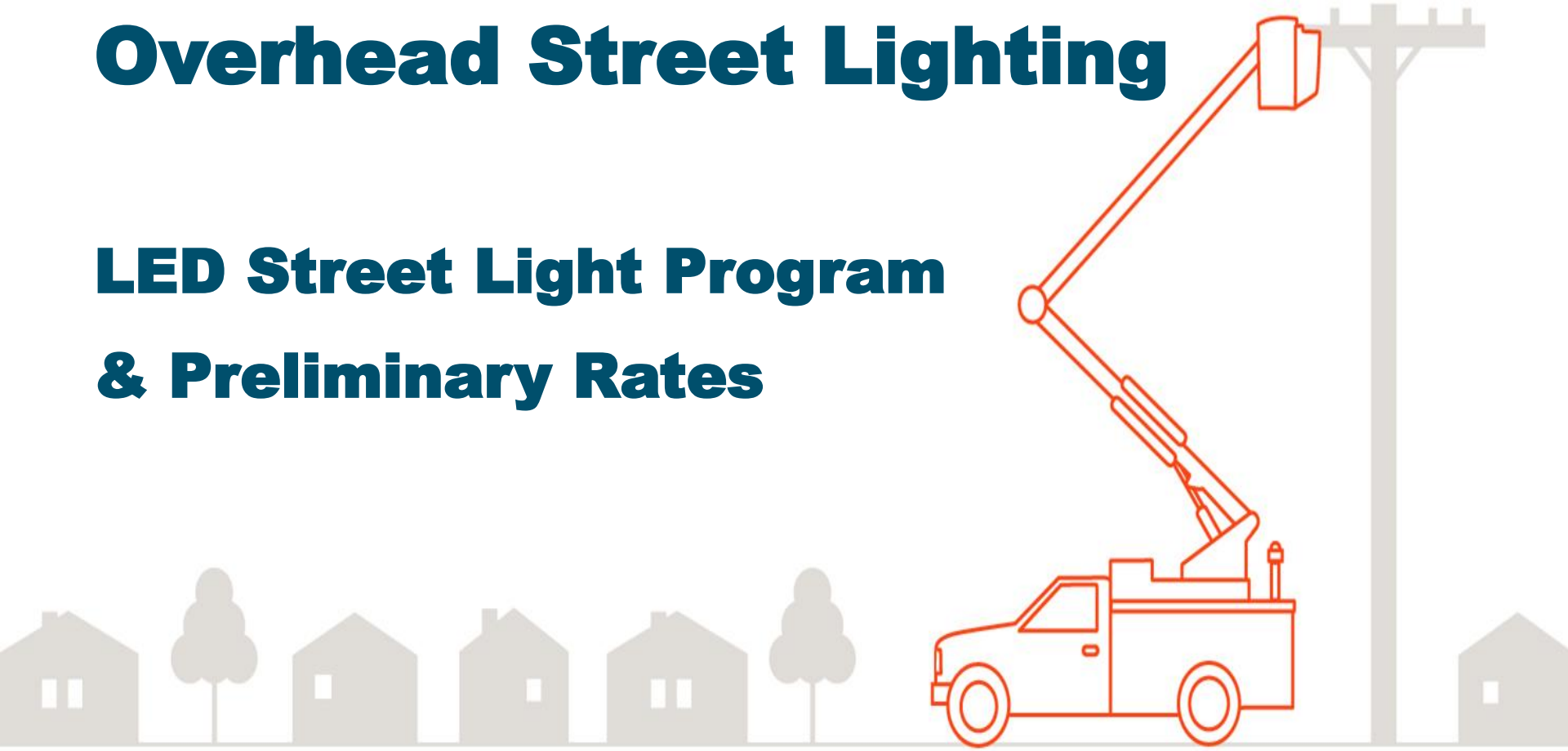
Rate Schedule 1701
Overhead Street Lighting

LED Street Light Program
& Preliminary Rates



August 12, 2020

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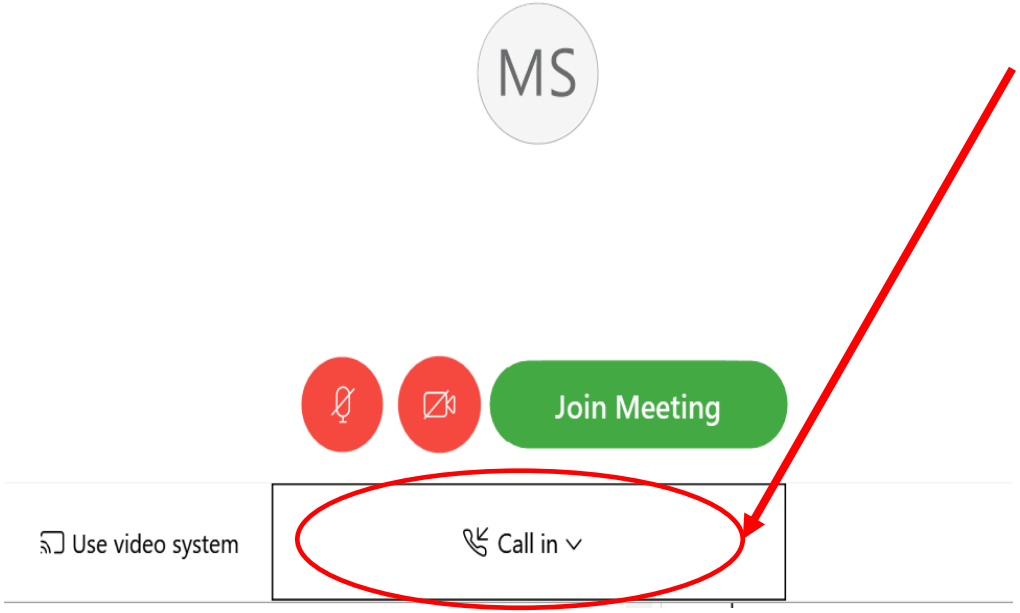
Thank you



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*to access global call in numbers see next slide.

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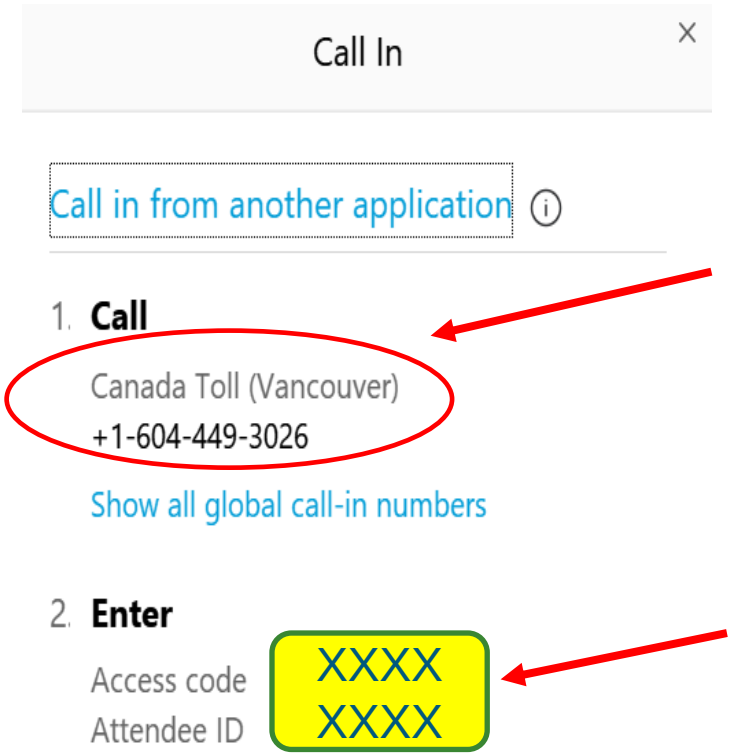

1. Call the toll free number – ensure it is the Vancouver line (not US)

2. Enter your access code and attendee ID

*see global call-in numbers for different areas.

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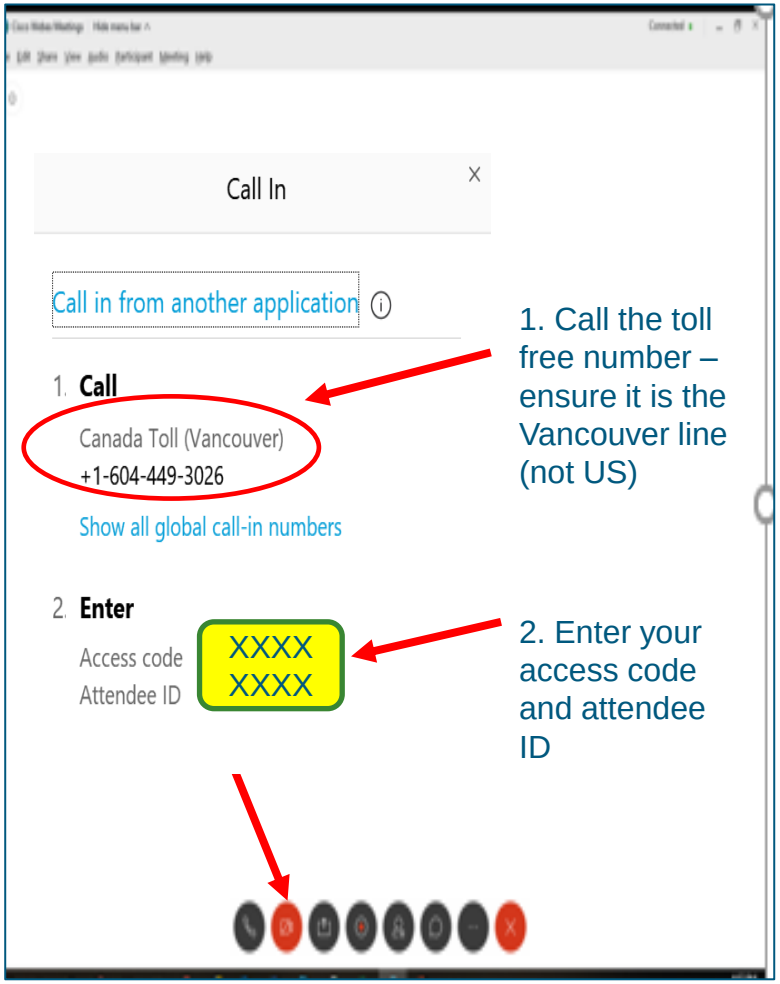

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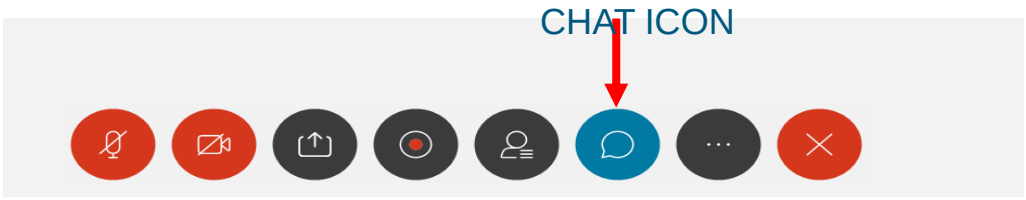
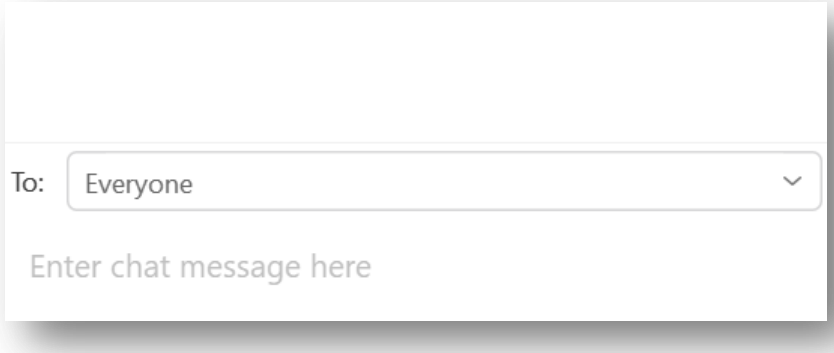
How to Participate and ask Questions

With the large number of registrants we ask that you click the **chat box icon shown** below and direct your question to **"Everyone"** to ensure one of the moderators captures it. However, if you wish to send a question specifically to BC Hydro or one of the presenters that option is available as well. Confidential questions can be forwarded to the email below.

We will endeavor to answer questions at the session as time permits, additional or follow-up questions can be also be sent to bchydroregulatorygroup@bchydro.com. Thank you.





Agenda

- **Opening Remarks**

  Daren Sanders, Director, Contact Centre & Billing Operations

- **The Street Light Replacement Program & Streetlights Options**

  DJ Feinstadt, Program Manager, Street Light Replacement Program

  Ed Mah, Team Lead, Distribution Sustainment Planning

- **RS1701 Rates**

  Anthea Jubb, Senior Regulatory Manager, Tariffs

- **Closing Remarks**

  Fred James, Chief Regulatory Officer

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Purpose of today's session

Rate Schedule (RS) 1701 Overhead Street Lighting service

BC Hydro requests your feedback on proposed amendments to Rate Schedule (RS) 1701 Overhead Street Lighting service.

- BC Hydro owned & maintained street lights on BC Hydro distribution poles

A rate application is required to continue billing RS1701 once lighting is converted to LED. Issues to address include:

- Updating Electric Tariff language
- Adjusting rates to reflect operating & maintenance cost savings, and recovery of new capital costs

Street lights in B.C.

BC Hydro supplies electricity to over 350,000 street lights

95,000 BC Hydro owned

RS1701 Overhead Street Lighting

RS1755 Private Outdoor Lighting (Closed)

260,000+ Customer owned

RS1702 Public Area Ornamental Street Lighting

RS1703 Street Lighting Service (Closed)

RS1704 Traffic Control Equipment

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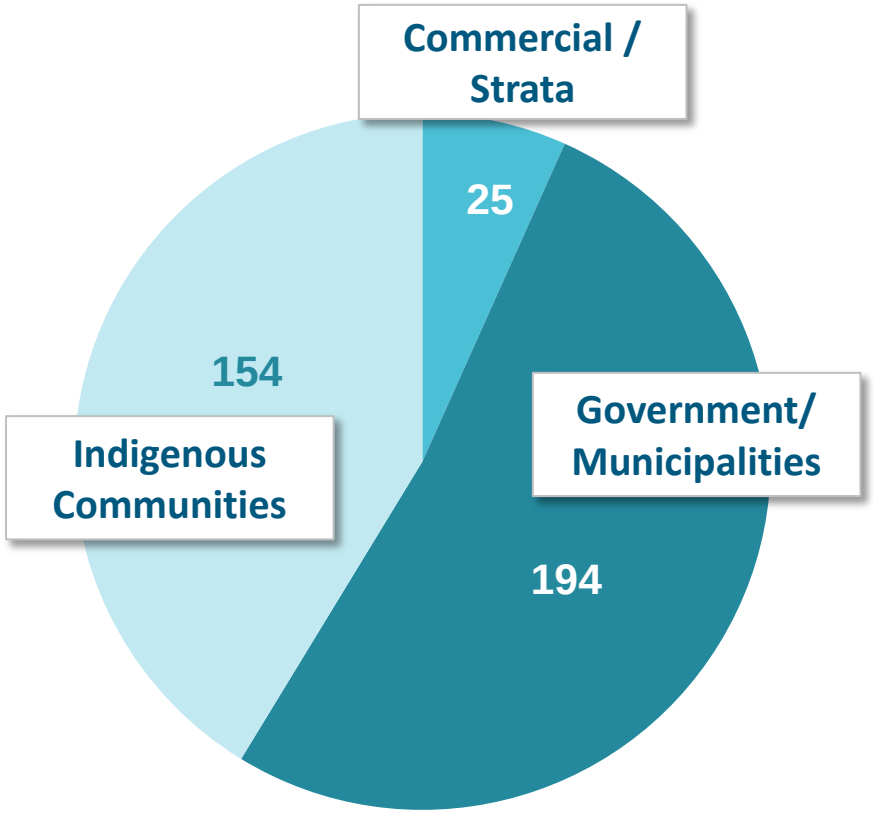
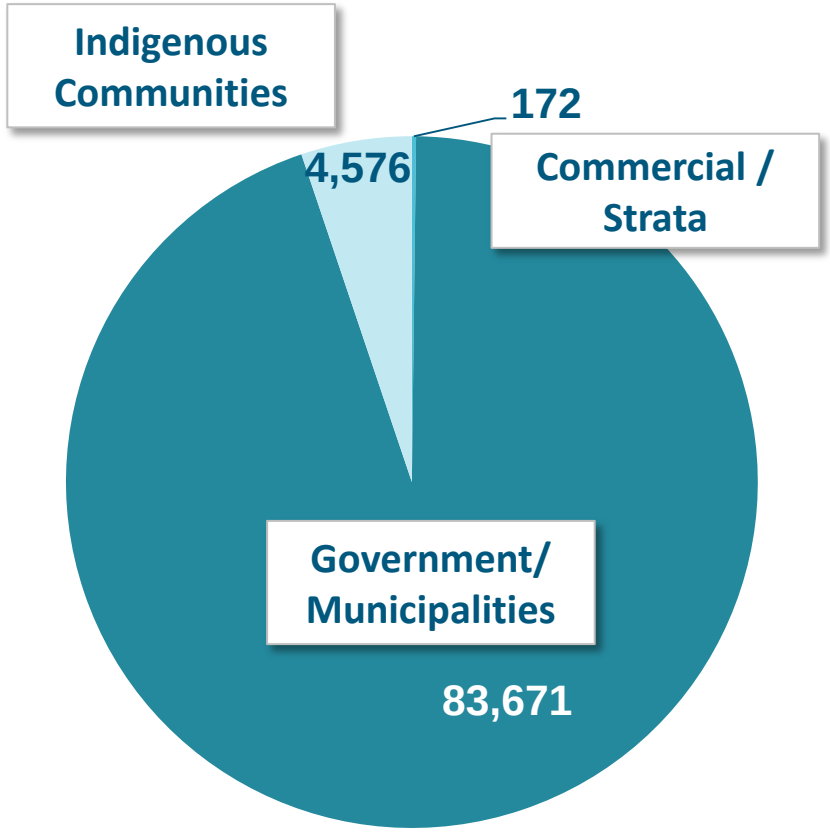
Customers on RS1701



373 Customers



88,419 Street Lights

Statistics as of April 2020

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Drivers for LED Street Light Program

Proactive replacement of HPS fixtures to LEDs

- Compliance with Federal Environmental PCB Regulations

- Energy conservation
- Better quality lighting with fewer failures, resulting in improved public safety

- Meet customers' expectations for converting street lights to LEDs

- More efficient than replacing fixtures as HPS lights failed
- Improved coordination with customers

About the LED Street Light Program

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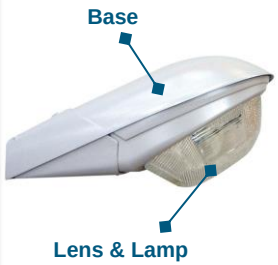
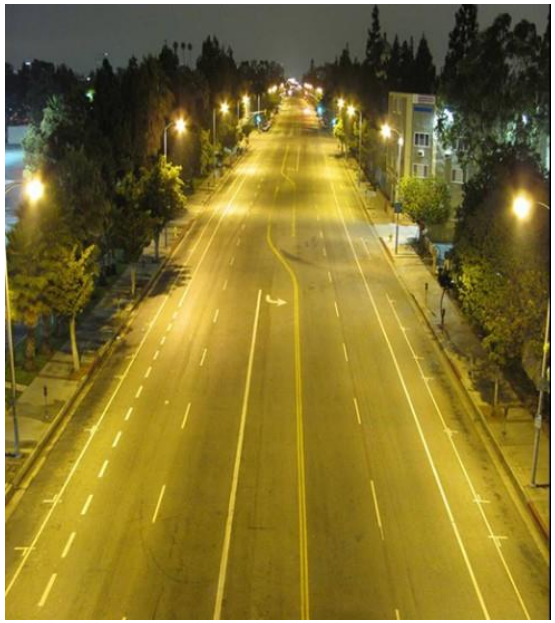
HPS v LED Street Lights

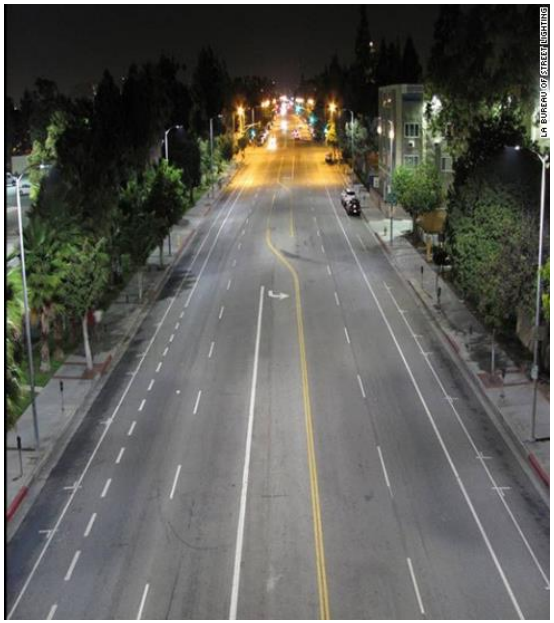
LEDs provide better quality, whiter light and require less maintenance

Current HPS Street Lights





New LED Street Lights



Photocells

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*HPS v LED street photo of Los Angeles from CNN.com

Street Light Options

	Street Light Type		Wattage
Current	High Pressure Sodium (HPS)		100W 150W 200W
	Mercury Vapour (MV)		175W 250W 400W

Existing 2200 Kelvin HPS | 3000 Kelvin | 4000 Kelvin

	Street Light Type		Wattage	Colour Temperature	Equivalent HPS | MV
Future	LED		39W 75W 114W 162W	Cool 3000K Warm 4000K	- 100W | 175W 150W | 250W 200W | 400W

- Customers responsible for LED selections & lighting design

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Customer Communications

- ✓ July | Initial notification email & invite to rate engagement session
- ❑ August | Request for LED types for use in street light repairs
- ❑ September | Program deployment & technical lighting session
- ❑ Based on Deployment Schedule | Request for detailed LED light selections for use in the conversion of existing RS1701 street lights to LEDs
- ❑ Notification of the completion of LED deployment in their community

LED Street Program Deployment Plan

2020

September

- Submission of Rates Application to the BC Utilities Commission

November

- Start Proactive LED conversions
  - *Detailed deployment schedule to be finalized and will be based on an efficient and cost effective deployment plan*
- New Installations completed with LEDs
- Failed street lights repaired with LEDs

2021-2022

- Continue deployment of LED street lights

2023

Mid-2023

- Deployment complete

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Program Support

- bchydro.com/streetlights
- E. LightingSupport@BCHydro.com
- P. 1.833.828.2224 (toll-free)
- Lighting Design Consultants - referrals available via BC Hydro's Alliance of Energy Professionals

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Rates

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Rate application process

- BC Hydro requires an update to rate schedule 1701 to reflect conversion to LED technology
- This fall we will apply to our regulator, the BC Utilities Commission (BCUC) for approval of our proposed changes to rate schedule 1701
- The BCUC will administer an open and transparent process to examine our rate proposal, and will decide on what changes to are appropriate
- All interested and impacted parties may participate in the BCUC process, by submitting letters of comment, asking questions, and/or making an argument

Bonbright rate design criteria

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	All savings, and all costs associated with the LED conversion are reflected in the proposed new rate - no impacts on other ratepayers
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			

BC Hydro rate design objectives

Rate Design Objectives	How they apply to RS 1701
Economic Efficiency	• The marginal value of electric energy and capacity related savings are reflected in the RS 1701 rate
Decarbonization	• The energy and capacity savings associated with the conversion to LED will make a positive contribution to decarbonization
Flexibility	• The new rates are responsive to changes to our business and policy environment

About the current rate

- RS 1701 is a combined electricity and equipment rental rate for BC Hydro owned street lighting, billed as $ / month / lighting unit.
- Annual RS1701 revenue is ~$22.65 million

Current RS 1701 pricing:

Streetlight Type	Wattages	Rate F2021 Rates ($/month/unit)
High Pressure Sodium	100 W	$19.40
	150W	$23.14
	200W	$26.72
Mercury Vapour Unit	175 W	$21.32
	250 W	$24.57
	400 W	$31.67

Inputs to the new rate

Component	Illustrative Annual Cost (savings)	Illustrative Impact on pricing
Maintenance Savings	$(1.3) million	-6%
Electricity Savings	$(1.9) million	-9%
Capital Cost	$2.6 million	+12%
Total	$(0.6) million	-3%

- The total savings determine the RS 1701 Rate for LED lights
- A total savings of $0.6 million / year has been used in rate design
- This amount is passed on to customers in the new rate
- This represents an overall 3% saving

Supplemental charge due to early replacement of existing lights

Component	Cost (savings)
Current Net Book Value (NBV)	$7.5 million
Depreciation during program	$(0.7) million
NBV to be recovered	$6.8 million
Duration of recovery (illustrative)*	48 months
NBV Recovery per year	$1.7 million

- BC Hydro must recover the undepreciated value of street lights that are removed before the end of their service life (the Net Book Value or NBV).
- A Supplemental Charge will be applied until the NBV is fully recovered, at which point it will be discontinued – applies to all street lights.
- A total average additional cost of $1.7 million / year has been used in rate design.
- This amount is passed on to customers in the new rate
- This represents an additional 8% cost

*The actual duration will depend on when the charge is first applied to customer bills and when the deployment finishes

Illustrative pricing

Streetlight Type / Wattage	Current Pricing	Illustrative New Pricing		
		Streetlight Charge	Temporary Supplemental Charge*	Effective Charge with Supplemental Charge
LED <45W	n/a	15.24	1.57	16.81
HPS 100W	19.40	18.84	1.57	20.41
LED 45 – 80W	n/a			
HPS 150W	23.14	23.44	1.57	25.02
LED 81 – 120W	n/a			
HPS 200W	26.72	27.44	1.57	28.99
LED >120W	n/a			

- Bills are based upon the rate times the number of street lights, charged monthly
- Supplemental charge results in a temporary rate increase of approximately 6%
- Supplemental charge drops off after at the end of deployment

* Based on a 48 month duration assumption

Illustrative bill impact examples

Time		Customer 1	Customer 2	Customer 3
	Number of Lights	10	54	758
Today	Current Bill	$223 / mo.	$1,174 / mo.	$16,568 / mo.
Illustrative new pricing	Street Charge Charge	$221 / mo.	$1,156 / mo.	$16,326 / mo.
	Supplemental Charge	$15 / mo.	$85 / mo.	$1,197 / mo.
	Total Bill	$237 / mo.	$1,240 / mo.	$17,523 / mo.
	Bill Impact	+$14 / mo.	+$66 / mo.	+$955 / mo.

- Actual bill increases are depend on the number and proportion of lights

Notes

- *Assumes like-for-like replacement and no new low wattage lights (<45 W)*
- *Includes taxes, all-in bill based on current (F21) rates*

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Maintenance savings

Maintenance costs	Cost savings
Cost reduction	$1.3 million

- LED lights have lower maintenance because no re-lamping is required.
- A total savings of $1.3 million/ year has been used in rate design
- This amount is passed on to customers in the new rate
- This represents an approximate 6% saving

Electricity savings

Electricity Savings	Cost Savings
Annual energy reduction	$0.9 million
Annual capacity reduction	$1.0 million
Total annual electricity reduction	$1.9 million

- These savings arise because LED technology has lower energy and peak demand
- A total savings of $1.95 million / year has been used in rate design
- This amount is passed on to customers on the new rate
- This represents an approximate 9% saving

Capital cost of the LED technology

Capitalization of replacement program costs	Cost Increase
Annual increase	$2.7 million

- Program costs are amortized over the asset service life (e.g. 20 years)
- These are costs to acquire and install the new equipment
- A total average additional cost of $2.7 million/ year has been used in rate design
- This amount is passed on to customers in the new rate
- This represents an additional 12% cost

Feedback Requested

- BC Hydro has relatively few options for updating RS 1701
  - The costs to provide service under RS 1701 are largely fixed
  - The load profile of RS 1701 electricity usage is largely fixed
  - The program timeline is set by the Federal Environmental PCB Regulation
- There a rate elements that we would like your feedback on:

  Should the supplemental charge be a fixed charged per light, or a % of bill?

  - Under a fixed charge per light, all customers pay the same charge
  - Under a % of bill, customers with lower wattage lights will pay a lower effective rate

  Do you have a view as to whether the supplemental charge should take effect this fiscal year, which may result in a somewhat lower monthly charge, or take effect after the final BCUC decision (expected by March 31, 2021), which may result in a somewhat higher monthly charge?

Rates during the deployment

All customers will be charged the same rate, regardless of when their individual lights are converted

- Benefits of this approach
    - Practical and cost effective to implement: eliminated rate incentive for customers to advocate for a specific deployment schedule, thereby ensuring deployment can be scheduled in the most cost effective and practical manner
    - Stability: improves revenue and bill stability
- Jurisdictional support for this approach
    - SaskPower ten year deployment of LED street lights
      https://www.saskpower.com/Our-Power-Future/Infrastructure-Projects/Construction-Projects/Current-Projects/LED-Streetlights

Early light removal fee

- Currently, if a customer requests to replace a fixture, they are required to pay to BC Hydro the original cost of the existing fixture, less any accumulated depreciation, and the cost of removing the existing fixture
- Proposed amendment would add that if a Customer requests to remove a fixture they will be required to pay original cost of the existing fixture, less any accumulated depreciation, and the cost of removing the existing fixture
- The amendment will protect BC Hydro ratepayers from the cost of stranded assets, which could arise if a Customer chose to leave RS 1701 service shortly after their fixtures are converted to LED
- If an RS1701 customer would like to remove and not replace a light, this decision should be made prior to LED conversion.

Termination of Rate Schedule 1755

- Under RS 1755 BC Hydro provides outdoor lighting on private property
- RS 1755 has been closed since 1975
- There are 5,000 RS 1755 lights in service and $1.3 million per year in revenue
- Due to the 2008 Federal PCB Regulation, almost all of the RS1755 lights have to be removed by December 31, 2025
- Continuing to offer RS 1755 service would require significant capital investment
- There is an existing competitive market of contractors who supply outdoor lighting for private property, no need for a BC Hydro regulated service
- RS 1755 customers will be contacted directly about next steps
- Please let us know if there is interest in a follow up webinar on RS 1755

Other Unmetered Services

- BC Hydro provides electricity on an unmetered basis to all other street lighting service rates and some Small General Service accounts.
- BC Hydro relies on customers to self-report light or equipment additions, removals or modifications to update billing.
- In some cases customers are not reporting these changes to BC Hydro in a timely manner. This can result in BC Hydro underbilling without recourse.
- We propose to amend the Electric Tariff to allow BC Hydro to back bill the customer to the time of the light or equipment change.
- Changes would apply to:
    - Terms and Conditions Section 5.7 Back Billing
    - Special conditions of RS1702, 1703, 1704, 1300 and 1234

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Closing Remarks: Rate Application Milestones

2020

- August 12 — Public engagement via webinar
- August 19 — Deadline for feedback on webinar
- Late September — BC Hydro will file rate application with BCUC
- Early October — Likely date of intervener and interested party registration
- October 31 — BC Hydro will request this be the effective date for tariff updates to enable us to bill for LED service
- Fall 2020 — Rate proceeding underway

2021

- Winter 2021 — Rate proceeding underway
- March 2021 — Requested BCUC approval of final RS 1701 rate
  - May result in customers receiving a refund or charge

Closing Remarks: Key Contacts and Process

- BC Hydro and the BCUC values your participation in the regulatory process
- Participation can be low involvement (e.g. letter of comment) or high involvement (e.g. interrogatories, legal submissions)
- Please contact BC Hydro Regulatory Group with any questions about the regulatory process: bchydroregulatory@bchydro.com
- Submit your feedback form by August 19,2020

Contact Information

BC Hydro Regulatory

- E. BCHydroRegulatoryGroup@bchydro.com
- For this presentation and the feedback form of the session bchydro.com/about/planning_regulatory/regulatory

Streetlight Replacement Program Support

- bchydro.com/streetlights
- E. LightingSupport@BCHydro.com |
- P. 1.833.828.2224 (toll-free)
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