro does not support an inquiry under the UCA, as suggested by Vernon, to determine whether the cost of street lighting should be entirely borne by RS 1701 ratepayers instead of all ratepayers in light of the broader social benefits. BC Hydro considers that the question is broader than the street light service provided by BC Hydro under RS 1701. BC Hydro notes that municipalities also provide their own street lighting, outside of the BCUC's jurisdiction, and this lighting arguably provides the same societal benefits as RS 1701 street lighting. Therefore, societal benefits are broader than BC Hydro's ratepayers or municipal taxpayers, and the regulation of these costs is broader than the question of utility regulation under the UCA. As a result, BC Hydro submits that the evidence submitted in this proceeding is sufficient to determine the question of cost allocation of the RS 1701 LED street lighting costs.[88]

Panel Discussion

The Panel finds that the financing costs of the Replacement Program have been adequately accounted for as they are captured in the LED cost based on BC Hydro's Fully Allocated Cost of Service Studies. The Panel also finds that it is appropriate that NPV was not used to discount costs as the purpose of the cost calculations is for rate setting.

[84] Vernon Final Argument, p. 6.
[85] BC Hydro Reply Argument, p. 8.
[86] BC Hydro Final Argument, pp. 99–10.
[87] Ibid., p. 9.
[88] Ibid., p. 19.

The Panel does not agree the BCUC has the jurisdiction to hold an inquiry under the UCA to determine whether the cost of street lighting should be entirely borne by RS 1701 ratepayers, in light of the broader social benefits of the public at-large.

2.3.6 Overall Determination on LED Incremental Costs

Overall, BC Hydro expects LED lights to result, on average, in an incremental annual savings of $0.4M. Incremental costs (savings) are summarized in Table 3 below:

Table 1: Summary of Incremental LED Costs (Savings)

Category	**Estimated Annual Average LED Incremental Cost (Saving)** **$ (Millions)[89]**
Replacement Program capital and installation costs	3.0
Maintenance savings	(1.2)
Electricity savings	(2.2)[90]
Total estimated annual average LED Incremental costs (savings)	**(0.4)**

Based on Sections 2.3.1 to 2.3.5 above, the Panel finds that BC Hydro's estimate of LED Street Lighting costs, which are calculated using the marginal cost model, is reasonable for use in the setting of LED rate in Section 2.3.7 below.

2.3.7 Calculation of LED Rate

The Panel now examines the calculation of LED Overhead Street Light Rates as proposed by BC Hydro based on the LED costs determined in Section 2.3.6 of this Decision.

[89] Exhibit B-1, p. 27.
[90] Electricity savings are comprised of estimated electricity savings of $1.1M and capacity savings of $1.1M together totaling $2.2M.

BC Hydro submits that it has designed the LED rate to fully allocate the expected cost and benefits of the Replacement Program to the RS 1701 rate class and to maintain the existing revenue-to-cost ratio for the streetlighting rate class.[91]

BC Hydro acknowledges that the revenue received from RS 1701 rates currently exceeds the costs allocated to it in BC Hydro's fully allocated cost of service studies.[92] However, BC maintains that the purpose of the proposed amendments to RS 1701 is to facilitate the Replacement Program, not to undertake rate rebalancing.[93] BC Hydro submits that the BCUC does not have the authority to conduct rate rebalancing in this proceeding pursuant to section 58.1(7) of the UCA, which provides:

> The Commission may not set rates for a public utility for the purpose of changing the revenue-cost ratio for a class of customers except on application by the public utility.[94]

Table 4 below presents BC Hydro's proposed pricing for LED Rates and the Supplemental Charge (discussed in Section 2.4 of this Decision) for F2021, as compared to the approved rates for existing RS 1701 HPS and MV street lights:

[91] Ibid., p .6.
[92] Ibid., BCSEA IR 1.4, 1.11.
[93] Exhibit B-1, p. 4; BC Hydro Final Argument, p. 13.
[94] Exhibit B-1, p. 4.

Table 2: F2021 Proposed RS 1701 Rates[95]

		1	2	3	4	5
1	**HP Sodium (HPS) Unit**	**Weighted Average**		**100 W**	**150 W**	**200 W**
2	F2021 Approved HPS Rate ($/month)	21.08 $/month		19.40 $/month	23.14 $/month	26.72 $/month
3	**Mercury Vapour (MV) Unit**			**175 W**	**250 W**	**400 W**
4	F2021 Approved MV Rate ($/month)	22.88 $/month		21.32 $/month	24.57 $/month	31.67 $/month
8	**LED Unit**		**< 51 W**	**51 - 80 W**	**81 - 120 W**	**> 120 W**
9	F2021 LED Rate ($/month)	20.66 $/month	15.08 $/month	18.77 $/month	23.50 $/month	27.57 $/month
10	LED Supplemental Charge ($/month)	2.06 $/month	2.06 $/month	2.06 $/month	2.06 $/month	2.06 $/month
11	F2021 LED Rate plus Supplemental Charge ($/month)	22.72 $/month	17.14 $/month	20.83 $/month	25.56 $/month	29.63 $/month

BC Hydro notes that the weighted average LED street light rate shown on line 9 is slightly lower than the equivalent approved HPS rate shown on line 2.[96]

BC Hydro explains that the marginal cost analysis adjusts the total revenue from RS 1701 by the amount of any increases or decreases in costs due to the Replacement Program, to arrive at an updated (net) revenue estimate for each year of the 20-year expected life for the LED luminaires.[97] These increases and decreases in costs include: maintenance cost savings, electricity cost savings, Replacement Program expected costs, and the undepreciated value of existing lights removed before their end of life.[98]

The LED rates were calculated in BC Hydro's Pricing Model by allocating the net revenue estimate for the RS 1701 rate class to different LED wattage groups, based on their different capital costs and electricity usageBC Hydro explains that it selected the four wattage groups for new LED street lights to accommodate street lights from various manufacturers that produce similar lighting to BC Hydro's current fleet of HPS street lights such that:

- The 50 W or less LED is equivalent to the 100 W HPS flat lens unit;
- The 51 W to 80 W LED is equivalent to the 100 W HPS drop lens unit;

[95] Exhibit B-1, p. 30, Table 7.
[96] Exhibit B-1, p. 29.
[99] Exhibit B-4, BCUC IR 9.1.
[99] Exhibit B-4, BCUC IR 9.1.

- The 81 W to 120 W LED is equivalent to the 150 W HPS flat and drop lens units; and
- The 120 W or greater LED is equivalent to the 200 W HPS flat and drop lens units.[99]

Positions of the Parties

The CEC recommends that the BCUC approve the proposed LED rates as filed, stating that BC Hydro's evidence is "adequate" and "sufficient" to justify the proposed rates.[100]

BCSEA, Zone II RPG and BCOAPO generally support the approach taken by BC Hydro and the proposed LED rates and amendments to RS 1701 in relation to the Replacement Program.[101]

Surrey submits that it has difficulty understanding the proposed LED rates, noting that RS 1701 customers will pay more for LED street lights of equivalent light output after the Replacement Program is complete, even though the Application demonstrates that LED street lights will result in financial savings. Specifically, Surrey notes that the 150W HPS rate of $23.14 is proposed to increase to $23.50 per month, and the 200W HPS rate of $26.72 is proposed to increase to $27.72 per month. It states, "[t]his outcome is difficult for Surrey to understand when implementing technology that requires less energy to operate, reduces costs for maintenance, and has program capital costs paid for over a 20-year term." As such, Surrey submits that expected savings do not appear to be fairly shared between BC Hydro and RS 1701 customers.[102]

BC Hydro's Reply

In reply to Surrey's argument, BC Hydro submits that it has not sought to retain the benefit of any reasonably assumed savings. BC Hydro states that it has sought to include as many reasonably assumed savings as possible in the design of LED rates but that those savings are largely offset by the Replacement Program's capital and installation costs. As a result, RS 1701 rates are not reduced by as much as customers may have anticipated.[103]

Panel Discussion

The Panel finds that BC Hydro's use of the Pricing Model is appropriate for setting LED rates as it fairly allocates LED costs to customers based on their respective capital costs and electricity usage. The Panel also finds that BC Hydro has adequately designed the LED rate to allocate all expected cost and benefits of the Replacement Program to the RS 1701 rate class. The Panel acknowledges that the LED rates have not been designed with the intention of developing a new class of service, undertaking rate rebalancing,

[99] Exhibit B-4, BCUC IR 9.1.
[100] CEC Final Argument, p. 13.
[101] BCSEA Final Argument, p. 3; Zone II RPG Final Argument, p. 1; BCOAPO Final Argument, p. 8.
[102] Surrey Final Argument, p. 5.
[103] BC Hydro Reply Argument, p. 21.

or changing the extent to which RS 1701 revenues recover BC Hydro costs that are unrelated to the Replacement Program and finds this approach to be appropriate.

The Panel notes that, based on Table 4 above, if the proposed Replacement Program is approved, F2021 weighted average monthly per unit rates for BC Hydro RS 1701 customers will decrease from $21.08 per HPS unit and $22.88 per MV unit to $20.66 per LED unit. The Panel notes that this is not unreasonable given the modest net LED annual incremental cost savings of $0.4M discussed in Section 2.3.6 of the Decision. However, the Panel also acknowledges that when taking into account the proposed temporary Supplemental Charge, as discussed in Section 2.4 of the Decision, that the F2021 weighted average monthly per unit rates for LED units will be $22.72, a slight increase from existing HPS unit costs but a slight decrease from existing MV unit costs.[104]

The Panel acknowledges that various parties submitted that they expected a rate decrease as a result of the Replacement Program, largely driven by lower maintenance costs and electricity use of LED technology. However, as BC Hydro clarifies, those savings are largely offset by amortization of one-time capital and installation costs associated with the Replacement Program conversion, which are estimated to be $61.85 million, as discussed in Section 2.3.2 of the Decision. The Panel also notes that despite concerns that the Replacement Program results in a net rate increase to HPS customers while the temporary Supplemental Charge is in effect, the rate is a result of calculations of the marginal cost model which adjusts the F2021 revenue from RS 1701 by the amount of any increases or decreases in costs attributable to LED street light technology and that as a result, any expected costs or benefits of the Replacement Program are fully allocated to RS 1701 customers[105]. Therefore, the Panel accepts that based on the calculation of LED rates and the applicant's submission, BC Hydro has not sought to retain any benefits of the Replacement Program and that the recovery of one-time capital and installation costs offsets expected savings based on current estimates.

2.3.8 Assessing Proposed LED Rates against Bonbright Principles

In the Application, BC Hydro provides an assessment of the proposed RS 1701 LED rates against the Bonbright Criteria, as discussed in Section 2.2 of the Decision, evaluating each criterion as being Very Good, Good, Fair or Poor.[106]

The following table summarizes the eight Bonbright Criteria and BC Hydro's Bonbright grouping and final assessment of the LED rate of each grouping:

[104] Exhibit B-1, p. 29.
[105] Exhibit B-1, p. 26.
[106] Exhibit B-4, BCUC IR 6.1.

Table 5: BC Hydro's Bonbright Assessment of RS 1701 Rate Proposals[107]

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			

With the exception of the third Bonbright grouping "Practicality" which was rated as Good/Fair, BC Hydro assessed the proposed LED rates as Good or Very Good on all other Bonbright Criteria.[108]

BC Hydro considers that Practicality refers to how easy the rate is for the utility to implement and for customers to understand and accept. BC Hydro submits that the proposed LED rates are a simple, fixed monthly charge per LED unit. Therefore, they are assessed as Good on customer understanding and ease of administration for BC Hydro.[109] However, BC Hydro only assesses customer acceptance as Fair because it understands that the proposed temporary bill increase and Supplemental Charge resulting from the Replacement Program may not align with customer expectations.[110] BC Hydro notes that the assessment is not Poor as the proposed rates are a simple, flat, fixed monthly charge per LED streetlight, which is easy for customers to understand, plan and budget for.[111]

[107] Exhibit B-1, p. 25.
[108] BC Hydro Final Argument, pp. 13–14.
[109] Exhibit B-1, p. 24; Exhibit B-4, BCUC IR 6.1.
[110] BC Hydro Final Argument, p. 13; Exhibit B-4, BCUC IR 6.1.
[111] Exhibit B-6, BCUC IR 22.2.

Related to customer acceptance and understanding, BC Hydro submits that the BCUC should also consider:

a. the simplicity of the rate, being a fixed price per light per month; based on a wattage range of the LED luminaire, as well as a fixed Supplemental Charge per light per month;

b. the effective date of the LED rates and Supplemental Charge, thereby allowing customers time to include the changes in their budgets;

c. the duration of the Supplemental Charge; and

d. the method of the rate calculations, in that all benefits of replacing existing street lights with LED street lights are provided to RS 1701 customers and avoid cost impacts to other ratepayers.[112]

BC Hydro submits that the Bonbright Criteria are used to understand and assess the trade-offs that may need to be made to reflect competing priorities in rate design. BC Hydro states that it has sought to balance the competing priorities and to address customer concerns, as much as possible, in designing the LED rates.[113] BC Hydro considers that it is not common for a rate design to excel on all Bonbright Criteria.[114]

As a whole, BC Hydro submits that the proposed rates considered against the Bonbright Criteria are a reasonable balance between the eight criteria and support the conclusion that the proposed rates are fair, just, and not unduly discriminatory.[115]

Positions of the Parties

While Surrey submits the use of the Bonbright Criteria for establishing the revised RS 1701 rate design or structure is appropriate, it questions if cost savings have been adequately shared with customers given the LED rate, when combined with the Supplemental Charge results in a net rate increase to customers.[116] This matter is discussed in Section 2.3.7 of the Decision.

As previously noted, Zone II RPG supports the use of the cost causation principle, acknowledging that BC Hydro's Bonbright grouping of Fairness states that "costs should be recovered from customers who impose the costs." Since BC Hydro has proposed to recover the costs associated with purchasing and installing RS 1701 LED street lights from RS 1701 customers only, Zone II RPG submits that BC Hydro's proposals are appropriate and consistent with the cost causation principle.[117]

[112] Exhibit B-6, BCUC IR 22.3.
[113] BC Hydro Final Argument, p. 14; Exhibit B-6, BCUC IR 22.2.
[114] Exhibit B-6, BCUC IR 22.4.
[115] BC Hydro Final Argument, p. 14; Exhibit B-6, BCUC IR 22.4.
[116] Surrey Final Argument, p. 5.
[117] Zone II RPG Final Argument, p. 9.

Except for the recovery of undepreciated street lights costs that BC Hydro proposes to recover through the Supplemental Charge, the CEC agrees that BC Hydro has adopted a fair approach from a cost-causation perspective.[118]

Vernon makes no submission on the Bonbright Criteria in relation to LED rates. However, it submits that the Supplementary Charge is not consistent with the Bonbright Criteria.[119] The Supplementary Charge is discussed in Section 2.4 of the Decision.

Panel Discussion

The Panel finds that BC Hydro's proposed LED rate is appropriate when assessed against the Bonbright Criteria. The Panel notes that the proposed LED rate has been developed to achieve cost causation as discussed in Sections 2.3.1 and 2.3.6 of the Decision. Although customers have expressed concerns with the proposed net increase of rates to RS 1701 customers despite maintenance and electricity savings resulting from the Replacement Program, BC Hydro has explained that cost increases due to the one-time capital installation of the LED streetlights discussed in Section 2.3.2 of the Decision largely offset the expected savings. As such, the Panel finds that BC Hydro's proposed LED rate reasonably meets the criterion of Practicality.

2.3.9 Overall Panel Determination on LED Street Light Rates

Based on the considerations and Panel determinations in Sections 2.3.1–2.3.8 of the Decision, the Panel finds the proposed LED rates are not unjust, unreasonable, unduly discriminatory, or unduly preferential, and approves, on a permanent basis, the LED street light rates, as set out in Appendix B of the Application, effective May 1, 2021.

The Panel directs BC Hydro to file updated tariff sheets for endorsement by the BCUC reflecting the RS 1701 rates as approved within 15 business days of the date of this order.

Further, the Panel directs BC Hydro to file with the BCUC Annual Replacement Program Reports and a Final Replacement Program Report as outlined in Section 2.3.2 of the Decision. Further information regarding the requirements of such Reports is set out in Appendix A.

2.4 Supplemental Charge

In addition to the LED rate discussed in Section 2.3 of the Decision, BC Hydro requires the BCUC's consent to amend RS 1701 to allow for a temporary Supplemental Charge to recover the undepreciated value of the existing MV and HPS lights that have been or will be removed before the end of their useful life pursuant to the Replacement Program.[120] BC Hydro proposes a Supplemental Charge of $2.06 per

[118] CEC Final Argument, p. 10.
[119] Vernon Final Argument, p. 15.
[120] BC Hydro Final Argument, p. 6.

month, per street light, on a temporary basis commencing May 1, 2021 and terminating March 31, 2024.[121]

By Order G-43-21 dated February 12, 2021, the BCUC approved the Supplemental Charge on an interim, refundable, or collectable basis, pending the BCUC's final decision on this Application.

2.4.0 BC Hydro's Proposal

BC Hydro prepares its financial reports under International Financial Reporting Standards (IFRS).[122] BC Hydro states, under IFRS, the undepreciated value or remaining Net Book Value (NBV) of the assets being removed "must be recorded as an expense on BC Hydro's income statement in the year the street light is replaced."[123] Accordingly, BC Hydro proposes to charge a temporary Supplemental Charge, to be applied in the fiscal years in which the Replacement Program is undertaken, in order to "approximately align" the recovery of the proposed charge with the removal of the undepreciated assets from service.

Based on the planned roll-out schedule of the Replacement Program (which runs from F2021 to F2024), the proposed temporary Supplemental Charge would be effective for a 35-month period from May 1, 2021 to March 31, 2024.[124]

In order to contain this write-off within the RS 1701 customer rate class, BC Hydro proposes to recover the Supplemental Charge from RS 1701 customers.[125] BC Hydro explains that it assumed a postage stamp rate for the proposed Supplemental Charge because it does not maintain information for individual street lights or their undepreciated value. As a result, BC Hydro cannot calculate book values for the specific street lights for which a given customer is taking service. In addition, BC Hydro submits that there are benefits to a postage stamp approach, such as ease of administration and customer understanding, as its proposal is to apply the Supplemental Charge to all street lights served under RS 1701.[126]

In support of its proposal, BC Hydro submits that the costs of the assets being removed have been incurred solely for the benefit of the RS 1701 customer rate class. BC Hydro notes that, absent a customer request to have BC Hydro provide street lighting service in a specific location, it would not otherwise be providing RS 1701 service or incurring these costs. BC Hydro states that RS 1701 service is an alternative provided by BC Hydro to customers who would otherwise have to install their own street lighting. Accordingly, BC Hydro considers that the undepreciated value of removed street light assets should be recovered from RS 1701 customers as these costs are directly and only associated with and

[121] Exhibit B-1, p. 29.
[122] Ibid., Section 5.2.2, p. 28.
[123] Exhibit B-1, pp. 28–29.
[124] Ibid., pp. 29–30; Exhibit B-4, BCUC IR 7.1. BC Hydro states it expects to complete the Replacement Program in fiscal 2024 and March 31, 2024 is the last day of that fiscal year (Exhibit B-6, BCUC IR 18.1).
[125] Exhibit B-1, pp. 28–29.
[129] Exhibit B-1, p. 28.

required for service to RS 1701 customers. BC Hydro submits its approach, as proposed, is fair, just, and not unduly discriminatory.[127]

2.4.1 Recovery of Undepreciated Street Light Costs

BC Hydro estimates that the undepreciated value of the street lights to be recovered is $6.55 million based on the NBV of the assets on November 1, 2020 and considering on-going depreciation from that date until the Replacement Program is complete.[128] BC Hydro presents details of the calculation of the $6.55 million in the following table:

Table 6: Unrecovered Depreciation[129]

Item		Amount ($K)
Total undepreciated value of BC Hydro owned street lighting assets under RS 1701 as of November 1, 2020.	A	$21,590
Proportion of undepreciated value attributable to the luminaire and a small fraction of arms portion of HPS assets to be replaced.	B	33.28%
Undepreciated value of HPS RS 1701 street lighting assets to be replaced under the Replacement Program as of November 1, 2020.	C = A x B	$7,185
On-going depreciation of RS 1701 HPS street lighting assets to be replaced during the Replacement Program.	D	$633
Total undepreciated value of BC Hydro owned street lighting assets to be replaced under RS 1701 as of the fiscal year-end of the date they are planned to be removed from service under the Replacement Program	E = C - D	$6,552

BC Hydro states that the $6.55 million is an estimate in that it has employed certain assumptions respecting the calculation and recovery of this cost, as follows:

- the portion of the undepreciated street light value attributable to the luminaire and the arms being replaced is estimated to be 33 percent of the total undepreciated value of the street lights, based on an assessment of the average component costs (arm, luminaire, and labour) to install HPS street lights;
- the recovery of the Supplemental Charge is designed so that the revenue received is approximately coincident with the retirement of the assets based on the planned roll-out schedule of the Replacement Program; and
- there is no change to the number of street lights for which customers are taking service under RS 1701 during the Replacement Program.[130]

[127] BC Hydro Final Argument, p. 9.
[128] Exhibit B-1, p. 28. The $6.55 million estimate is further explained in response to BCUC IR 7.1.
[129] Exhibit B-4, BCUC IR 7.2.
[130] Exhibit B-4, BCUC IR 7.1.

2.4.2 Amortization Period for the Supplemental Charge

BC Hydro proposes the following equation for the calculation of the Supplemental Charge[131]:

$$\text{Supplemental Charge} = \frac{\text{Total Undepreciated Value of lights replaced (\$)}}{\text{Applicable Months} * \text{Total Number of lights replaced}}$$

Table 7 below shows the application of the equation in the calculation of BC Hydro's proposed Supplemental Charge over 35 months (May 1, 2021 to March 31, 2024):

Table 7: Calculation of the Proposed RS 1701 Supplemental Charge[132]

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

BC Hydro also calculated the Supplemental Charge for RS 1701 customers under alternative time periods or amortization scenarios, including the scenario where the recovery is from May 1, 2021 to December 31, 2025 (56 months or 4.7 years) to coincide with the PCB Regulations. The calculations for these scenarios are summarized in the table below:

Table 8: Supplemental Charge Recovery Scenarios[133]

Calculation of Supplemental Charge		
Years	**Months**	**$/mo/Light**
4	**48**	**1.50**
4.7	**56**	**1.29**
5	**60**	**1.20**
6	**72**	**1.00**
7	**84**	**0.86**
8	**96**	**0.75**
9	**108**	**0.67**
10	**120**	**0.60**

BC Hydro notes that the recovery of the undepreciated value of street lighting assets being removed cannot be extended absent deferral treatment.[134] In the event that deferral treatment is approved, BC

[131] Exhibit B-4, BCUC IR 1.7.3
[132] Exhibit B-1, Appendix G, p. 17, Table G-7.
[133] Exhibit B-6, BCUC IR 32.1.
[134] Ibid., BCUC IR 8.2.1

Hydro would still apply the expensing rules under IFRS, but the expense would be offset by a regulatory transfer on the income statement. As a result, there would be no impact on BC Hydro's net income and a regulatory asset would be created/increased for the amount of the expense.[135]

2.4.3 Bill Impacts of Supplemental Charge

For illustrative purposes, BC Hydro provides the following table of customer bill impacts for three hypothetical customers, considering both components (LED rate and Supplemental Charge) of the proposed RS 1701 rates:

Table 9: Illustrative RS 1701 Customer Bill Impacts[136]

Time		Customer 1	Customer 2	Customer 3
	Number of Lights	**10**	**54**	**758**
Today	Current Bill	$212 / mo.	$1,120 / mo.	$15,805 / mo.
Illustrative new pricing	Street Light Charge	$209 / mo.	$1,090 / mo.	$15,401 / mo.
	Supplemental Charge	$20 / mo.	$111 / mo.	$1,562 / mo.
	Total Bill	$229 / mo.	$1,201 / mo.	$16,963 / mo.
	Bill Impact	+$17 / mo.	+$81 / mo.	+$1,160 / mo.

BC Hydro submits that the above table shows a customer with 54 lights (Customer 2) which completes a like for like replacement will have a bill of $1,120 per month prior to deployment and a bill of $1,201 per month during deployment, which results in a bill increase of approximately $81 per month. However, after the Supplemental Charge ends (March 31, 2024), the bill reduces back down to $1,090 per month, which is slightly lower than the current bill.[137]

If a different recovery period is used for the undepreciated value of street lighting assets being removed, the illustrative bill impacts would change. For example, BC Hydro submits a recovery period of 72 months (rather than 35 months as proposed) would have the following bill impact for Customer 2:

Table 10: Illustrative Customer Bill Impacts – 35-month and 72-month Recovery Scenarios[138]

			Supplemental Charge Recovery	
			35 months	**72 months**
Today	1	Current Bill	$1,120 / mo.	$1,120 / mo.
Illustrative new pricing	2	Street Light Charge	$1,090 / mo.	$1,090 / mo.
	3	Savings	$30 / mo.	$30 / mo.
	4	Supplemental Charge	$111 / mo.	$54 / mo.
	5	Months	35	72

[135] Ibid., BCUC IR 30.13.
[136] Exhibit B-1, p. 32, Table 9.
[137] Exhibit B-1, p. 32.
[138] Exhibit B-7, CEC IR 14.2

	6	Monthly Amount	$2.06 /mo.	$1.00 / mo.
	7	Total Supplemental Charge	$3,893	$3,893
	8	Total Bill	$1,201 / mo.	$1,144 / mo.
	9	**Bill Impact**	**+$81 / mo.**	**+$24 / mo.**
	10	Payback Supplemental Charge with savings (Line 7/Line 3)	130 mo.	130 mo.

The table above shows a difference in the monthly bill impact of +$24 per month compared to +$81 per month for 72 and 35-month recovery periods, respectively.

2.4.4 Approaches of Other Canadian Utilities

During the course of the proceeding, the BCUC and interveners explored, through IRs, whether it would be appropriate to recover the undepreciated value of the existing MV and HPS lights that have been or will be removed before the end of their useful life pursuant to the Replacement Program from all ratepayers instead of only RS 1701 customers. The IRs also examined the different approaches adopted by other utilities in Canada.

BC Hydro submits its rate design jurisdictional reviews typically do not include other utilities' internal business decisions and accounting treatments. However, to be responsive to the parties' concerns about the appropriateness of requiring RS 1701 ratepayers to bear the costs of the undepreciated value of the street lights, BC Hydro selected a few representative utilities across the country and contacted them to understand their treatment of unrecovered depreciation from the removal of street light assets.[139] BC Hydro found:

1. SaskPower, a Saskatchewan crown corporation, wrote off the undepreciated value which meant the cost was borne by the shareholder (the Saskatchewan government);[140]
2. Manitoba Hydro, a Manitoba crown corporation, recorded the undepreciated value in a regulatory deferral account along with other annual asset retirement gains and losses. Accordingly, the costs were borne by all ratepayers; [141]
3. Hydro Quebec, a Quebec crown corporation, only replaces street lights when their lifetime is expired so there is no consideration of the undepreciated value of lights;[142]
4. New Brunswick Power, a New Brunswick crown corporation, wrote off the existing assets to all ratepayers during the year of removal;[143] and

[139] Exhibit B-6, BCUC IR 30.2.
[140] Exhibit B-4, BCUC IR 7.6.
[141] Ibid., BCUC IR 7.6.
[142] Ibid., BCUC IR 7.6.
[143] Exhibit B-6, BCUC IR 30.2.1.

5. FortisBC Inc. recovered the costs of its LED Retrofit Program, including write-offs of undepreciated luminaires, from all general customers through the approved capital spending formula under its Performance Based Ratemaking plan.[144]

In BC Hydro's view, however, it is not appropriate to directly compare other utilities' treatment of retired assets to BC Hydro's proposed treatment. BC Hydro submits that other utilities may have different drivers for their LED street light replacement decisions and different regulatory and operational environments. In addition, BC Hydro notes other utilities may have conducted their LED replacements differently than BC Hydro's proposed Replacement Program.[145] Specifically, in relation to the approaches of SaskPower and Manitoba Hydro, respectively, BC Hydro submits:

> it is unable to comment on the acceptability of writing off the undepreciated value as it would impact the Government of BC and, by extension, BC taxpayers. To its knowledge, the Government of BC has issued no mandate or direction indicating support for such an approach; and[146]
>
> it does not support adopting the regulatory deferral account approach adopted by Manitoba Hydro as it would shift Replacement Program costs to all ratepayers. However, if directed, BC Hydro would propose to recover the costs deferred to the new regulatory account over the next test period and to apply interest to the balance in the account based on BC Hydro's weighted average cost of debt for its current fiscal year.[147]

BC Hydro further submits it would not be appropriate to recover the unrecovered depreciation from all ratepayers because only RS 1701 customers benefit from the LED street light Replacement Program. BC Hydro submits that doing so would be inappropriate as it would shift costs associated with the Replacement Program to ratepayers who do not benefit from the program.[148]

2.4.5 Submissions and Panel Determination on Supplemental Charge

Positions of Parties

Interveners, other than Vernon, generally agree that the unrecovered depreciation of existing HPS and MV street lights should be recovered from RS 1701 ratepayers.[149]

BCSEA states it supports the Supplemental Charge as proposed since it is a matter of cost causation, and it also agrees with BC Hydro's rationale for the postage stamp approach. [150]

[144] Ibid., BCUC IR 30.3.
[145] Ibid., BCUC IR 30.2.
[146] Ibid., BCUC IR 30.5.
[147] Ibid., BCUC IR 30.5.
[148] Exhibit B-4, BCUC IR 7.5, 7.5.1.
[149] BCOAPO Final Argument, p.16; CEC Final Argument, p. 2; Surrey Final Argument, p. 3.
[150] BCSEA Final Argument, p. 10.

Surrey submits that the Supplemental Charge should have an end date of March 31, 2024, as proposed.[151]

Vernon opposes the proposed Supplemental Charge and requests that the BCUC deny it for the following reasons:

a) HPS and MV units have become stranded assets because of the PCB Regulations, over which BC Hydro had more control than do the ratepayers;[152]

b) BC Hydro failed to keep track of HPS fixtures and does not have conclusive records indicating which RS 1701 lights contain PCBs;[153]

c) BC Hydro continued to install HPS street lights since the PCB Regulations became known in 2008. Vernon submits that ratepayers should not have to bear the burden of 12 years of BC Hydro's consideration of LED technology;[154] and

d) BC Hydro's treatment of undepreciated lights is inconsistent with its current practice of not recovering undepreciated value from customers when a RS 1701 street light is removed prior to being fully depreciated.[155]

In Vernon's view, the BCUC should adopt the approach taken by the Alberta Utilities Commission referred to in the FortisAlberta case,[156] in which it was determined that "any gains or losses on utility assets are for the account of the utility and its shareholders, not customers."[157]

Vernon further submits that the proposed Supplemental Charge is not consistent with the Bonbright Criteria[158] and is not "fair" or "just" for the purposes of the UCA.[159] In its view, the proposed charge fails to adhere to cost of service principles, submitting the following statement by Bonbright is also applicable:

> ... one standard of reasonable rates can fairly be said to outrank all others in the importance attached to it by experts and by public opinion alike - the standard of cost of service, often qualified by the stipulation that the relevant cost is *necessary* cost or cost reasonably or prudently incurred… Rates found to be far in excess of cost are at least highly vulnerable to a charge of "unreasonableness".
>
> … A cost standard of rate making has been most generally accepted in the regulation of the levels of rates charged by private utility companies. But even more significant is the

[151] Surrey Final Argument, p. 8.
[152] Vernon Final Argument, p. 3.
[153] Ibid., p. 10.
[154] Ibid., pp. 10–11.
[155] Ibid., p. 13.
[156] 2015 ABCA 295 (FortisAlberta).
[157] Vernon Final Argument, p. 11.
[158] Ibid., pp. 15–16.
[159] Ibid., p. 3.

> widespread adherence to cost, or to some approximation of cost, as a basis for rate making under public ownership.[160]

Vernon also submits that the issue of which HPS and MV street lights have become stranded assets due to the PCB Regulations "is a matter over which [BC] Hydro had more control than did its ratepayers, such as the City [of Vernon]."[161] As such, the cost of the undepreciated value should not be borne by ratepayers.[162] Finally, Vernon argues that the proposed Supplemental Charge should be viewed in the context that BC Hydro's income from street lighting has generated revenues which are more than twice BC Hydro's cost of service. For this reason, the Supplemental Charge would not be "fair" or "just."[163]

The CEC submits that the impact of the Supplemental Charge could be mitigated if the BCUC were to treat the Replacement Program as a proxy for a demand-side measure (DSM) initiative such that the Supplemental Charge could be recovered over a longer time period (20 years), thereby reducing the rate impact to RS 1701 customers.[164]

If not, the CEC submits that an extension of the recovery period could otherwise serve to diminish the negative impacts to customers of the Supplemental Charge.[165] In its view, a $24 per month impact (i.e., recovery of the Supplemental Charge over a 72-month period) could likely be substantially easier for a customer to absorb than a $81 per month bill impact currently proposed.[166] In addition, the CEC submits:

> The significant upfront costs being absorbed in a 3-year period, combined with future cost benefits could potentially result in intergenerational inequity. Customers receiving service after the 35 months of Supplemental Charge receive the benefit of the lower rates, while customers paying the Supplemental Charge pay the higher rate for nearly 3 years.[167]

The CEC submits that it would be appropriate for the BCUC to adopt an extended recovery of the Supplemental Charge over a longer period of time to ensure that established rates are fair, just, and not unduly discriminatory.[168]

BC Hydro's Reply

In Reply to Vernon, BC Hydro submits that its decision making with respect to installing HPS and MV lighting following the introduction of the PCB Regulations was prudent. BC Hydro submits that it took a

[160] Ibid., p. 15.
[161] Ibid., p. 3.
[162] Ibid.
[163] Ibid.
[164] CEC Final Argument, pp. 7–8; BC Hydro Reply Argument, p. 13.
[165] Ibid., p. 17.
[166] Ibid., p. 16.
[167] CEC Final Argument, p. 17.
[168] Ibid., p. 18.

reasonable approach in evaluating the evolving technology, pricing, unit reliability and future maintenance of LED street lights. While it was undertaking this evaluation, BC Hydro argues that it had an obligation to provide service, including replacing lights that had failed. BC Hydro notes that, while commencing the replacement of street lights sooner with LEDs may have resulted in fewer HPS/MV lights being installed, costs for the LED technology may have been higher. As a result, BC Hydro submits that it is not appropriate to apply a hindsight view to BC Hydro's decision as to when to proceed with the Replacement Program or whether costs would have been lower if it had commenced sooner.[169]

BC Hydro submits that the FortisAlberta case relied upon by Vernon may reflect the law in Alberta, but it does not reflect the law in BC. BC Hydro submits that the law in BC continues to be that a utility should be allowed to recover its prudently incurred costs for stranded assets from ratepayers. As a result, it submits that the FortisAlberta case should not be used as a basis to deny the Supplemental Charge.[170]

In respect of the CEC's suggestion to treat the Replacement Program as a DSM initiative, BC Hydro notes that it has already commenced collecting F2021 rates under final (non-refundable) rates which include 2021 approved DSM programs. In light of these circumstance, it is unclear how the CEC's proposal to treat the Supplemental Charge akin to a traditional DSM expenditure could be implemented.[171]

Regarding an extension of the Supplemental Charge recovery period, BC Hydro reiterates that a regulatory account would be required to enable recovery of the Supplemental Charge over a period longer than the proposed 35-month period. BC Hydro submits, however, that it has not sought approval of a regulatory account in the Application. In its view, its proposal to collect the costs over the deployment period of the Replacement Program is appropriate.[172] BC Hydro disagrees that there are potential intergenerational inequity concerns, stating that it does not expect the customers being served under RS 1701 to change substantially over the next 20-year period.[173]

Panel Determination

BC Hydro's Replacement Program will result in the replacement of MV and HPS street lights and related assets prior to end of their useful life, thereby creating an unrecovered depreciation cost in respect of those assets. The Panel finds BC Hydro's estimate of the undepreciated amount of those assets to be reasonable and based on appropriate assumptions and estimating methodology.

In particular, the Panel considers the assumptions and calculations used to determine the undepreciated value of replaced MV and HPS street lights, as set out in Table 5, clearly explains the depreciation which BC Hydro seeks to recover. The Panel also notes that there were no issues or comments raised by interveners on this point during the proceeding.

[169] BC Hydro Reply Argument, p. 17.
[170] Ibid., p. 18.
[171] Ibid., p. 14.
[172] Ibid., pp. 13–14.
[173] Ibid., p. 14.

Regarding the merits of BC Hydro's proposal to recover the costs of undepreciated value of the replaced street lights from RS 1701 customers only, the Panel notes that the CEC and Vernon have made alternative submissions as to who should bear those costs and the timing of such recovery.

The CEC submits that the BCUC should consider treating the Replacement Program as a DSM initiative such that the unrecovered depreciation may be recovered from all ratepayers to reduce the impact on RS 1701 customers. However, the Panel accepts BC Hydro's submission that it is not possible to treat the Replacement Program as a DSM "proxy" given the deployment of the Replacement Program began in December 2020 and BC Hydro has already commenced recovering F2021 approved DSM program expenditures through permanent F2021 rates.

Vernon submits that BC Hydro's shareholder should be responsible for the costs. The Panel is not persuaded that the utility should bear the costs of stranded street light assets in this instance. The assets are used and useful and have only become stranded assets because of the PCB Regulations, which will prohibit their use beyond December 31, 2025.

The Panel notes decisions made by management are generally presumed to be prudent unless challenged on reasonable grounds. In the present case, BC Hydro's approach was to take time to evaluate the evolving LED street light technology, pricing, unit reliability and future maintenance, before developing and implementing its Replacement Program. During that evaluation period, BC Hydro clearly had a continuing obligation to provide street light service and incur costs associated with providing that service. It is neither fair nor appropriate to use hindsight in determining prudence and to question whether costs would have been lower if BC Hydro's management decision to proceed with the Replacement Program had been made sooner. The decision must have been reasonable under the circumstances that were known or ought to have been known to the utility at the time the decision was made. While the PCB Regulations became known in 2008, the Panel notes that BC Hydro continued to maintain street lighting services while it evaluated options to convert street lights to LED technology and that it made that decision in order to continue to serve customers.

The Panel is of the view that the costs associated with the installation of the existing street light assets were prudently incurred. The Panel is also persuaded that the costs of the assets being removed have been incurred solely for the benefit of the RS 1701 customer rate class and that, absent a customer request, BC Hydro would not otherwise be providing RS 1701 service or incurring these costs. The undepreciated costs associated with the MV and HPS street lights were incurred in order to continue to provide services to RS 1701 customers while a plan to replace streetlights was developed in response to the passage of the PCB Regulations, a matter that is outside of BC Hydro's control. The utility incurred these costs in the ordinary course of its business and acted reasonably in continuing service to RS 1701 customers while it determined an appropriate replacement program to meet the requirements of the PCB Regulations. These costs were prudently incurred and therefore ought to be recovered from the ratepayers whose street light service was affected as a result of the PCB Regulations. The Panel therefore finds that in the circumstances of this case, the Supplemental Charge is the responsibility of RS

1701 customers on the basis of cost-causation and that this treatment is aligned with the Bonbright Criteria as set out in Section 2.2 of the Decision.

In respect of the CEC's submission that the impact of the rates on RS 1701 customers could be reduced by adopting a longer amortization period for recovery of the Supplemental Charge than the 35 months proposed by BC Hydro, the Panel considers the proposed amortization period to be reasonable in light of the RS 1701 customer base and reduced administrative and regulatory cost associated with aligning BC Hydro's accounting and regulatory policies. As noted in Section 2.1 of this Decision, RS 1701 customers are primarily comprised of government organizations. In the Panel's view, this mitigates against the CEC's argument there are intergenerational equity concerns because such customers, unlike individual residential customers, are not subject to changes in ownership[174] and do not change from each reporting period to the next. In addition, these customers are more likely able to manage customer bill impacts such as those illustrated in Table 9 above. For the foregoing reasons, the Panel finds that extending the amortization period of the Supplemental Charge is not warranted and the proposed 35-month amortization period for recovery of the undepreciated value of the street lights is reasonable and appropriate.

Based on the reasons and findings set out in Section 2.4 of the Decision, the Panel finds the proposed RS 1701 Supplemental Charge is consistent with the Bonbright Criteria and is not unjust, unreasonable, unduly discriminatory, or unduly preferential and therefore approves, on a permanent basis, the RS 1701 Supplemental Charge, as set out in Appendix B of the Application, commencing May 1, 2021, and terminating March 31, 2024.

The Panel directs BC Hydro to file updated tariff sheets for endorsement by the BCUC reflecting the above RS 1701 Supplemental Charge as approved within 15 business days of the date of this order.

2.5 Other RS 1701 Amendments

In its Application, BC Hydro also applied for a number of housekeeping and Special Conditions amendments to RS 1701 Electric Tariff. RS 1701 is presently available to customers for lighting public highways, streets, and lanes on poles where BC Hydro owns the lights and poles.

BC Hydro's proposed housekeeping amendments seek to add a clause to the existing Availability Provision of RS 1701 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,[175] to remove the word fixture, and add the words "luminaires," "controls," and "brackets."

The proposed amendment would also allow the migration of customers (approximately 370 street lights) currently taking service under RS 1755 to RS 1701, should the customer(s) inform BC Hydro of

[174] Exhibit B-5, BCAC IR 12.16.
[175] Ibid., Section 5.4.1, p. 35.

their acceptance of service migration by September 20, 2022. These customers are considered Group 2 customers under RS 1755, as their street lights are mounted on BC Hydro-owned poles situated on either public property or an easement and are part of BC Hydro's distribution system.[176] The proposed amendments will allow BC Hydro, at its sole discretion, to provide overhead street lighting provided that:[177]:

- The street lights must be installed on existing BC Hydro distribution system infrastructure that has appropriate secondary wiring and is located on public property;
- 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 lights, 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.

The proposed RS 1701 housekeeping and Special Conditions amendments are summarized in the table below:

Table 11: Summary of RS 1701 housekeeping and Special Conditions amendments

Topic	RS 1701 Section Amended	Proposed Amendment	Intervener/Letter of Comment with Objections/Concerns
RS 1755 Group 2	**Availability (Housekeeping Amendment)**	Permit the availability of service to RS 1755 Group 2 customers under RS 1701 with certain limitations.[178]	No
Mercury Vapour and High Pressure Sodium Vapour	**Special Condition 2**	Clarify that MV and HPS fixtures are no longer available for new installations.[179]	No
Extension Policy	**Special Condition 3**	Make the extension policy included in the Electric Tariff subject to Special Condition 9.[180]	No

[176] Ibid., p. 41.
[177] Ibid., Section 5.4.1, p. 36.
[178] Exhibit B-1, Section 5.4.3 p. 38.
[179] Ibid., Section 5.4.3 p. 37.
[180] Ibid., Appendix B, p. 4-2.

Topic	RS 1701 Section Amended	Proposed Amendment	Intervener/Letter of Comment with Objections/Concerns
Fixture Removal	**Special Condition 4**	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.[181]	Yes
Fixture Removal		Provide an exclusion for the recovery of the undepreciated value and removal costs for customers that request termination of lighting service following a change in account holder for the Premises.[182]	No
Responsibility for Fixture Selection, Design, and Installation	**Special Condition 6**	Clarify that the customer is responsible for lighting design and selection of overhead street lighting fixtures offered by BC Hydro.	Yes
Street Lights Failing to Operate	**Special Condition 7**	Remove references to lamps since LED luminaires do not contain lamps[183] Specify that the customer must report to BC Hydro all street lights that do not operate as intended[184].	No
Termination of Service	**Special Condition 8 (new)**	Include direct language to specify BC Hydro's right to terminate the service[185].	No
Determination of Suitability	**Special Condition 9 (new)**	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[186].	No
Vegetation Maintenance	**Special Condition 10 (new)**	BC Hydro will clear vegetation around street lights to the extent required to maintain its distribution system [187].	No

First, the Panel will consider proposed amendments to RS 1701 for sections where there were no objections or concerns raised by the parties. Next, the Panel will consider proposed amendments for Special Conditions 4 and 6, where the parties did raise objections and concerns.

[181] Ibid., Section 5.4.3 p. 38.
[182] Ibid., Section 5.4.3 p. 38.
[183] Ibid., Section 5.4.3 p. 38.
[184] Application, Appendix B, p. 4-3.
[185] Exhibit B-1, Section 5.4.3, p. 38.
[186] Ibid., p. 39.
[187] Ibid.

2.5.1 Proposed RS 1701 Amendments Without Objections or Concerns

Availability: RS 1755 Group 2

BC Hydro proposes to make housekeeping amendments to RS 1701 to allow for the migration of certain RS 1755 Group 2 customers as discussed in Section 3.0 of the Decision.

Special Condition 2: Mercury Pressure and High Pressure Sodium Vapour Fixtures

Special Condition 2 currently states that MV fixtures are not available for new installations. BC Hydro proposes to amend Special Condition 2 by adding that, in addition to MV fixtures, HPS light fixtures are no longer available for installation.

Special Condition 3: Extension Policy

Special Condition 3 currently permits BC Hydro to construct a distribution extension, if required. BC Hydro proposes to add wording to Special Condition 3 that will make the extension policy subject to proposed Special Condition 9, addressed below. The extension policy sets out the rules regarding the addition of infrastructure, and Special Condition 9, if approved, will give BC Hydro the sole right to determine whether or not a street light will be installed on a pole located on public property that is part of BC Hydro's distribution system. If approved, BC Hydro's proposed amendment will enable BC Hydro to exercise discretion with respect to extensions for street lighting.

Special Condition 7: Street Lights Failing to Operate

BC Hydro proposes to amend Special Condition 7 by replacing the word "lamps" with "street lights" as LED street light luminaires do not contain lamps, as well as inserting a sentence that clarifies that the customer is to report to BC Hydro all street lights that do not operate as intended. The BCUC approved this proposed amendment on an interim basis, effective December 1, 2020.[188]

Special Condition 8: Termination of Service (new)

BC Hydro proposes to add Special Condition 8 and remove the Term of Service Agreement in its entirety, which, under the current Electric Tariff, indicates an initial term of not more than five years and a renewal period of five years.

BC Hydro submits that there are situations where BC Hydro cannot practically continue to provide the RS 1701 service at certain locations, so it therefore needs to reserve the discretion to terminate the RS 1701 service. If approved, a newly proposed Special Condition 8 to the Electric Tariff – Termination of Service would enable BC Hydro to terminate the RS 1701 service at its sole discretion upon 24-months' notice to the customer. BC Hydro submits this is a sufficient notice period to allow customers to source

[188] Order G-302-20 dated November 30, 2020.

alternative lighting, if desired[189] and make best efforts to accommodate the customers as they source alternative street lighting.[190]

BC Hydro states the proposed new language does not deviate significantly from its current service termination right.[191] In addition to issues of practicality, BC Hydro submits that it may need to terminate RS 1701 service when a pole is no longer suitable for the RS 1701 service, which would be determined where:

- It is no longer required to support overhead distribution lines or equipment other than a street light;
- Additional distribution equipment is added to the pole that conflicts with the co-existence of street light; or
- The pole's re-location or a change in the distribution line configuration can no longer accommodate a street light.[192]

Special Condition 9: Determination of Suitability (new)

BC Hydro proposes to add Special Condition 9, which would give BC Hydro 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.

BC Hydro submits in applying Special Condition 9, it would consider, but would not be limited to, the following:

- 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, and 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.[193]

Special Condition 10: Vegetation Maintenance (new)

BC Hydro also proposes to add Special Condition 10, to indicate that BC Hydro will only clear vegetation as required to provide reliable electricity service. BC Hydro indicates that this is intended to make clear

[189] Exhibit B-1, Section 5.4.3, p. 38.
[190] Exhibit B-6, BCUC IR 2.38.2.
[191] Exhibit B-5, BSEA IR 1.5.1.
[192] Exhibit B-4, BCUC IR 1.5.5.
[193] Exhibit B-1, Section 5.4.3, p. 38.

that, while BC Hydro undertakes vegetation maintenance as required to manage its distribution system, it is not responsible for vegetation maintenance around street lights for illumination purposes.[194]

BC Hydro submits that customers are currently responsible for ensuring that the lighting installed meets their purposes, illumination standards, and requirements.[195] However, this expectation or requirement is not currently stated in the Electric Tariff. BC Hydro provides vegetation maintenance to ensure that proper electrical clearances are met in proximity to BC Hydro's distribution line without consideration of street lighting for illumination purposes. This amendment formalizes BC Hydro's current practice regarding vegetation management.

Positions of the Parties

Interveners did not comment on the proposed Housekeeping Amendment for Availability of service to illuminate private property nor did they object to or comment on proposed amendments to Special Conditions 2, 3, 7, or the addition of Special Conditions 8, 9 and 10.

BCSEA indicated general support for the proposed special conditions to RS 1701 as proposed by BC Hydro[196] and expresses specific support for proposed amendments regarding the right of BC Hydro to determine the suitability of poles for lighting, clarification of BC Hydro's responsibility respecting vegetation management and street light selection.[197]

Panel Determination

The Panel approves BC Hydro's request to amend Special Conditions 2, 3, 7 and the addition of Special Conditions 8, 9 and 10. The Panel is generally satisfied with BC Hydro's submissions and responses in relation to the proposed amendments to RS 1701, noting that there were no objections to the amendments proposed to Special Conditions 2, 3 and 7, the removal of the term of service provision in Special Condition 8, and the newly proposed Special Conditions 8, 9 and 10. The Panel considers the proposed rewording improves the accuracy of the Special Conditions.

Regarding the proposed Availability housekeeping amendments, the Panel notes that BC Hydro has provided assurances that, should it be unable to service a property, the customer will be given reasons, and that former RS 1755 customers will be offered assistance in sourcing appropriate replacement outdoor lighting.[198]

[194] Ibid., p. 39.
[195] Exhibit B-4, BCUC 1.5.11.
[196] BCSEA Final Argument, p. 11.
[197] Ibid., p. 13.
[198] Exhibit B-4, BCUC IR 1.5.10.1.

The Panel is satisfied that BC Hydro will exercise its discretion fairly and transparently with respect to Group 2 customers seeking to migrate from RS 1755 to RS 1701. If an issue arises, customers may access BC Hydro's internal complaints mechanisms, and, as a last resort, the BCUC complaint mechanisms. The Panel accepts BC Hydro's rationale for recovery of costs from customers who request the removal or replacement of light fixtures, and those who are terminated due to breach of the Electric Tariff and/or Service Agreement. In particular, the Panel agrees that costs incurred by the decision of one ratepayer should not be borne by others, and that costs resulting from one ratepayer's breach of the tariff should be attributed to that customer alone.

Regarding Special Condition 8 – Termination of Service (new), the Panel acknowledges that there may be situations that would necessitate termination of service but cautions BC Hydro to exercise the discretion to terminate with care. The Panel considers 24 months to be sufficient notice of termination, and agrees that, unless exceptional circumstances exist, customers could reasonably be expected to find alternative lighting solutions within that time frame.

With respect to Special Condition 9 – Determination of Suitability (new), BC Hydro's proposed new provision reserving the sole right to determine whether or not a street light will be installed on a BC Hydro distribution pole, it is important that BC Hydro exercise this discretion fairly and reasonably. A determination of whether or not a street light will be installed on a pole that is part of BC Hydro's distribution system should be made on the basis of transparent policies and procedures, including reference to applicable customer complaint or appeal mechanisms. In the event that BC Hydro declines to install a street light, the customer will be given reasons.

With respect to Special Condition 10 – Maintenance (new) the proposed amendment relating to vegetation management, the Panel agrees that BC Hydro's responsibility with respect to vegetation clearance is primarily to maintain the safety and reliability of distribution lines, but is concerned that the proposed amendment not be viewed as reducing this responsibility in relation to poles that also service lights. To the extent that poles are part of the distribution system, BC Hydro has an ongoing responsibility to maintain vegetation control in relation to the lighting system.

2.5.2 Proposed RS 1701 Amendments with Objections or Concerns

In this section of the Decision, the Panel will review each proposed RS 1701 Amendment that had objections or concerns raised by interveners and provide a summary of the position of parties and a determination.

Special Condition 4: Fixture Removal

BC Hydro proposes to amend Special Condition 4 to provide for recovery of the undepreciated costs and removal costs of a streetlight when, for any reason, a customer requests the removal of street lights before they are fully depreciated. The current provision in the RS 1701 Electric Tariff only allows BC Hydro to recover this cost if the street light is to be replaced with a different street light at the customer's request. Therefore, if this proposed amendment is adopted, the cost recovery provision will

apply to both replacement and removal at the customer's request. BC Hydro submits that since the cost implications of removing a light are identical whether or not the light is replaced, this amendment would protect BC Hydro customers from incurring expenses caused by another customer's decision to take, and then discontinue, RS 1701 service.

BC Hydro further proposes that a customer pay the undepreciated cost of the fixture and the removal cost when BC Hydro removes the fixture as a result of the customer's failure to comply with the Electric Tariff.[199]

BC Hydro notes that it does not typically disconnect street lighting when a customer's electrical service is disconnected for reasons such as non-payment, and so this represents an extreme circumstance.[200] BC Hydro submits that the current Special Condition 4 is not explicit regarding a customer request for an early removal of a street light, and it is not consistent in recovering the undepreciated value of RS 1701 street lights when a customer requests an early removal.[201] In most cases, customers have not been charged for the undepreciated amount for an early removal unless the light is removed and replaced with another light (e.g., different wattage).[202]

BC Hydro recognizes that property ownership can change and that new residential or business owners may not wish to continue receiving RS 1701 lighting service. As the new customer had not requested RS 1701 service initially, it would not be appropriate, in those circumstances, to assess the new customer the undepreciated book value of the lighting assets or the cost of removal.[203]

BC Hydro therefore proposes a further amendment to Special Condition 4 to exclude the recovery of the undepreciated value and removal of lighting assets for new customers that request termination of lighting service following a change in account holder, provided such new customers request removal within one year of initiating service at the premises.[204]

Positions of the Parties

With respect to Special Condition 4, Burnaby submits that it is not in favour of BC Hydro charging the undepreciated value of LEDs if the customer requests removal. It argues that only the removal costs should be charged because BC Hydro should be able to reuse the luminaire at another location and therefore, should not need to charge for the undepreciated value.[205]

[199] Exhibit B-1, Appendix B, pp. 2–3.
[200] Exhibit B-1, Section 5.4.3, p. 37.
[201] Exhibit B-4, BCUC IR 1.5.2, PDF p. 45.
[202] Ibid.
[203] Exhibit B-1, Section 5.4.3, p. 38.
[204] Ibid.
[205] Exhibit D-8-1, p. 2.

Surrey submits that RS 1701 ratepayers may realize additional savings in capital costs if BC Hydro adopts a reasonable approach to reusing newer street light fixtures removed at a customer's request, or through its right to end service as provided by proposed Special Condition 8.[206]

BCSEA and the CEC agree with BC Hydro's rationale that, where the customer requests early removal, the recovery of the undepreciated value and removal costs from the customer will ensure that BC Hydro's other customers do not bear the financial risks for early removal and stranded street light assets. BCSEA also notes that street lighting is not a service requirement, but that service is provided to customers at their request. It therefore submits that this proposed special condition is fair, just, and not unduly discriminatory, and recommends that the BCUC approve the amendment.[207] The CEC was satisfied with BC Hydro's response as to why reuse of removed lights is not practical, and why BC Hydro cannot transfer used street lights to customers.

BC Hydro's Response

BC Hydro's response to Burnaby's opposition against recovery of undepreciated value if the customer requests removal is that there is little salvage value in these used assets. BC Hydro typically does not reuse removed street lights and does not plan to reuse the LED luminaires because of the logistics and added cost of tracking the units back to inventory across all field offices in the province and the need to confirm the light remains reliable and is suitable for redeployment to another customer for an extended period of time.[208] Further, BC Hydro submits that installing used street lights with unknown future reliability could result in premature failures and additional field visits, thereby eliminating any cost savings.[209]

Regarding Surrey's suggestion that reuse of light fixtures would result in savings, BC Hydro explains that it cannot transfer the removed street lights to RS 1701 customers. As a utility, BC Hydro follows different construction standards compared to its non-utility customers. The non-utility customers need to follow the Canadian Electrical Code, which requires their equipment to meet Canadian Standards Association (CSA) standards. BC Hydro's equipment, including the LED street lights, cannot be used by non-utilities because they are not certified by CSA and are configured differently than CSA certified units.[210]

Panel Determination

The Panel approves BC Hydro's request to amend Special Condition 4. With respect to the positions put forward by Burnaby and Surrey regarding mitigation of costs through the reuse of newer street lights after removal, the Panel accepts BC Hydro's argument that this would not be a cost-saving

[206] Surrey Final Argument, p. 5.
[207] CEC Final Argument, p. 18.
[208] Exhibit B-5, BCSEA IR 1.5.1.
[209] Ibid.
[210] Ibid.

measure for the reasons provided; namely, the addition of administrative costs associated with tracking the lights after removal, potential reliability issues, and most importantly, the lack of CSA certification.

Special Condition 6: Responsibility for Fixture Selection, Design, and Installation

BC Hydro proposes to amend Special Condition 6 to clarify the role of the customer and BC Hydro with respect to lighting. At present this Special Condition states that BC Hydro will design the installation of overhead street lighting fixtures. The proposed amendment states that the customer is responsible for both the lighting design and the selection of the overhead street lighting fixture offered by BC Hydro, and BC Hydro is responsible for the installation.[211]

BC Hydro submits it will work with its customers if any specific lighting concerns arise. This could include performing a site check, re-aiming the luminaire, and confirming if the appropriate luminaire is installed. The resolution could also include moving the light to another pole and/or installing a light shield if required.[212] BC Hydro submits that it does not anticipate light shields will be needed because LED street lighting has more defined cut off than the HPS lights, but it will evaluate whether there is a need to offer light shields as it continues to roll out the street light Replacement Program.[213]

Positions of the Parties

BCOAPO expresses concern that the amendment to Special Condition 6 could result in customers paying the full cost of relocating or redirecting fixtures when a customer requests a change and is of the view that where relocation or redirection of the light fixture is required due to the change to LED technology, the costs should be considered part of the overall cost of the Relocation Program rather than a separate charge to the municipality.[214]

BC Hydro's Response

With respect to BCAOPO's concerns, BC Hydro states that if there is an issue with the customer's installed LED street light, BC Hydro will work with the customer to remedy the situation. If it is determined, during the Replacement Program deployment, that a newly installed LED street light requires re-work, customers will not be charged the undepreciated value of the street light. Customers will only be charged if the re-work results in costs that go beyond those reasonably anticipated as part of the Replacement Program deployment.[215]

[211] Ibid., Appendix B, p. 3.
[212] Exhibit B-4, BCUC IR 1.4.6.
[213] Ibid.
[214] BCOAPO Final Argument, p. 24.
[215] BC Hydro Reply Argument, p. 12.

Panel Determination

The Panel approves BC Hydro's request to amend Special Condition 6. The Panel acknowledges BCOAPO's concerns regarding customers bearing the costs of relocation or redirection of fixtures as a result of the change in technology, but is satisfied by BC Hydro's assurances that it will work with customers to address issues such as illumination quality, glare, light colour and the potential use of light shields upon initial installation of the new LED fixtures.[216] In light of that commitment by BC Hydro, **the Panel directs BC Hydro to file two compliance reports regarding customer light trespass and light spill issues during the Replacement Program (Light Trespass Compliance Report); the first report due by December 31, 2022 and the second report due on or before December 31, 2024. Each Light Trespass Compliance Report must include the information as set out in Reporting Requirement #3 of Appendix A.**

3.0 Proposed Rescindment of Rate Schedule 1755 – Private Outdoor Lighting

BC Hydro established RS 1755 in the 1960s to provide private outdoor lighting service to customers. In 1975 BC Hydro closed the service to new premises. RS 1755 is currently a grand-parented private outdoor lighting service serving approximately 3,500 customers across the province.[217]

BC Hydro seeks to rescind RS 1755 on December 31, 2025, and in order to do so, seeks the following pursuant to sections 58 to 61 and 63 of the UCA:[218]

i. consent to rescind RS 1755 effective December 31, 2025, and amend RS 1755 to include that rescindment date and provide for the removal of BC Hydro equipment;

ii. consent to amend RS 1755 to specify migration of services to RS 1701, if applicable;

iii. consent to waive the Service Connection Charge for RS 1755 Group 1 and Group 3 customers who request a new service for their light.

Background

BC Hydro states it had originally intended to phase out RS 1755 in the late 1980s and early 1990s when it converted its RS 1701 street lights from MV to the more efficient HPS technology. Instead, BC Hydro opted to allow RS 1755 lights to be left unconverted with the intention of gradually phasing out RS 1755 service through natural attrition. However, with a relatively low attrition rate of approximately 2 percent per year in the last 10 years, BC Hydro estimates some 5,000 lights still remain in service under RS 1755 today.[219]

[216] Ibid.
[217] Exhibit B-1, Section 6.1, p. 41.
[218] Exhibit B-1, Section 1.4, p. 9.
[219] Ibid.

BC Hydro categorizes RS 1755 customers into three distinct groups:[220]

1. **Group 1**: Where the light is mounted on a pole (on private property) that was installed by the customer, or by BC Hydro at the customer's expense;
2. **Group 2**: Where the light is mounted on a BC Hydro-owned pole that is on public property, or an easement, and is part of BC Hydro's distribution system; and
3. **Group 3**: Where a light is mounted on a pole that was installed on the customer's property by BC Hydro, at BC Hydro's expense, solely for the purpose of supporting the light.

BC Hydro provides the following table showing a breakdown of the number of RS 1755 light counts by each group:

Table 12: RS 1755 Light Counts by Group[221]

Count	Group 1	Group 2	Group 3
MV	2,636	349	1,834
HPS	79	21	51
Total	2,715	370	1,885
Grand Total			4,970

BC Hydro contends that to continue service under RS 1755, the MV and HPS lights provided under RS 1755 would also need to be replaced with LED lights to comply with the PCB Regulations. However, after assessing the benefits, costs and risks, BC Hydro proposes to rescind RS 1755 as it would no longer be able to offer that service without committing to a substantial added investment to replace all of the associated RS 1755 MV and HPS lights.[222] Additionally, BC Hydro provides that the required capital expenditures are not cost-effective or justifiable for the following reasons:[223]

- The rate schedule is closed and the service is no longer offered to new premises. For all new private outdoor lighting installations, customers must install their own lighting and wire their lighting load through their service meters;
- The provision of outdoor lighting using privately owned lamp standards in order to illuminate private property is a competitive service that can be provided by many service providers. As a result, it is not a service that is appropriately provided on a rate regulated basis by BC Hydro. Equipment and installation services are readily available from private sector organizations;
- Significant expenditures would be required to continue to offer service under RS 1755. Lights, poles and other equipment are at or near the end of their service life and replacement of these lights with newer technology is estimated to require an initial

[220] Ibid., pp. 41–42.
[221] Exhibit B-1, Section 6.1, Table 10, p. 42.
[222] Ibid., p. 42.
[223] Ibid., p. 43.

investment of approximately $8 million.[224] As annual total revenue from RS 1755 service is approximately $1.3 million per year it is clear that it would not be financially sustainable to recover the street light replacement costs from RS 1755 customers; nor does BC Hydro believe that it would be appropriate for all BC Hydro ratepayers to cover these costs;

- 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. BC Hydro does not view it as being appropriate to impose a pole removal fee 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; and
- For RS 1755 Group 1 customers, poles used for lighting service are owned by the customer, but the fixtures are owned by BC Hydro. While this was permitted at the time RS 1755 was offered, BC Hydro no longer places its equipment on customer-owned poles, nor does BC Hydro place poles on private property for illumination purposes, because of concerns related to worker safety and access for maintenance on private property.

3.1 BC Hydro's Plan to Rescind RS 1755

In Section 6.3 of the Application, BC Hydro proposes to amend RS 1755 to specify that it will be rescinded effective December 31, 2025. BC Hydro also proposes different treatment for Group 2 RS 1755 customers than for Group 1 and Group 3 customers resulting from the rescindment. Notwithstanding the difference in treatment, all RS 1755 customers will have a four-year phase-out period [225] for all lights and wiring assets being removed from service under RS 1755 by March 31, 2024.[226]

As already noted, Group 2 customers' lights are mounted on BC Hydro-owned poles that are on public property, or a BC Hydro easement, and are part of BC Hydro's distribution system. BC Hydro will provide those customers the option to migrate to RS 1701, provided that the lighting locations are deemed to be eligible for RS 1701 service in accordance with Special Condition 9 as discussed above and approved by the Panel in Section 2.5.1 of this Decision (i.e., the pole must be part of BC Hydro's distribution system and must meet certain criteria[227]), Specifically, Special Condition 9 allows BC Hydro to migrate eligible Group 2 customers to take service under RS 1701 as the service provided to such Group 2 customers is similar, including costs,[228] to that already provided under RS 1701, with the exception that the Group 2 customers' lights are not used to illuminate public highways, streets, and lanes.[229]

[224] Exhibit B-5, BCAC IR 1.12.13.

[226] Ibid., Section 6.3.1, p. 48; Section 6.3.2, p. 49.
[227] Exhibit B-1, p. 39.
[228] Exhibit B-6, BCUC IR 2.35.3.2.
[229] Exhibit B-1, Section 5.4.1, p. 35; Appendix A, p. 1.

BC Hydro states that Group 2 customers which meet the new RS 1701 availability criteria must provide notice of their service migration to RS 1701 by September 30, 2022. Should Group 2 customers choose not to accept migration to RS 1701, BC Hydro states it will remove their lights upon customer request as soon as practicable. Any Group 2 lights that are not suitable for migration would be removed from service starting October 1, 2022 and before March 31, 2024.[230] Finally, to comply with the PCB Regulations, BC Hydro will convert all existing Group 2 lights which migrate to RS 1701 to LEDs by December 30, 2025.[231]

Prior to rescinding RS 1755, BC Hydro states it will notify all Group 1 and Group 3 customers regarding the termination of its private outdoor lighting service and provide customers until September 30, 2022, to source alternative lighting, if required.[232] BC Hydro notes that customers that wish to migrate service onto an equivalent rate appropriate for the premises are responsible for all associated equipment and installation costs.[233] Similar to Group 2 lights, BC Hydro will remove all existing Group 1 and Group 3 non-LED lights and wiring before March 31, 2024. Further, BC Hydro will remove and dispose of Group 1 poles (i.e., poles installed by BC Hydro at the customer's expense) with no added charge when removed at the same time the lights and wiring are removed.[234]

3.2 Alternative Methods of Rescindment Explored

Under BC Hydro's proposed approach to RS 1755, only Group 2 customers are provided the opportunity to migrate to RS 1701, provided that the pole on which the light is mounted is within BC Hydro's distribution system and meets the new RS 1701 availability criteria. Group 1 and Group 3 customers would be responsible for all equipment and installation costs associated with migrating their service to an appropriate rate schedule. BC Hydro states that, under its proposed approach, and assuming all 370 RS 1755 Group 2 lights are migrated to RS 1701, the expected cost to remove RS 1755 Group 1 and Group 3 lights is $5.6 million. This includes $4.2 million in dismantling costs, as well as $1.4 million allocated towards indirect costs, contingency, and inflation.[235]

Alternatively, if BC Hydro were to convert all existing Group 1 and Group 3 lights with LEDs, it would require an initial investment of $8.046 million (based on avoided costs) to continue RS 1755 service for these customers. Included in this cost are three major components: pole testing and replacements; materials and labour costs; and other allocated costs (e.g., capital overhead, contingency, inflation, indirect costs). Provided in Table 13 below is a further breakdown of the cost estimate to continue RS 1755 service:

[230] Ibid., Section 6.3, pp. 47–49.
[231] Ibid., Section 6.3.1, p. 48.
[232] Ibid.
[233] Ibid., Section 6.4.1, p. 50.
[234] Ibid., Section 6.3.2, pp. 48–49.
[235] Exhibit B-5, BCAC IR 1.2.8.1.

Table 13: Initial Investment Required to Continue RS 1755 Service

Cost Description	Units	Amount
Pole Testing	3361	$ 252,075
Pole Replacements	672	$ 3,361,000
Pole Testing and Replacement		**$ 3,613,075**
Luminaires	4614	$ 1,000,457
Photocells	4614	$ 86,513
Brackets (Arms)	4614	$ 978,168
Labour - Remove HPS, Install LED, Wiring, Photocell - Reactive	313	$ 73,297
Labour - Remove HPS, Install LED, Wiring, Photocell - Proactive	4301	$ 456,981
Labour - ACA Pole Remediation	155	$ 205,029
Labour - Replace Bracket (Arm)	4614	$ 143,198
Material and Labour Cost		**$ 2,943,643**
Indirect Costs		$ 88,348
Contingency		$ 402,802
Inflation		$ 462
Capital Overhead		$ 998,102
Indirect Costs, Contingency, Inflation and Capital Overhead		**$ 1,489,714**
Total		**$ 8,046,432**

With the majority of RS 1755 lights using MV lamps, BC Hydro states that the current arms on Group 1 and Group 3 poles are not able to accept the new LED luminaires. As a result, BC Hydro has assumed that, in all cases, the arms must be replaced to enable the installation of LED luminaires.[236] Further, BC Hydro notes that all Group 1 and Group 3 poles would need to be tested and require pole maintenance as they would not be maintained as part of its distribution system since these poles do not form part of that system. BC Hydro has estimated that 20 percent of these poles under RS 1755 would

[236] Ibid., BCAC IR 1.1.1.

require pole replacement.[237] BC Hydro submits that, because the street lights under RS 1755 are materially different than the street lights under RS 1701, the replacement of RS 1755 lights would also be materially different.[238]

3.3 Transition Plan to Rescind RS 1755

In consideration of the Group 1 and Group 3 customers which are responsible for the equipment and installation costs associated with migrating their service to an appropriate rate schedule, BC Hydro states it has developed a preliminary mitigation plan to reduce the customer barriers and inconveniences identified through the proposed rescindment of RS 1755 (Transition Plan). BC Hydro further explains that the purpose of the Transition Plan is to enable customers to have continued and adequate outdoor illumination on private property at affordable rates while mitigating the financial burden arising from the initial investments to install and source replacement lighting.[239]

To address the needs of Group 1 and Group 3 customers, BC Hydro has identified that providing customers with direct access to lighting distributors is appropriate as they may offer professional services to assist customers with vendor selection, managing timelines and budgets, determining the most suitable LED products, and the installation work on behalf of the customer.[240]

The Transition Plan includes the following components:[241]

1. Where feasible, BC Hydro will allow Group 2 lights to be transitioned to RS 1701 and replaced with LED technology;
2. When no longer needed or suitable for continued use, BC Hydro will remove Group 1 (customer-owned) poles at the request of the customer at no cost to the customer;
3. BC Hydro will waive the Service Connection fees that would be incurred should a new, metered electrical service be required to continue illuminating private property;
4. BC Hydro will recruit qualified outdoor lighting contractors from its Alliance of Energy Professionals network, to simplify and assist customers with the search and installation of appropriate new lighting solutions;
5. BC Hydro will work with Procurement Services BC to offer tools, resources, and competitive pricing for LED solutions for government customers; and
6. With program partners, BC Hydro will develop financial solutions to provide support with initial upfront costs.

[237] Ibid., BCAC IR 1.1.1
[238] Ibid.
[239] Exhibit B-4, BCUC IR 1.13.8, Attachment 1, pp. 3–4.
[240] Ibid., p. 5.
[241] Ibid., p. 2.

To further assist Group 1 and Group 3 customers with the initial capital costs of installing new lighting, BC Hydro states that financing programs may be available directly through BC Hydro's lighting distributors with the aim of allowing customers to pay for the purchase and installation of their new lighting over time and in amounts similar to their current RS 1755 charges. However, in consideration of its recently closed Request for Information, BC Hydro notes that it will assess whether the vendor community is able to effectively support customers, or whether it will be necessary for BC Hydro to consider other forms of financial support.[242]

In terms of whether the private sector offering of outdoor lighting services provides transitioning customers with fair value compared with comparable services provided on a rate-regulated basis, BC Hydro states that most customers will save money over time by installing their own lighting. BC Hydro provides the following Table 14 with regards to the typical cost of ownership for new customer-owned lighting:

Table 14: Typical Cost of Ownership of New Customer-owned Lighting[243]

Typical Lighting Installation (including new pole)	$2,750	Refer to BC Hydro's response to BCUC IR 1.13.7
Divided by assumed life span	÷ 240 months	Assume 20-year life
Monthly cost of new lighting installation	= $11.46 per month	
Plus cost of electricity	+ $3.48 per month (residential) or + $3.08 per month (commercial)	Assumptions: 75W LED luminaire (as equivalent to a 100W HPS light) 333 hours/month operation (dusk-to-dawn per RS 1300) 13.94 cents/kWh (Residential RS 1101, Step 2) or 12.33 cents/kWh (Commercial RS1300)
Typical Cost of Ownership	= $14.94 (Residential) or $14.54 (Commercial) per month ~$15 per month	

As indicated above in Table 14, the typical cost of ownership for new lighting is expected to be approximately $15 per month for a 75 watt LED luminaire, which is equivalent to a 100 watt HPS light, including the installation of a new pole. In comparison, BC Hydro states that the current RS 1755 rates for 100 watt HPS lights are $18.07 for Group 1, and $23.63 for Group 3.[244] Additionally, since BC Hydro would install the same lighting products procured for the Replacement Program, BC Hydro states that

[242] Exhibit B-6, BCUC IR 2.34.8.
[243] Exhibit B-5, BCAC IR 1.12.9.
[244] Exhibit B-6, BCUC IR 2.35.5.2.

customers will have a wider range of lighting options and poles offered through the vendor community than if replacements for RS 1755 lighting were to be installed by BC Hydro.[245]

Provided below is a summary of BC Hydro's proposals for each RS 1755 customer group:[246]

Table 15: Summary of BC Hydro Proposals

Group	BC Hydro	Customer	Rate
Group 1	• Remove and dispose of existing light, as well as the pole if requested. • Offer contractor referrals. • Waive the Service Connection Charge. • Investigate financing options.	• Install their own light and pole (if required). • Rewire lights to their service meter, if practical, or install a new service.	• Terminate RS 1755. • Service on an unmetered basis under RS 13xx, or on a metered basis on the otherwise applicable rate schedule (e.g., residential)
Group 2	• Offer to convert the light to an LED if suitable.	• Select type of LED to be installed.	• Close and migrate to RS 1701
Group 3	• Remove and dispose of existing light and pole. • Offer contractor referrals. • Waive the Service Connection Charge. • Investigate financing options.	• Install their own pole. • Install their own light • Rewire lights to their service meter, if practical, or install a new service.	• Terminate RS 1755. • Service on an unmetered basis under RS 13xx, or on a metered basis on the otherwise applicable rate schedule (e.g., residential)

Positions of Parties on the Transition Plan

BCSEA, BCOAPO and the CEC support the transitional initiatives proposed by BC Hydro and consider the Transition Plan to be reasonable.[247]

Other parties, including Zone II RPG, Surrey, Kamloops, and Vernon did not comment on BC Hydro's Transition Plan.

3.4 Customer Consultation and Feedback on the Rescindment of RS 1755

BC Hydro states it sent a letter on August 28, 2020, to all RS 1755 customers regarding its intent to submit a street light rate application before the BCUC. The letter included options for RS 1755

[245] Exhibit B-6, BCUC IR 2.35.5.2, PDF p. 225.
[246] Exhibit B-1, Section 6.4.3, p. 52.
[247] BCSEA Final Argument, p. 4; BCOAPO Final Argument, p. 30; CEC Final Argument, p. 22.

customers to migrate their service onto applicable rate schedules and provided customers the opportunity to provide feedback on the proposed rescindment of RS 1755.[248]

On August 12, 2020, BC Hydro held a public webinar that provided a high-level introductory overview of the Application as well as the proposed rescindment of RS 1755.[249]

As of January 18, 2021, BC Hydro received feedback from 120 RS 1755 customers which indicated that private outdoor lighting should remain in service. The majority of these customers expressed concern that the RS 1755 lights provide critical safety benefits in rural communities or areas where municipal street lights may not be available. Further, customers stated that the proposed rescindment of RS 1755 would impose financial challenges with respect to the initial investment costs required to source alternative lighting solutions. In contrast, 100 customers requested BC Hydro to remove their RS 1755 lights immediately.[250]

In a meeting with BC Hydro and the Low Income Advisory Council (LIAC), LIAC members shared similar concerns with the Group 1 and Group 3 customers which would be left without service under BC Hydro's proposal to rescind RS 1755. Specifically, the LIAC stated that it would be likely that some customers may not be able to afford the associated costs of installing a replacement light. Further, the LIAC noted that BC Hydro should consider providing funding for affected residential customers to prevent potential safety hazards should the light not be replaced.[251]

3.5 Submissions and Panel Determination on Tariff Amendments to Rescind RS 1755

Positions of Parties

BCOAPO suggests that the costs associated with the rescindment of Group 1 and Group 3 RS 1755 customers, as well as those Group 2 RS 1755 customers which either choose not to migrate or cannot migrate to RS 1701 service, should not be included in the costs of the Replacement Program attributable to the RS 1701 rates, as these costs are not associated with the RS 1701 service. Therefore, BCOAPO submits these costs should be recovered from all ratepayers.[252]

BCSEA agrees with BC Hydro that it is not appropriate for BC Hydro to be in the business of providing outdoor lighting service on private property in the present era. Overall, the BCSEA supports the rescindment of RS 1755 and agrees with BC Hydro that replacing all RS 1755 lights with LEDs would require substantial expenditures and that such expenditures by BC Hydro cannot be justified.[253]

[248] Exhibit B-1, Section 6.2.2, p. 45.
[249] Ibid., p. 47.
[250] Exhibit B-4, BCUC IR 1.13.1.1, PDF p. 199. For clarity, the above-noted feedback counts include customer responses that were previously identified under Section 6.2.2 of the Application
[251] Exhibit B-1, Section 6.2.2, pp. 46–47.
[252] BCOAPO Final Argument, pp. 7–8.
[253] BCSEA Final Argument, pp. 13–14.

The CEC submits that BC Hydro's request to terminate RS 1755 is in the public interest given the additional costs and the concerns regarding compliance with pole standards. Further, the CEC considers that the risk of stranded assets is significant to the extent that most customers could obtain private outdoor lighting at a lower lifecycle cost than BC Hydro expects it can offer. Though certain customers may be negatively impacted by the rescindment of RS 1755, the CEC considers that the December 31, 2025 effective date is adequate for customers to find and install alternative lighting.[254]

Surrey agrees with BC Hydro's request for consent to rescind RS 1755 and supports the request for approval of waiving Service Connection Charges for RS 1755 customers requesting a new service for their lights.[255]

No other party commented on the proposed rescindment of RS 1755.

BC Hydro's Reply

In reply, BC Hydro confirms that the only costs arising from the rescindment of RS 1755 that have been included in the costs for completing the Replacement Program are those costs associated with the 370 Group 2 customers which may transition to RS 1701.[256] Further, BC Hydro states all other costs incurred as a result of the rescindment of RS 1755 will be recovered from all ratepayers.

BC Hydro further explains that the provision of outdoor lighting using privately owned lamp standards is a reasonable alternative that is provided by many service providers. Additionally, BC Hydro states customers are under no obligation to continue to take service under RS 1755 on an on-going basis. As a result, this could potentially lead to the risk of unrecovered investments that would need to be recovered from all ratepayers.[257]

Panel Determination

In considering BC Hydro's proposal to amend RS 1755 in order to i) align with Transition Plan and ii) ultimately rescind RS 1755, the Panel must assess whether the proposed rescindment is reasonable .

The Panel acknowledges the safety concerns and financial challenges that are imposed on Group 1 and Group 3 customers from the rescindment of private outdoor lighting service. However, the Panel considers that BC Hydro's proposed approach to RS 1755 reasonably addresses the concerns identified through customer feedback and provides sufficient notice for affected customers to source alterative lighting, if required, particularly when coupled with the assistance contemplated in the Transition Plan.

[254] CEC Final Argument, p. 21.
[255] Surrey Final Argument, p. 6.
[256] BC Hydro Reply Argument, p. 7.
[257] BC Hydro Final Argument, Section 3.2, p. 17.

As acknowledged by BC Hydro, the previous strategy to allow attrition to gradually phase out RS 1755 service has not substantially eliminated the number of RS 1755 customers.[258] Further, since the closing of the rate schedule in 1975, the low attrition rate indicates that customers continue to require outdoor lighting services for private properties. However, in light of the significant capital expenditures (which would have added $8 million to the Replacement Program projected costs) and stranded asset risks associated with transitioning Group 1 and Group 3 customers to RS 1701, the Panel agrees with BC Hydro that the impacts of continuing RS 1755 service for those two groups of customers alone are not justifiable or cost effective. In contrast, the additional cost of transitioning Group 2 customers and replacing their street lights as part of Replacement Program only accounts for $2 million of the total Replacement Program costs. In addition, affected customers under Groups 1 and 3 can still have access to private outdoor lighting service under other BC Hydro rate schedules for metered or unmetered service[259] (e.g., RS 1101, RS 1300, RS 1500, and RS 1600).[260] Affected customers also have the option to source alternative lighting, although at some cost, from the competitive market of private sector vendors across the province.

The Panel considers that BC Hydro's proposal to migrate eligible Group 2 customers to RS 1701 to be reasonable since the lights are mounted on poles located on public property and form part of BC Hydro's distribution system. Based on these factors, the Panel considers RS 1701 to be a more suitable rate schedule than RS 1755. Relative to Group 1 and Group 3 customers, the Panel views that Group 2 customers should not have been initially eligible for private outdoor lighting service under RS 1755 as their lights are located on public and not private property. In consideration of the PCB Regulations, BC Hydro's undertaking of the Replacement Program provides a timely opportunity to move the Group 2 customers onto RS 1701 should they wish to do so. Although BC Hydro is proposing to only migrate Group 2 customers to RS 1701, the Panel considers that this approach is not unduly discriminatory as arguably that group of customers should not have been included under RS 1755, which was originally designed to provide private outdoor lighting service only.

As for continuing RS 1755 service for Groups 1 and 3 customers only, the Panel is not persuaded that this is warranted given that the rate schedule has been closed to new customers since 1975, the availability of private sector lighting providers, and the additional financial cost associated with including the conversion of those customers' lights as part of the Replacement Program, along with the increased risk of stranded assets. Moreover, the Panel considers that rescinding RS 1755 and migrating eligible customers to the appropriate rate schedules is less discriminatory than continuing the current arrangement under RS 1755 which treats all three groups of customers in the same manner despite the differences in the nature of their service (service on private property for privately owned streetlights in the case of Groups 1 and 3 versus service on public property for BC Hydro owned streetlights on poles that form part of its distribution system in the case of Group 2). **Therefore, pursuant to section 61 of**

[258] Exhibit B-5, BCAC IR 1.12.6.
[259] Exhibit B-4, BCUC IR 12.3.
[260] Ibid.

the UCA, the Panel approves BC Hydro's request to rescind the private outdoor lighting service provided under RS 1755 effective December 31, 2025, and to amend RS 1755 to specify the date of rescindment and removal of equipment accordingly. Further, the Panel approves BC Hydro's request to amend RS 1755 Special Condition No. 1[261] to specify the migration of Group 2 customers to RS 1701, provided that the lighting locations are deemed to be eligible for service and meet the new RS 1701 availability criteria.

As already noted, BC Hydro's Transition Plan enables customers to have continued and adequate outdoor illumination on private property at affordable rates while mitigating the financial burden arising from the initial investments to install and source replacement lighting. By providing Group 1 and Group 3 customers with access to BC Hydro's Alliance of Energy Professionals, the Panel is persuaded that the transitional initiatives proposed in the Transition Plan help to mitigate the issue of customer unfamiliarity with the private outdoor lighting market and reduce the financial barriers associated with the installation of new replacement lighting. However, the Panel considers it important that the Transition Plan be implemented in a timely manner to assist those Groups 1 and 3 customers that are affected by the rescindment of RS 1755. **Therefore, the Panel directs BC Hydro to submit annual compliance filings commencing January 1, 2022, until December 31, 2025, reporting on progress in its implementation of the Transition Plan as well as customer uptake on the initiatives contemplated in the Transition Plan during that period (Annual RS 1755 Compliance Report). Each Annual RS 1755 Compliance Report must provide the information set out in Reporting Requirement #4 of Appendix A.**

With respect to BC Hydro's proposal to waive the Service Connection fees for Group 1 and Group 3 customers that wish to continue illuminating private property, the Panel finds the request reasonable as these customers would not have incurred this cost if the BCUC did not consent to the rescindment of RS 1755. **Therefore, the Panel approves BC Hydro's request to waive the Service Connection fees for Group 1 and Group 3 customers installing new lighting as a result of the rescindment of RS 1755.**

4.0 Amendments to the Electric Tariff, RS 1702, RS 1704, Amendments for Mixed-Use Loads

Municipalities that own, install, and maintain their own street lighting and traffic signalling are currently served under RS 1702 (Public Area Ornamental Street Lighting) and RS 1704 (Traffic Control Equipment). BC Hydro states with the advancement of technologies, municipalities have growing needs to attach other equipment to their street light or traffic signal service connections.[262] To address this need, BC Hydro is proposing the following Tariff Amendments related to mixed-use loads:[263]

1. Amend the Electrical Tariff, Section 1 Definition of General Service Schedule to remove the language that General Service is not available for use in circumstances where Street Lighting Service is available for use;

[261] Exhibit B-1, Appendix C, p. 2.
[262] Exhibit B-1, Section 1.1.3, p. 3.
[263] Exhibit B-1, Section 1.4, p. 10.

2. Amend the Electrical Tariff, by adding a new Section 6.1.5 General Service for Street Lighting to indicate that General Service will be provided to mixed uses in cases where the customer choses to connect other mixed uses through the same service connection as lighting use on a metered basis; and

3. Amend RS 1702 and RS 1704 Special Conditions to clarify that these rate schedules do not apply in the case of mixed uses.

Background

Due to this growing need to add further equipment to street light or traffic signal service connections, RS 1702 and RS 1704 customers have started to opt for metered services for their new or existing connections to minimize administrative efforts. However, RS 1702 and RS 1704 rate schedules, applicable to customer-owned street lights and traffic control signals, are generally not applicable for other uses, and the present configuration of metered service does not provide the flexibility needed for customers to offer the services desired.[264] BC Hydro states that some municipalities have developed new facilities, or kiosks, that will take electrical service from BC Hydro to serve existing and new street lighting and traffic control signal loads as well as future other loads such as curbside electric vehicle charging. In some cases, the only practical approach is to serve all the loads at one location through a single meter. In this case, BC Hydro submits that the applicable rate schedule for mixed end uses served at distribution voltage should be under one of BC Hydro's General Service rates. However, the current definition of General Service in the Electric Tariff precludes the use of a General Service rate when any component of the load is associated with street lighting[265].

BC Hydro submits that since it could be interpreted that RS 1702, RS 1704 and the General Service Rate Schedule are not applicable to customers who seek to attach other equipment to their street lights or traffic signal, no current BC Hydro rate schedule can accommodate the mixed load request from its customers.[266]

BC Hydro also submits that this restriction increases costs for customers when installing service connections that may serve these types of mixed-use loads. For example, rather than installing a single metered connection, customers need to install one connection for street lighting and a second connection for a sign, food truck, electric vehicle charger, etc. Furthermore, it can be difficult to provide the physical space needed for the multiple metered connections because these types of services are typically located near intersections.[267] BC Hydro therefore proposes Electric Tariff amendments to allow mixed-use loads for RS 1702 and RS 1704 customers.[268] BC Hydro expects these amendments will have a favourable economic impact on all ratepayers because the amendment removes barriers to

[264] Ibid.
[265] Ibid., Section 8.1, p. 66.
[266] Ibid., Section 8.1, p. 64.
[267] Exhibit B-4, BCUC IR 1.16.1.
[268] Exhibit B-1, Section 8.1, p. 66.

electrification and load growth for customers that also benefit from the lower metering, service connection and administrative costs.[269]

BC Hydro confirms that the City of Vancouver is the only customer that has requested metering of mixed services that include street lighting and General Service load to date.[270]

Positions of the Parties

BCOAPO has no issues regarding BC Hydro's proposed amendments to allow combined loads, including customer-owned street lighting or traffic equipment, to be served under the applicable General Service rate.[271]

The CEC submits that the amendments to the mixed-use loads are in the public interest and recommends approval.[272]

BCSEA supports the amendments as they foster BC Hydro's goals of encouraging electrification and supporting evolving customer needs.[273]

Zone II RPG takes no position on BC Hydro's amendments to mixed-use loads and other housekeeping changes.[274]

Panel Determination

The Panel approves the proposed amendments to the Electric Tariff, RS 1702 and RS 1704 amendments for mixed-use loads as set out in *Appendix D - Tariff Sheets - Unmetered Services, Mixed-Use Loads, and other Amendments* as follows:

1. **the removal of the words "or Street Lighting Service" from the definition of General Service;**
2. **the addition of Section 6.1.5 General Service for Street Lighting;**
3. **the addition of wording to Rate Schedule 1702 – Public Area Ornamental Street Lighting, Special Condition 1. Service Connection to specify that mixed-use loads that include lighting will be provided under the applicable General Service Rate Schedule; and**
4. **the addition of wording to Rate Schedule 1704 – Traffic Control Equipment, Special Condition 1 to specify that mixed-use loads that include lighting and/or traffic control will be provided under the applicable General Service Rate Schedule.**

[269] Ibid., p. 67.
[270] Exhibit B-4, BCUC IR 1.16.4.
[271] BCOAPO Final Argument, Section 2.7, p. 34.
[272] CEC Final Argument, p. 25.
[273] BCSEA Final Argument, Part 5, p. 18.
[274] Zone II RPG Final Argument, p. 1.

The Panel finds that these amendments are practical and beneficial to eligible customers as they remove barriers to electrification and load growth while lowering metering, service connection and administrative costs. The Panel notes that although the City of Vancouver, which raised the issue of mixed-use loads with BC Hydro, is the only customer that BC Hydro consulted regarding mixed-use load use, this revision is likely to benefit other street lighting ratepayers who may also face the issue of dealing with mixed-use loads. The Panel encourages BC Hydro to provide written notice to all eligible customers so that they are aware that the new mixed use load option is now available.

5.0 Electric Tariff Amendment for Unmetered Services

BC Hydro seeks approval to clarify and amend the existing provisions of its Electric Tariff related to back billing, specifically with issues arising from under-billing or over-billing, and general housekeeping amendments to the General Service Rates. The Panel discusses BC Hydro's specific proposals relating to each in the following sections.

5.1 Back-Billing

5.1.0 Under-Billing

BC Hydro states that if a customer is determined to have been under-billed, Section 5.7.7 of the Electric Tariff limits the period for which BC Hydro may recover the under-billed amount to either (i) six months for Residential, Small General Service and Irrigation Service customers; or (ii) twelve months for all other rate schedules.[275] To address under-billing, BC Hydro proposes to remove the six- and twelve-month time limitation for self-reported unmetered accounts to allow for under-billed accounts to be charged to the date of the addition or alteration in the customer's equipment. BC Hydro states that this will allow it to fully recover the associated costs to the time that the additional consumption begins.[276]

BC Hydro also proposes to charge interest on under-billed amounts at its Weighted Average Cost of Debt (WACD) as it reflects the incremental borrowing costs associated with lost revenues arising from unreported customer equipment changes. Further, BC Hydro requests it be granted discretion such that interest will not be applied provided that notification is timely (i.e., within six months) or when the amount of interest to be applied is less than the associated administrative cost.[277]

5.1.1 Over-Billing

In the case of over-billing, BC Hydro proposes that customers with unmetered services are obliged to provide timely notification of a change that could result in over-billing within six months. If the over-billing occurred due to a customer not providing timely notification of changes to their load, BC Hydro proposes to refund the over-billing to the lesser of the date of the billing error or six months.

[275] Exhibit B-1, Section 7.1, p. 55.
[276] Ibid., Section 7.2.1, p. 58.
[277] Exhibit B-1, Section 7.2.1, p. 58.

Additionally, BC Hydro submits that no interest be applied for over-billed amounts so that customers are not indifferent to leaving over-billed amounts with BC Hydro. In essence, BC Hydro states that if it paid interest on over-billed amounts, the customer's incremental borrowing costs would be recovered regardless of their delay in notifying BC Hydro.[278] Further, BC Hydro states that interest will not be applied to the refund as the billing adjustment would relate only to current bills.[279]

Following a consultation with its customers,[280] BC Hydro incorporated the following aspects with respect to its proposed back-billing provisions:[281]

- Implement the back-billing amendments effective July 1, 2022, to allow customers a 14-month grace period to review their assets and update inventories with BC Hydro before back-billing of under-billed accounts will occur to the date of equipment addition, and with interest; and
- Extend the period to which customers can notify BC Hydro of any street light and equipment removals or modifications that reduce consumption to qualify for an over-billing credit to 6 months.

Accordingly, BC Hydro now seeks consent of the BCUC to the following Electric Tariff amendments:

- Clarify that under-billed amounts can be recovered to the date of an addition or change to an unmetered service;
- Enable the application of interest to under-billed amounts resulting from a customer's delayed or incorrect notification of the addition or alteration of unmetered street lights or equipment, after a period of six months; and
- Limit the application of credits to be applied to over-billed amounts to a period no longer than six months prior to the customer notifying BC Hydro of changes.

[278] Exhibit B-4, BCUC IR 1.15.10.
[279] Exhibit B-1, Section 7.2.2, pp. 59–60.
[280] BC Hydro engaged customer consultation through an online webinar, direct contact from Key Account Managers, and letters to customers to inform them of the proposed changes to BC Hydro's back-billing provisions. Exhibit B-1, Section 7.4, p. 60.
[281] Exhibit B-1, Section 7.4.2, pp. 62–63.

These amendments would apply to unmetered services for the following rate schedules:[282]

- RS 1702 – Public Area Ornamental Street Lighting;
- RS 1703 – Street Lighting Service;
- RS 1704 – Traffic Control Equipment;
- RS 1234 – Small General Service (Under 35 kW) – Zone II; and
- RS 1300, RS 1301, RS 1310, and RS 1311 – Small General Service (Under 10 35 kW) (SGS).

5.2 General Housekeeping

BC Hydro also proposes housekeeping amendments to the SGS Electric Tariff, which aim to provide clarity regarding back-billing and not charging interest on under-billing resulting from minor billing adjustments or on the delayed billing of standard charges. Also, to improve readability and clarity, BC Hydro is proposing that the Special Conditions that are applicable to all unmetered loads be consolidated into Section 5 of the Electric Tariff.

BC Hydro is proposing the following general housekeeping amendments:[283]

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

Positions of the Parties

BCSEA, the CEC and Surrey all express concerns regarding the back-billing provision amendment. BCSEA and the CEC submit that the indefinite period proposed by BC Hydro should instead be replaced with a limit. The CEC also recommends that the BCUC determine that the maximum credits to be applied to over-billed amounts prior to the customer notifying BC Hydro of changes should not exceed 20 years.[284]

Surrey states that it does not accept that the proposed back-billing provisions meet the Bonbright Criterion of Fairness and believes that the Electric Tariff's approach to under-billing and over-billing favours BC Hydro.[285] Surrey further submits that the treatment of over-billing should be the same for

[282] Ibid., Section 7.1, pp. 53–54.
[283] Exhibit B-1, Section 9, p. 68.
[284] CEC Final Argument, p. 24.
[285] Surrey Final Argument, p. 6.

under-billing with respect to limits on the maximum time used for the calculation and the application of interest charges or credits.

Zone II RPG supports BC Hydro's proposed changes to under-billing and over-billing caused by a customer's delayed or inaccurate notification of the addition, removal or alteration of unmetered Street Lights or equipment.[286]

BCOAPO has no issues with the proposed back-billing amendments.

Other Interveners did not comment regarding the proposed back-billing amendments.

Panel Determination

The Panel notes that tariffs are set through an appropriate, open, and transparent process before the BCUC approves them. As changes to the Electric Tariff impact all of BC Hydro's customers, not just street lighting customers, in this instance the Panel considers there was insufficient notice provided to the members of the affected rate classes to allow them the opportunity to participate. These customers may also not have been aware that the changes applicable to them were to be considered as an adjunct to an Application dealing with street lighting rates and related issues. The Panel does not believe it would be regulatorily efficient to extend this proceeding to allow for adequate participation by all potentially impacted parties; nor does the Panel believe that these proposed amendments are essential for implementation of the Replacement Program.

Therefore, the Panel does not consent to all back-billing and general housekeeping amendments to the Electric Tariff as proposed in Sections 7 and 9 of the Application. The Panel directs that if BC Hydro wishes to re-apply for approval of these amendments, it should file a separate application to allow customers in all potentially impacted classes to have the opportunity to properly review and comment on the proposed amendments.

The Panel also directs BC Hydro to file clean and black lined versions of the Electric Tariff and Rate Schedules approved in this Order and Decision within 30 days of this order.

6.0 Summary of Directives

	Directive	Page(s)
1.	**The Panel directs BC Hydro to file within 30 days of the end of each annual reporting period, a report on the Replacement Program (Annual Replacement Program Report), with the first report covering the period ending March 31, 2022. Each Annual Replacement Program Report must**	**11–12**

[286] Zone II RPG Final Argument, p. 10.

	provide the information set out in Reporting Requirement #1 of Appendix A.	
2.	**The Panel directs BC Hydro to provide a final report within three months of substantial completion of the Replacement Program (Final Replacement Program Report). The Final Replacement Program Report must provide the information set out in Reporting Requirement #2 of Appendix A.**	**12**
3.	**The Panel directs BC Hydro to file updated tariff sheets for endorsement by the BCUC reflecting the RS 1701 rates as approved within 15 business days of the date of this order**	**27**
4.	**The Panel directs BC Hydro to file updated tariff sheets for endorsement by the BCUC reflecting the above RS 1701 Supplemental Charge as approved within 15 business days of the date of this order.**	**39**
5.	**The Panel directs BC Hydro to file two compliance reports regarding customer light trespass and light spill issues during the Replacement Program (Light Trespass Compliance Report); the first report due by December 31, 2022 and the second report due on or before December 31, 2024. Each Light Trespass Compliance Report must include the information as set out in Reporting Requirement #3 of Appendix A.**	**48**
6.	**The Panel directs BC Hydro to submit annual compliance filings commencing January 1, 2022, until December 31, 2025, reporting on progress in its implementation of the Transition Plan as well as customer uptake on the initiatives contemplated in the Transition Plan during that period (Annual RS 1755 Compliance Report). Each Annual RS 1755 Compliance Report must provide the information set out in Reporting Requirement #4 of Appendix A.**	**60**
7.	**The Panel directs BC Hydro to file clean and black lined versions of the Electric Tariff and Rate Schedules approved in this Order and Decision within 15 days of this order.**	**66**

DATED at the City of Vancouver, in the Province of British Columbia, this 1st day of November 2021.

Original signed by:
W. M. Everett, QC
Panel Chair

Original signed by:
C. M. Brewer
Commissioner

Original signed by:
A. K. Fung, QC
Commissioner

Original signed by:
B. A. Magnan
Commissioner

bcuc
British Columbia
Utilities Commission

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

P: 604.660.4700
TF: 1.800.663.1385
F: 604.660.1102

ORDER NUMBER
G-312-21

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

and

British Columbia Hydro and Power Authority
2020 Street Lighting Rate Application

BEFORE:
W. M. Everett, QC, Panel Chair
C. M. Brewer, Commissioner
A. K. Fung, QC, Commissioner
B. A. Magnan, Commissioner

on November 1, 2021

ORDER

WHEREAS:

A. On November 12, 2020, the British Columbia Hydro and Power Authority (BC Hydro) filed an application with the British Columbia Utilities Commission (BCUC) seeking approval and consents pursuant to sections 58 to 61 and section 63 of the *Utilities Commission Act* (UCA) as follows:

   i. Approval of proposed amendments to Rate Schedule (RS) 1701 – Overhead Street Lighting, to allow for the provision of this service by way of Light Emitting Diode (LED) street lights on an interim and final basis;

   ii. Consent to rescind RS 1755 – Private Outdoor Lighting, and approval of amendments to RS 1755 to rescind this rate schedule;

   iii. Approval to waive Service Connection Charges for RS 1755 customers who request a new service for their lights; and

   iv. Approval of amendments to BC Hydro's Electric Tariff Terms and Conditions (Electric Tariff), street lighting and small general service rate schedules related to the under and over-billing of unmetered accounts, mixed-use loads, as well as housekeeping and other amendments (Application);

B. Pursuant to the Federal Government's Polychlorinated Biphenyl (PCB) Regulations (SOR/2008-273), BC Hydro is required to eliminate all PCB-containing equipment by December 31, 2025;

C. By Order G-302-20 dated November 30, 2020, the BCUC, among other things, approved RS 1701 LED rates on an interim, refundable, or collectable basis and established a regulatory timetable for review of the Application, which included intervener registration, letter of comment submission and one round of BCUC and intervener information requests (IRs);

D. By January 26, 2021, the British Columbia Sustainable Energy Association (BCSEA), Zone II Ratepayers Group (Zone II RPG), District of Lillooet, Corporation of Village of Ashcroft, Manufactured Home Park Owners Alliance of BC, Mr. Larry Hill on behalf of the Village of Alert Bay, City of North Vancouver, British Columbia Old Age Pensioners' Organization (BCOAPO), Commercial Energy Consumers Association of BC (the CEC), City of Surrey (Surrey), British Columbia Agriculture Council, City of Vernon (Vernon), Residential Consumer Intervenor Group (RCIG) and the City of Kamloops (Kamloops) filed requests to intervene, all of which were accepted by the BCUC;

E. By Order G-43-21 dated February 12, 2021, the BCUC approved an interim Supplemental Charge of $2.06 per month per light for RS 1701 customers on a refundable or collectable basis, effective May 1, 2021 and established further regulatory process that included a second round of BCUC and intervener IRs;

F. By Order G-119-21 dated April 22, 2021, the BCUC established further regulatory process and sought written submissions from BC Hydro and registered interveners regarding the benefits of street lights to ratepayers and whether the recovery of both the undepreciated values of High Pressure Sodium (HPS) and Mercury Vapour (MV) lights and Replacement Program costs should be borne by street light ratepayers or by all BC Hydro ratepayers;

G. By May 20, 2021, the BCUC received Final Arguments from BC Hydro, BCSEA, Kamloops, Zone II RPG, Surrey, Vernon, CEC, and BCOAPO. BC Hydro filed its Reply Argument on June 3, 2021; and

H. The BCUC has completed its review of the Application, submissions and evidence filed by all parties in this proceeding and finds that the following determinations are warranted.

NOW THEREFORE pursuant to sections 58 to 61 and 63 of the UCA, and for the reasons provided in the Decision issued concurrently with this order, the BCUC orders as follows:

1. Respecting RS 1701, BC Hydro is approved to:
    a. amend RS 1701 as filed in the Application on a permanent basis effective May 1, 2021;
    b. recover the undepreciated value of existing HPS and MV street lights that are removed before the end of their service life by way of a supplemental charge to RS 1701 customers of $2.06 per month per street light on a permanent basis, effective May 1, 2021 and terminating on March 31, 2024.
2. BCUC consents to BC Hydro rescinding RS 1755 effective, December 31, 2025.
3. BC Hydro is approved to amend the following as filed in the Application:
    a. RS 1755; and
    b. the Electric Tariff for mixed-use loads.
4. BC Hydro is directed to file within 30 days of the end of each annual reporting period, a report on the Replacement Program, as defined in the Decision, (Annual Replacement Program Report), with the first report covering the period ending March 31, 2022. The Annual Replacement Program Report must include the information set out in Reporting Requirement #1, as described in Appendix A of the Decision attached to this order.
5. BC Hydro is directed to provide a final report within three months of substantial completion of the Replacement Program (Final Replacement Program Report). The Final Replacement Program Report must

include the information set out in Reporting Requirement #2, as described in Appendix A of the Decision attached to this order.

6. BC Hydro is directed to file two compliance reports regarding customer light trespass and light spill issues during the Replacement Program (Light Trespass Report); the first report due December 31, 2022, and the second report due December 31, 2024. The Light Trespass Report must include the information set out in Reporting Requirement #3, as described in Appendix A to the Decision attached to this order.

7. BC Hydro is directed to file annual compliance filings, commencing January 1, 2022, until December 31, 2025, reporting on progress in its implementation of its mitigation plan to reduce the customer barriers and inconveniences identified through the proposed rescindment of RS 1755 (Transition Plan) as well as customer uptake on the initiatives contemplated in the Transition Plan during that period (Annual RS 1755 Compliance Report). The Annual RS 1755 Compliance Report must include the information set out in Reporting Requirement #4, as described Appendix A of the Decision attached to this order.

8. BC Hydro is directed to file updated tariff sheets for endorsement by the BCUC reflecting the RS 1701 rates as approved within 15 business days of the date of this order.

9. BC Hydro is directed to file updated tariff sheets for endorsement by the BCUC reflecting the above RS 1701 Supplemental Charge as approved within 15 business days of the date of this order.

DATED at the City of Vancouver, in the Province of British Columbia, this 1st day of November 2021.

BY ORDER

Original signed by:

W. M. Everett, QC
Commissioner

British Columbia Hydro and Power Authority
2020 Street Lighting Rate Application

Reporting Requirements

Annual Replacement Program Report

Further to Section 2.2.1 of the Decision, **the Panel directs BC Hydro to file within 30 days of the end of each annual reporting period, a report on the replacement program (Annual Replacement Program Report), with the first report covering the period ending March 31, 2022.**

The table below provides the dates by which the Annual Replacement Program Reports must be filed with the BCUC:

Action	Date (2022–2024)
Annual Replacement Program Report No. 1	April 28, 2022
Annual Replacement Program Report No. 2	April 28, 2023
Annual Replacement Program Report No. 3	April 30, 2024

The Annual Replacement Program Report must include the following items:

i. Replacement Program Scope
    a. Program Scope Change Summary (including explanations of any changes to the Replacement Program scope)

ii. Replacement Program Costs
    a. Cost Summary (including explanation of variances relative to the expected cost estimates in the Application)
        i. Direct Deployment Costs (Materials and Installation)
        ii. Indirect Program Costs (Replacement Program Management, Deployment Management, Supporting Technology, Customer Engagement, Dismantling)
        iii. Other Costs (Change Management, Material Management, Procurement, Regulatory)
    b. Contingency Summary (including explanation of variances for inflation, contingency, and capital overhead)

Final Replacement Program Report

The Panel directs BC Hydro to provide a final report within three months of substantial completion of the Replacement Program (Final Replacement Program Report). The Final Replacement Program Report must include the following items:

- The final cost of the Replacement Program, including a breakdown of the final costs;
- A comparison of these costs to the estimates provided in Table 1 in the Decision, including whether any change to the RS 1701 LED street light rates as approved in this Decision is warranted in light of the final program costs;
- Material changes, if any, regarding the implementation of the Replacement Program, including (i) cost variances greater than 10 percent; (ii) any schedule delays greater than 3 months compared to BC Hydro's tentative street lighting installation plan as provided in Table 4 of the Application; and (iii) changes to the scope of work for the Replacement Program;
- A breakdown of the total number of customer complaints regarding street lighting, if any, including an overview of the measures undertaken by BC Hydro to resolve the identified issues for each annual reporting period; and
- A post-implementation review that includes (i) assessment of the Replacement Program and whether BC Hydro adequately met its objectives as proposed in the Application; (ii) identifying any potential support initiatives beyond the duration of the Replacement Program to maintain the benefits of LED street lighting; (iii) current customer segmentation of BC Hydro's street lighting rate schedules (i.e. RS 1701, RS 1702, RS 1703, and RS 1704); and (iv) general lessons learned with respect to the Replacement Program.

Light Trespass Compliance Report

With respect to BC Hydro's undertaking of working with customers to minimize light trespass issues, **the Panel directs BC Hydro to file two compliance reports regarding customer light trespass and light spill issues during the Replacement Program (Light Trespass Compliance Report); the first report due by December 31, 2022, and the second report due on or before December 31, 2024. The compliance reports are to include the following items:**

- The total number light trespass and light spill concerns received by customer and number of impacted lights, respectively;
- A summary of BC Hydro's responses and actions taken to resolve to customer light trespass and light spill concerns, including the reason(s) if no action was taken by BC Hydro; and
- Total number of unresolved light trespass and light spill concerns by customer and number of impacted lights, respectively, including BC Hydro's future plans and timeline to address the unresolved concerns.

The table below provides the dates by which the Light Trespass Compliance Reports must be filed with the BCUC:

Action	Date (2022–2024)
Light Trespass Compliance Report No. 1	December 31, 2022
Light Trespass Compliance Report No. 2	December 31, 2024

Annual RS 1755 Compliance Report

The Panel is persuaded that the initiatives proposed in BC Hydro's Transition Plan help mitigate the issue of customer unfamiliarity with the private outdoor lighting market and helps reduce the financial barriers associated with the installation of new replacement lighting. **Therefore, the Panel directs BC Hydro to submit annual compliance filings commencing January 1, 2022, until December 31, 2025, reporting on progress in its implementation of the Transition Plan as well as customer uptake on the initiatives contemplated in the Transition Plan during that period (Annual RS 1755 Compliance Report).**

The Annual RS 1755 Compliance Report must include the following items:

- General Status and Implementation;
- Customer Uptake;
- Participating Vendors:
  a. Overview of Lighting Products, Pricing and Services;
  b. Overview of Financing Options; and
- Challenges and Issues.

The table below provides the dates by which the Annual RS 1755 Compliance Reports must be filed with the BCUC:

Action	Date (2022–2024)
Annual RS 1755 Compliance Report No. 1	October 31, 2023
Annual RS 1755 Compliance Report No. 2	April 30, 2024

British Columbia Hydro and Power Authority
2020 Street Lighting Rate Application

Glossary of Terms

AACE	Advancement of Cost Engineering
ABB	Hitachi-ABB
Application	British Columbia Hydro and Power Authority's 2020 Street Lighting Rate Application, seeking various approvals and/or consents pursuant to sections 58 to 61 and section 63 of the *Utilities Commission Act*
Ashcroft	Corporation of the Village of Ashcroft
AUC	Alberta Utilities Commission
BCAC	British Columbia Agriculture Council
BC Hydro	British Columbia Hydro and Power Authority
BCOAPO	British Columbia Old Age Pensioners' Organization *et al.*
BCSEA	BC Sustainable Energy Association
BCUC	British Columbia Utilities Commission
Bonbright Criteria	Generally accepted rate design criteria derived from James C. Bonbright's text on the *Principles of Public Utility Rates*, which include the following: 1) price signals to encourage efficient use and discourage inefficient use; 2) Fair apportionment of costs among customer; 3) Avoid undue discrimination; 4) Customer understanding and acceptance; practical and cost effective to implement; 5) Freedom from controversies as to proper interpretation; 6) Recovery of the revenue requirement; 7) Revenue stability; and 8) Rate stability.
CEC	Commercial Energy Consumers Association of BC
CPCN	Certificate of Public Convenience and Necessity
CPI	Consumer Price Index
CSA	Canadian Standards Association
DSM	Demand-side measure

Electric Tariff	BC Hydro Electric Tariff Terms and Conditions
F2016	Fiscal 2016
F2020	Fiscal 2020
F2021	Fiscal 2021
Group 1	RS 1755 customer group for which lights are mounted on poles installed by the customer, or by BC Hydro at the customer's expense on the customer's private property
Group 2	RS 1755 customer group for which lights are mounted on BC Hydro-owned poles that are part of BC Hydro's distribution system and are on either public property or an existing BC Hydro easement on private property
Group 3	RS 1755 customer group for which lights are on the customer's private property and mounted on poles installed by BC Hydro, at BC Hydro's expense, solely for the purpose of supporting the light
HPS	High Pressure Sodium
IFRS	International Financial Reporting Standards
IR	Information Request
Kamloops	City of Kamloops
kW	Kilowatts
LIAC	Low Income Advisory Council
LED	Light Emitting Diode
LED Rate	LED street light rates under RS 1701
MHPOABC	Manufactured Home Park Owners Alliance of BC
MWh	Megawatt-hour
MV	Mercury Vapour
NBV	Net Book Value
NIA	Non-Integrated Areas
PCBs	Poly-Chlorinated Biphenyls
PCB Regulations	Federal PCB Regulations (SOR/2008-273)

Pricing Model	The proposed RS 1701 rates were calculated by allocating the net revenue estimate for the rate class to different LED wattage groups based on their different capital costs and electricity usage
RCIG	Residential Consumer Intervener Group
Replacement Program	Pursuant to the Federal PCB Regulations (SOR/2008-273), BC Hydro is preparing to completely replace all of its existing overhead Mercury Vapour and High Pressure Sodium street lights used to serve customers under Rate Schedule 1701 - Overhead Street Lighting with street lights that use Light Emitting Diode technology, as part of its Street Light Replacement Program
RRA	Revenue Requirements Application
RS	Rate Schedule
RS 1701	Rate Schedule 1701 - Overhead Street Lighting
RS 1755	Rate Schedule 1755 is a private outdoor lighting service that was designed and introduced in the 1960s
SGS	Small General Service
Supplemental Charge	BC Hydro is seeking approval of a temporary supplemental charge, effective May 1, 2021, to recover the undepreciated value of the existing MV and HPS lights that have been or will be removed before the end of their useful life pursuant to the Replacement Program
Surrey	City of Surrey
Transition Plan	In consideration of the Group 1 and Group 3 customers which are responsible for the equipment and installation costs associated with migrating their service to an appropriate rate schedule, BC Hydro states it has developed a preliminary mitigation plan to reduce the customer barriers and inconveniences identified through the proposed rescindment of RS 1755
UCA	*Utilities Commission Act*
Vernon	City of Vernon
W	Watts
WACD	Weighted Average Cost of Debt, calculated for BC Hydro's most recent fiscal year
Zone II RPG	Kwadacha Nation and Tsay Keh Dene Nation, together the Zone II Ratepayers Group

British Columbia Hydro and Power Authority
2020 Street Lighting Rate Application

EXHIBIT LIST

Exhibit No.	Description
COMMISSION DOCUMENTS	
A-1	Letter dated November 13, 2020 - Appointing the Panel for the review of British Columbia Hydro and Power Authority 2020 Street Lighting Rate Application
A-2	Letter dated November 30, 2020 – BCUC Order G-302-20 establishing a regulatory timetable
A-3	Letter dated January 14, 2021 – BCUC Information Request No. 1 to BC Hydro
A-4	Letter dated February 3, 2021 – BCUC amending the Panel for the review of the Application
A-5	Letter dated February 12, 2021 – BCUC Order G-43-21 establishing a regulatory timetable
A-6	Letter dated March 11, 2021 – BCUC Information Request No. 2 to BC Hydro
A-7	Letter dated April 22, 2021 – BCUC Order G-119-21 establishing a further regulatory timetable
A-8	Letter dated May 12, 2021 – BCUC request for comments on Late Letter of Comment
APPLICANT DOCUMENTS	
B-1	**BRITISH COLUMBIA HYDRO AND POWER AUTHORITY (BC HYDRO)** – Letter dated November 12, 2020 Submitting 2020 Street Lighting Rate Application
B-1-1	Letter dated February 4, 2021 – BC Hydro submitting errata to the Application
B-1-2	Letter dated June 3, 2021 – BC Hydro submitting errata No. 2 to the Application
B-2	Letter dated December 23, 2020 – BC Hydro submitting compliance with Order G-302-20 Directives 4, 5 and 7
B-3	Letter dated January 20, 2021 – BC Hydro submitting compliance with G-302-20 Directive 7

B-4	Letter dated February 4, 2021 – BC Hydro submitting response to BCUC Information Request No. 1
B-4-1	**CONFIDENTIAL -** Letter dated February 4, 2021 – BC Hydro submitting confidential response to BCUC Information Request No. 1
B-5	Letter dated February 4, 2021 – BC Hydro submitting response to Intervener Information Request No. 1
B-5-1	**CONFIDENTIAL -** Letter dated February 4, 2021 – BC Hydro submitting confidential response to Intervener Information Request No. 1
B-5-2	Letter dated April 1, 2021 – BC Hydro submitting revision to responses to Intervener Information Requests p MHPOABC 1.1A, 1.1B and 1.2G
B-6	Letter dated April 1, 2021 – BC Hydro submitting response to BCUC Information Request No. 2
B-7	Letter dated April 1, 2021 – BC Hydro submitting response to Intervener Information Requests No. 2
B-8	Letter dated May 14, 2021 – BC Hydro submitting response regarding Late Letter of Comment

INTERVENER DOCUMENTS

C1-1	**BC SUSTAINABLE ENERGY ASSOCIATION (BCSEA) –** Letter dated December 7, 2020 submitting request to intervene by William Andrews
C1-2	Letter dated January 21, 2021 – BCSEA submitting Information Request No. 1 to BC Hydro
C1-3	Letter dated March 11, 2021 – BCSEA submitting Information Request No. 2 to BC Hydro
C2-1	**KWADACHA NATION AND TSAY KEH DENE NATION, TOGETHER THE ZONE II RATEPAYERS GROUP (ZONE II RPG) –** Letter dated December 11, 2020 submitting request to intervene by Jana Mclean
C2-2	Letter dated January 21, 2021 – ZoneII-RPG submitting Information Request No. 1 to BC Hydro
C2-3	Letter dated March 11, 2021 – ZoneII-RPG submitting Information Request No. 2 to BC Hydro
C3-1	**DISTRICT OF LILLOOET (LILLOOET)–** Letter dated December 14, 2020 submitting request to intervene by Rory Card

C4-1 **CORPORATION OF THE VILLAGE OF ASHCROFT (ASHCROFT)** – Request to Intervene and comment dated December 18, 2020 submitted by Mayor Barbara Roden

C5-1 **MANUFACTURED HOME PARK OWNERS ALLIANCE OF BC (MHPOABC)**– Letter dated December 17, 2020 submitting request to intervene by Al Kemp

C5-2 Letter dated January 21, 2021 – MHPOABC submitting Information Request No. 1 to BC Hydro

C5-3 Letter dated March 8, 2021 – MHPOABC submitting Information Request No. 2 to BC Hydro

C6-1 **HILL, LARRY (HILL)** – Letter dated December 21, 2020 submitting request to intervene

C6-2 Letter dated January 20, 2021 – Hill submitting Information Request No. 1 to BC Hydro

C7-1 **CITY OF NORTH VANCOUVER (CONV) –** Request to Intervene and Letter of Comment dated December 18, 2020 submitted by Douglas Pope, Director, Engineering Parks and Environment

C7-2 Letter dated January 21, 2021 – CoNV submitting Information Request No. 1 to BC Hydro

C8-1 **BRITISH COLUMBIA AGRICULTURE COUNCIL (BCAC) –** Letter dated December 23, 2020 submitting request to intervene by Fred Weisberg, Weisberg Law Corporation

C8-2 Letter dated January 21, 2021 – BCAC submitting Information Request No. 1 to BC Hydro

C8-3 Letter dated March 11, 2021 – BCAC submitting Information Request No. 2 to BC Hydro

C9-1 **BRITISH COLUMBIA OLD AGE PENSIONERS' ORGANIZATION, ACTIVE SUPPORT AGAINST POVERTY, DISABILITY ALLIANCE BC, COUNCIL OF SENIOR CITIZENS' ORGANIZATIONS OF BC, TENANTS RESOURCE AND ADVISORY CENTRE, AND TOGETHER AGAINST POVERTY SOCIETY (BCOAPO ET AL.) –** Letter dated December 22, 2020 submitting request to intervene by Leigha Worth and Irina Mis

C9-2 Letter dated January 21, 2021 – BCOAPO submitting Information Request No. 1 to BC Hydro

C9-3 Letter dated March 11, 2021 – BCOAPO submitting Information Request No. 2 to BC Hydro

C10-1 **COMMERCIAL ENERGY CONSUMERS ASSOCIATION OF BC (CEC)** - Letter dated December 22, 2020 Request to Intervene by Chris Weafer, Owen Bird Law Corporation

C10-2 Letter dated January 21, 2021 – CEC submitting Information Request No. 1 to BC Hydro

C10-3 Letter dated March 11, 2021 – CEC submitting Information Request No. 2 to BC Hydro

C11-1 **CITY OF SURREY (SURREY)** – Letter dated December 22, 2020 submitting request to intervene by Hugh Campbell

C11-2 Letter dated January 21, 2021 – Surrey submitting Information Request No. 1 to BC Hydro

C11-3 Letter dated March 11, 2021 – Surrey submitting Information Request No. 2 to BC Hydro

C12-1 **CITY OF VERNON (VERNON)** – Letter dated January 14, 2021 submitting request to intervene by James Yardley, Lidstone & Company

C12-2 Letter dated March 11, 2021 – Vernon submitting Information Request No. 2 to BC Hydro

C13-1 **RESIDENTIAL CONSUMER INTERVENOR GROUP (RCIG) -** Letter dated January 25, 2021 Request to Intervene by Lindsay Thompson, Midgard Consulting

C14-1 **CITY OF KAMLOOPS (KAMLOOPS) –** Letter dated January 26, 2021 Request to Intervene by Jen Fretz, Director of Civic Operations

INTERESTED PARTY DOCUMENTS

D-1 **YOUDEN, L. (YOUDEN) –** Submission dated December 1, 2020 Request for Interested Party Status

D-1-1 **YOUDEN –** Letter of Comment dated December 1, 2020

D-2 **HURD, J. (HURD)** – Submission dated December 12, 2020 Request for Interested Party Status

D-2-1 **HURD –** Letter of Comment dated December 12, 2020

D-3 **FORTISBC INC. (FBC)** – Submission dated December 14, 2020 Request for Interested Party Status by Diane Roy

D-4 **BIFFERT, W. (BIFFERT) -** Submission dated December 16, 2020 Request for Interested Party Status

D-4-1 **BIFFERT** - Letter of Comment dated December 14, 2020

D-5 **CHRYSTAL RIVER COURT LTD. (CHRYSTAL RIVER)** – Submission dated December 14, 2020 Request for Interested Party Status by John Nelson

D-6 **ALOUETTE RIVER MOBILE HOME PARK (ALOUETTE RIVER-MHP)** – Submission dated December 9, 2020 Request for Interested Party Status by Ann Hansson

D-6-1 **ALOUETTE RIVER-MHP** – Letter of Comment dated December 9, 2020

D-7 **MANUFACTURED HOME PARK OWNERS ALLIANCE OF BC (MHPOA-BC)** - Submission dated December 17, 2020 Request for Interested Party Status by Al Kemp

D-8 **CITY OF BURNABY (BURNABY)** - Submission dated December 19, 2020 Request for Interested Party Status by Doug Louie

D-8-1 **BURNABY** – Letter of Comment dated December 18, 2020

REMOVED NOW EXHIBIT C6-1

D-10 **CITY OF LANGLEY (LANGLEY) –** Submission dated December 21, 2020 Request for Interested Party Status by Hirod Gill

D-10-1 **LANGLEY –** Letter of Comment dated December 21, 2020

D-11 **ASSAF, RON (ASSAF) -** Submission dated December 22, 2020 Request for Interested Party Status

D-12 **REID, TRENT (REID) -** Submission dated December 30, 2020 Request for Interested Party Status

D-13 **VERRAN, STAN (VERRAN)** - Submission dated March 2, 2020 Request for Interested Party Status

D-14 **SOUTHERN INTERIOR LOCAL GOVERNMENT ASSOCIATION (SILGA)** - Submission dated March 9, 2021 Request for Interested Party Status by Alison Slater

D-15 **KELSEY, DAVID (KELSEY) -** Submission dated May 10, 2021 Request for Interested Party Status

D-15-1 **KELSEY –** Letter of Comment dated May 10, 2021

LETTERS OF COMMENT

E-1 BRITISH COLUMBIA CATTLEMEN'S ASSOCIATION (BCCA) – Letter of Comment dated October 21, 2020

E-2 FEATHER, B. – Letter of Comment dated December 7, 2020

E-3 REMOVED NOW EXHIBIT D-6-1

E-4 FUNK, D. – Letter of Comment dated December 14, 2020

E-5 REMOVED NOW EXHIBIT D-4-1

E-6 CARIBOO REGIONAL DISTRICT AND MEMBER MUNICIPALITIES (CRD-MM) – Letter of Comment dated December 18, 2020 submitted by Lore Schick

E-7 CITY OF WILLIAMS LAKE (WILLIAMS LAKE) – Letter of Comment dated December 18, 2020 submitted by Mayor Walt Cobb

E-8 REMOVED NOW EXHIBIT C4-1

E-9 TOWNSHIP OF LANGLEY (TOWNSHIP OF LANGLEY) – Letter of Comment dated December 22, 2020 submitted by Roeland Zwagg

E-10 REMOVED

E-11 LAASS, V. – Letter of Comment dated January 7, 2021

E-12 OAKES, C. MLA - Letter of Comment dated January 4, 2021

E-13 DISTRICT OF CLEARWATER – Letter of Comment dated January 11, 2021 submitted by Merlin Blackwell

E-14 CITY OF ENDERBY - Letter of Comment dated January 22, 2021 submitted by Tate Bengtson, Chief Administrative Officer

E-15 NORTH COAST REGIONAL DISTRICTS -Letter of Comment dated January 28, 2021 submitted by Barry Pages, Chair

E-16 MUNICIPALITY OF NORTH COWICHAN -Letter of Comment dated February 11, 2021 submitted by Al Siebring, Mayor

E-17 CLUB MANAGER - Letter of Comment dated February 23, 2021 submitted on behalf of the Maple Bay Yacht Club

E-18 BEARDSLEY, J. – Letter of Comment dated March 4, 2021

E-19 CITY OF PRINCE GEORGE – Letter of Comment dated March 17, 2021 submitted by Mayor Lyn Hall

E-20 REGIONAL DISTRICT OF MOUNT WADDINGTON (RDMW) – Letter of Comment dated March 22, 2021 submitted by Andrew Hory, Chair

E-21 DISTRICT OF LOGAN LAKE (LOGAN LAKE) – Letter of Comment dated April 1, 2021 submitted by Melisa Miles, Director of Corporate Affairs

E-22 BURNS LAKE – Letter of Comment dated April 5, 2021 submitted by Mayor Dolores Funk

E-23 TOWN OF GOLDEN (GOLDEN) – Letter of Comment dated April 8, 2021 submitted by Mayor Ron Oszust

E-24 CORPORATION OF THE VILLAGE OF MCBRIDE (MCBRIDE) – Letter of Comment dated March 30, 2021 submitted by Chris Tupy, Chief Administrative Officer

E-25 VILLAGE OF PORT ALICE (PORT ALICE) – Letter of Comment dated April 7, 2021 submitted by Mayor Kevin Cameron

E-26 DISTRICT OF ELKFORD (ELKFORD) – Letter of Comment dated April 13, 2021 submitted by Mayor Dean McKerracher

E-27 NORTHERN ROCKIES REGIONAL MUNICIPALITY (NRRM) – Letter of Comment dated April 27, 2021 submitted by Mayor Gary Foster

E-28 VILLAGE OF CHASE (CHASE) – Letter of Comment dated April 23, 2021 submitted by Mayor Rod Crowe

E-29 VILLAGE OF HARRISON HOT SPRINGS (HARRISON) – Letter of Comment dated April 15, 2021 submitted by Mayor Leo Facio

E-30 VILLAGE OF MASETT (MASSET) – Letter of Comment dated April 15, 2021 submitted by Alan Smith, Chief Administrative Officer

E-31 CITY OF CAMPBELL RIVER (CAMPBELL RIVER) – Letter of Comment dated April 21, 2021 submitted by Mayor Andy Adams

E-32 DISTRICT OF KITIMAT (KITIMAT) – Letter of Comment dated April 30, 2021 submitted by Mayor Phil Germuth

E-33 THOMPSON-NICOLA REGIONAL DISTRICT (TN-RD) – Letter of Comment dated May 7, 2021 submitted by Kenneth Gillis, Chair

E-34 THE DISTRICT OF NEW HAZELTON – Letter of Comment dated May 5, 2021 submitted by Gail Lowry (Mayor)