

Welcome to BC Hydro's

2024 Rate Design Applications (RDA) Workshop

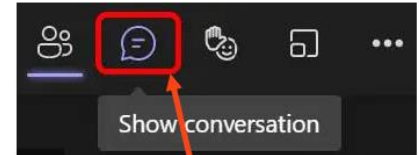
We'll be getting started shortly

How to participate

- Let us know you're here. **Please enter your first name, last name, and organization in the chat.**
- Video and microphone have been turned off to save bandwidth and eliminate background noise
- The chat function is available for questions and comments
- A copy of this presentation will be made available following this session

Technical issues?

- Send an email to bchydroregulatoryfeedback@bchydro.com



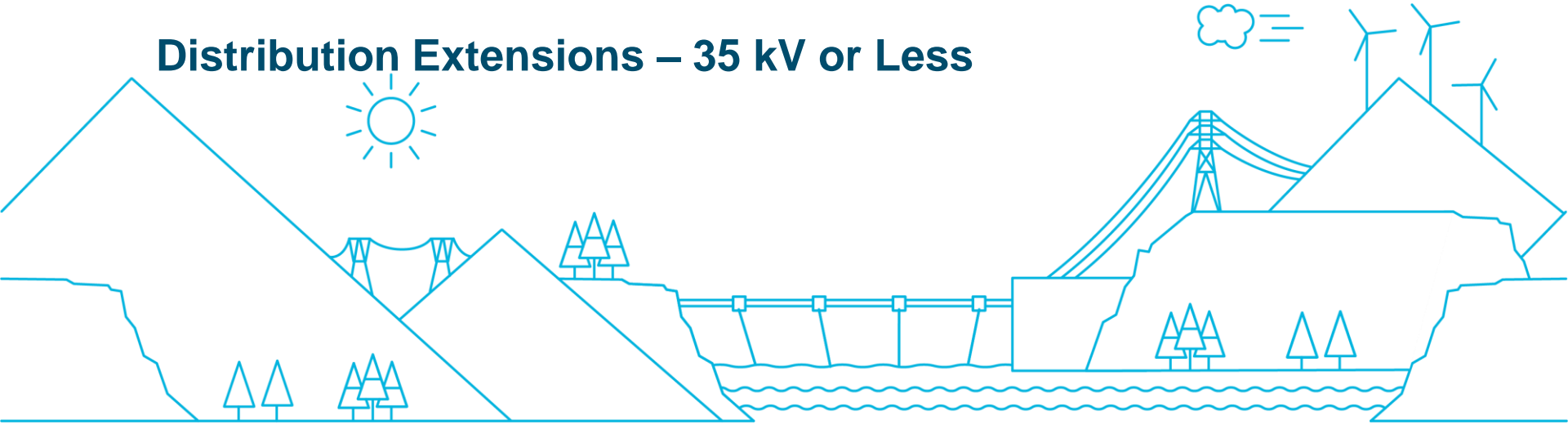
Click on this icon
to access the chat

BC Hydro 2024

Rate Design Applications

Workshop 1 – Session 4

Distribution Extensions – 35 kV or Less

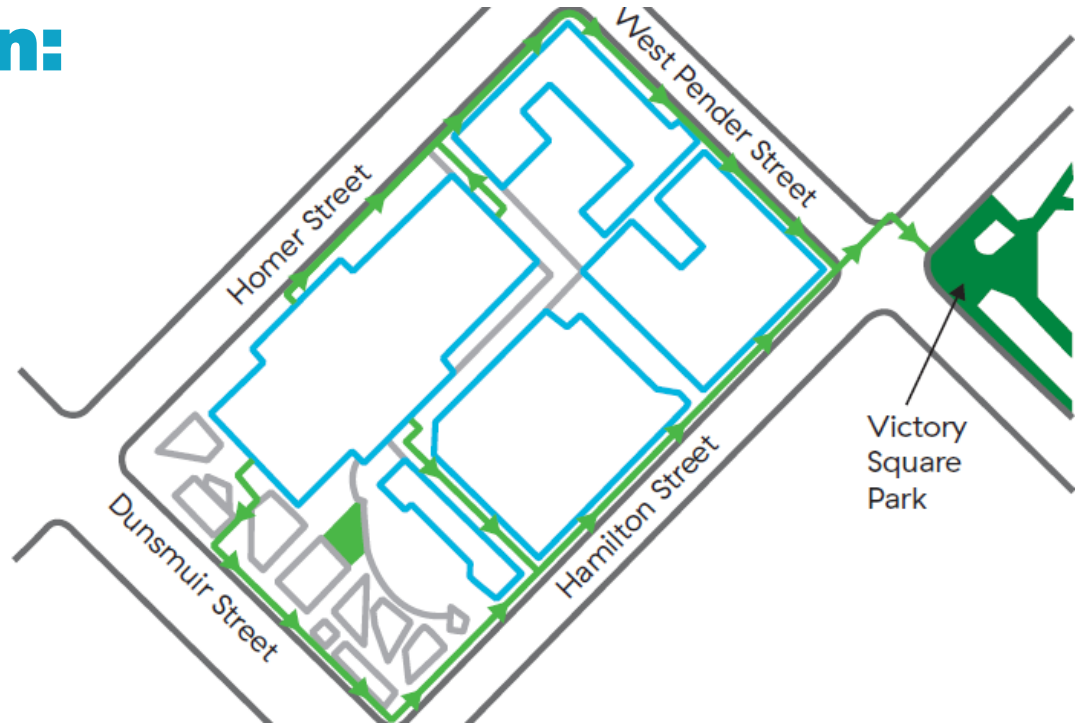


November 27th and 29th, 2023

Safety –

Muster Location:

Victory Square



Agenda

Time	Agenda Item	Presenter
10:30 – 10:40	Background and Context	Chris Sandve, Chief Regulatory Officer
10:40 – 11:00	Distribution Extension Overview & Engagement Summary	Rob Chin, Distribution Policy Manager Kevin Lim-Kong, Distribution Policy Specialist
11:00 – 11:45	Distribution Extension Policy Updates	Rob Chin, Distribution Policy Manager Kevin Lim-Kong, Distribution Policy Specialist Rob Zeni, Sr. Key Account Manager
11:45 – 12:00	Wrap-up & Next Steps	Chris Sandve, Chief Regulatory Officer

Background and Context

Chris Sandve

Chief Regulatory Officer

Ongoing Rate Design Proceedings

	Transmission Service Rate	Optional Residential TOU Rate	Public Electric Vehicle Charging Rates
Status	<p>Update the current two-step default Transmission rate to a flat rate.</p> <p>Awaiting BCUC Decision</p>	<p>Offer Residential customers bill savings opportunities by shifting their consumption.</p> <p>Awaiting BCUC Decision</p>	<p>Update our public electric vehicle charging rates to recover our costs.</p> <p>Streamlined Review Process in December</p>
Target Launch	April 1, 2024	June 1, 2024	Early 2024

Upcoming – 2024 Applications

Residential Rates

- Update RIB Rate
- Introduce 1-2 more optional rates
- Other updates

Net Metering Rate

- Update Net Metering rate
- Optional Net Metering TOU Rate
- Other updates

Non-Integrated Area Rates

- Residential rates
- Commercial rates
- Distribution extension charges

Tariffs Terms & Conditions

- Tariffs terms and conditions
- Standard charges
- Meter Choices Program charges

Distribution Extension Policy

- Update distribution extension charges
- Standard connection charges

Target Filing Date: June 28, 2024

Stakeholder Workshop 1 – Session 1

	Day 1 November 27	Day 2 November 29
AM	Residential Service Rates Non-Integrated Areas Rates	Electric Tariff Terms & Conditions Distribution Extension Policy
PM	Net Metering Service Rate	

Objectives for this Morning's Session

- Provide context for our upcoming rate design activities
- Provide a summary of engagement activities to date
- Review distribution extension cost elements and considerations
- Review next steps

Distribution Extension Overview & Engagement Summary

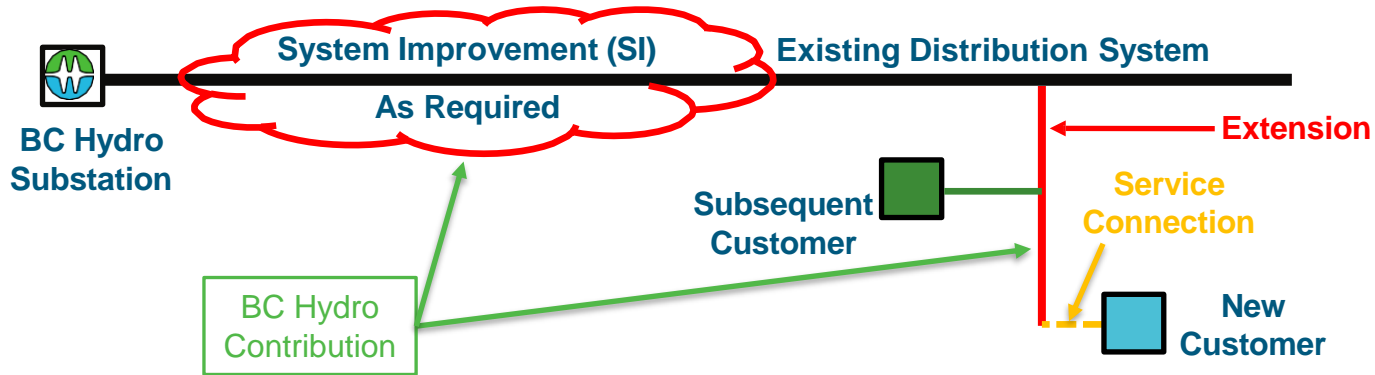
Rob Chin

Distribution Policy Manager

Kevin Lim-Kong

Distribution Policy Specialist

Distribution Extensions - Refresher



- Electric Tariff Terms and Conditions – Section 8
- New customer pays BC Hydro to construct the **Extension** and **Service Connection**
- New customer pays applicable **System Improvement (SI) Costs** if load > 500kVA
- BC Hydro provides a **Contribution** (allowance) that offsets Extension and SI Costs
- New customer can apply for excess Contribution (if any) from subsequent customer connection

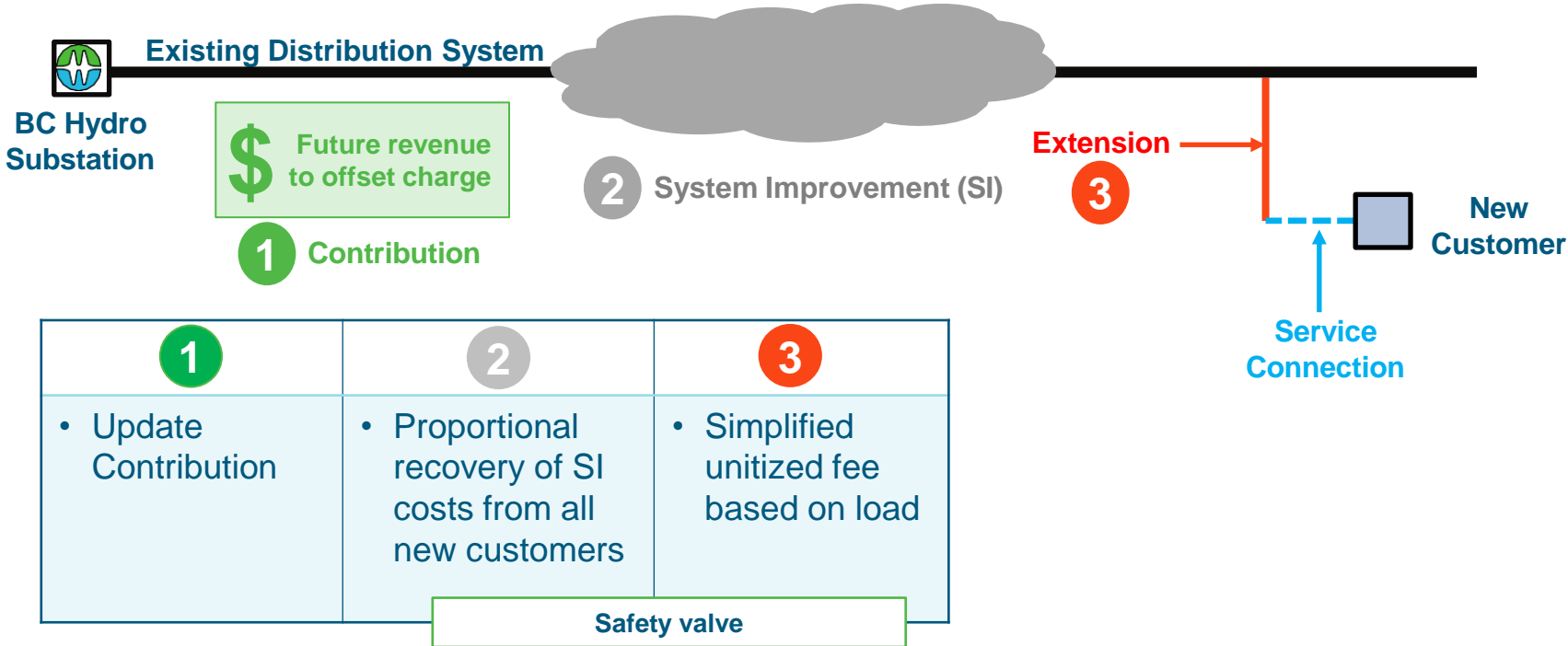
Why we are revising it

Support customer needs and improve allocation of costs

Key considerations:

- Customer concerns –
 - Improve cost predictability for new customers
 - Fairness in cost allocation between new and subsequent customers
 - Ensure impacts to existing customers are mitigated
 - Improve customer connection timelines
 - Support customer investment decisions
- The BCUC Set Guidelines
- BC Hydro business and rate design objectives.

In May... concepts introduced



Engagement Activities & Feedback

April 2023

Customer Workshops

Feedback

Support predictability of costs. Allocation of SI costs across all new customer connections. Longer extension fee refund period. **Concerns** extension fee safety valve negates cost predictability.

May 2023

Stakeholder Workshop

Feedback

Support allocation of SI costs across all new customer by aggregating and averaging costs. Predictability of SI costs. Concept of safety valve. **Concerns** that high density loads bear disproportionate costs with load based simplified fee.

Sept 2023 – March 2024

Industry Working Group

We heard the feedback

- We are considering forward looking cost and revenue forecasts.
- We have developed an Extension Fee based on cost of connection less revenue offset (cost causation).
- We incorporated unitization to estimate extension.

Distribution Extension Policy Updates

Kevin Lim-Kong

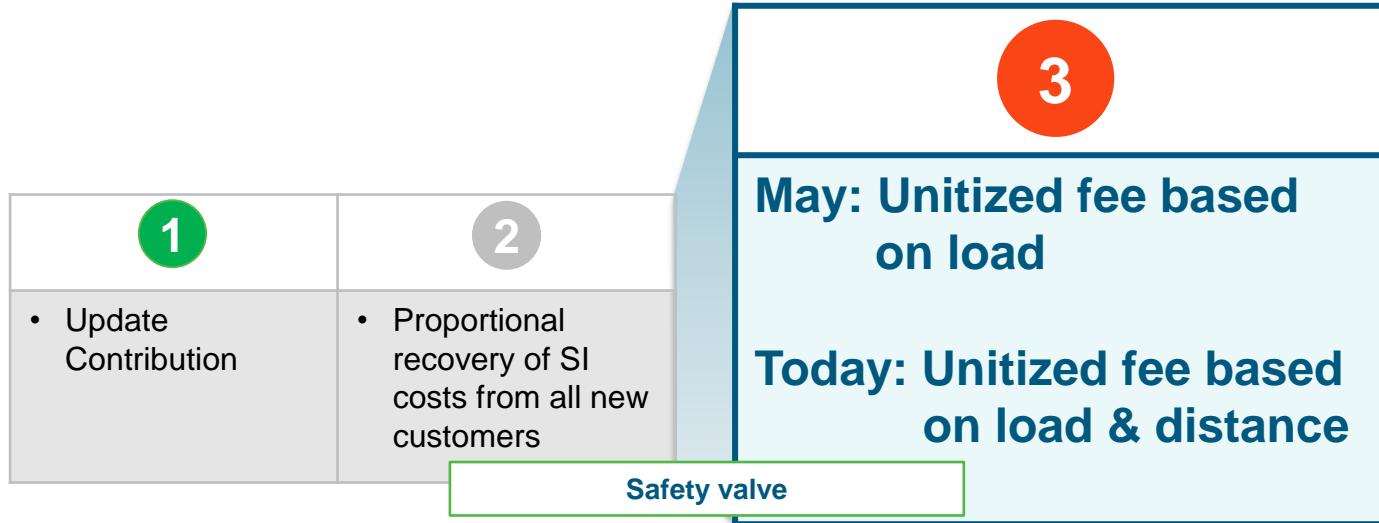
Distribution Policy Special

Rob Zeni

Sr. Key Account Manager

Today

Main focus: Extension portion of the total distribution extension cost



Unitized extension fees

Incorporate unitization while maintaining cost causation

Simplify extension cost estimates by using a two-part unitized fee.

1. On-Site Fee

Recovers cost of transformation and service connection based on customer's service requirements.

2. Off-Site Fee

Recovers the cost of extending the distribution system to the customer's site based on the load size, construction method (overhead or underground) and distance from the customer site to BC Hydro's distribution system.

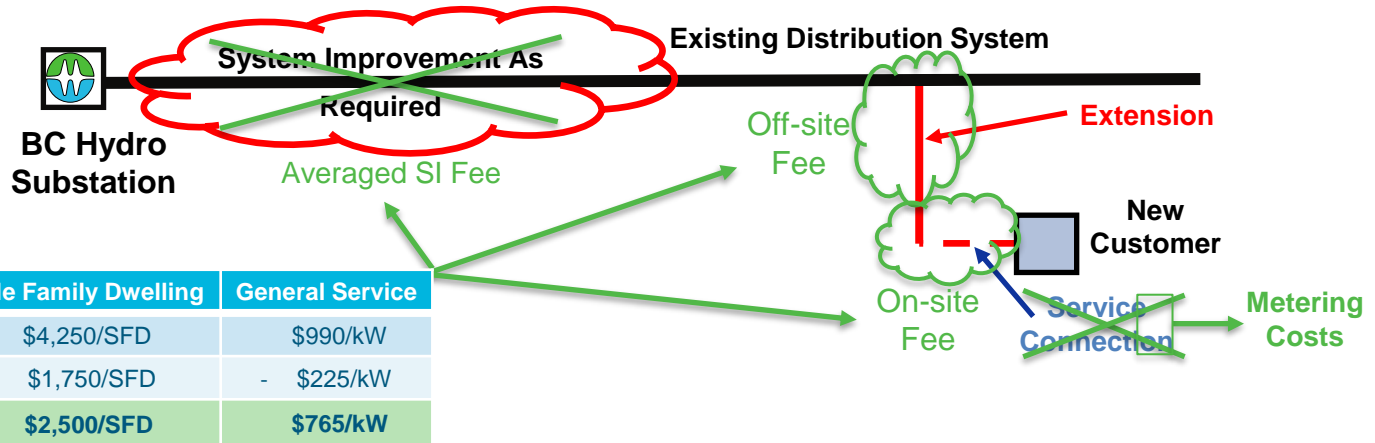
On-Site Fee (illustrative)

Residential (Single Socket)		400A 1-Phase		800A 3-Phase		2500kVA Primary
Overhead	Underground	Overhead	Underground	Overhead	Underground	Underground
\$2,500	\$4,500	\$7,000	\$10,000	\$35,000	\$60,500	\$66,500

Off-Site Fee (illustrative)

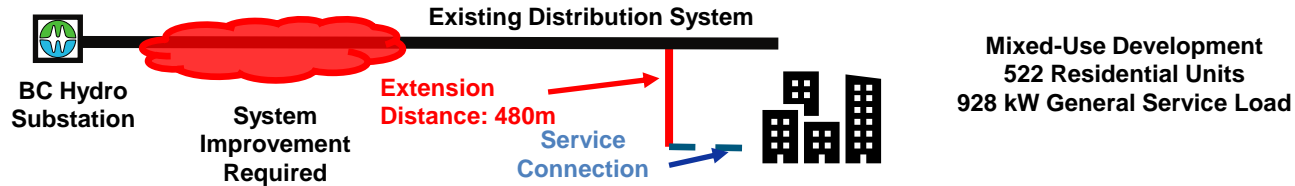
Overhead (\$/m)		Underground Electrical (\$/m)			Underground Civil (\$/m)		
1 Phase	3 Phase	1 Phase	3 Phase	Feeder	1 Phase	3 Phase	Feeder
\$100	\$175	\$175	\$350	\$800	\$775	\$1075	\$1925

Unitized Extension Fee Illustration



- In most cases, if system improvement is triggered, direct costs are not allocated to the customer.
- Charge two-part on-site/off-site extension fee based on distance and load.
- BC Hydro contribution offsets the system improvement fees and off-site/on-site extension fees.
 - Excess contribution eligible to be refunded to initial customer
- Customer responsible for revenue meter installation and any non-connection costs (E.g., undergrounding)

Example: Mixed-Use (SI)

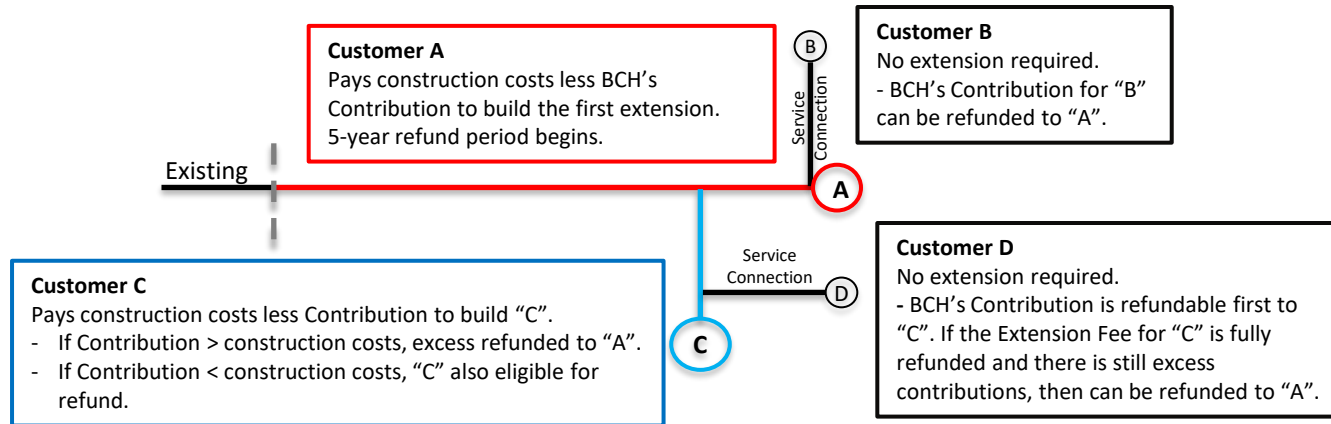


Illustrative figures:

	Existing	Option 1 Update Contribution	Option 2 Unitized SI Fee	Option 3 Load Based Unitized Extension Fee	Option 4 Load & Distanced Based Unitized Extension Fee
Extension Cost	\$841,981	\$841,981	\$841,981	\$530,700 (\$750 x 522 units) (\$150/kW x 928kW)	\$1,440,500
SI Fee	\$3,022,790	\$3,022,790	\$1,122,300		\$1,122,300
Contribution Credit	(\$955,550)	(\$2,001,870)	(\$3,137,220)		(\$3,137,220)
Safety Valve	-	-	-	\$490,500 (180m)	-
Metering & Service Connection	\$188,153	\$188,153	\$188,153	\$188,153	\$25,000
Connection Cost	\$3,097,374	\$2,051,054	\$188,153	\$1,209,353	\$25,000

Extension Fee Refunds - Current

Current process for Extension Fee > \$5,000. Refund upon application.



Extension Fee Refund – Feedback

Customer feedback

- Want 5 year refund window extended
(municipal latecomer agreements have been extended to 15 years)
- Want reviews automatically processed rather than by application
- Want more proportional recovery from subsequent customers (address free rider)

Refund program challenges

- Refund reviews are manual, and in urban underground areas, complicated.
- Current volume of applications: 20-50 per year
- Many eligible applicants (~7000) but few that satisfy refund conditions (estimated < 50)

Extension Fee Refund Improvements

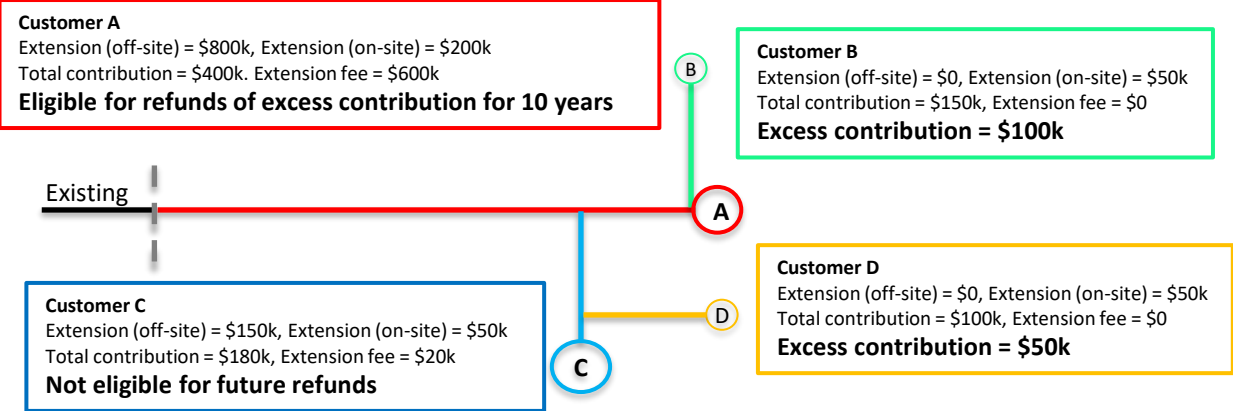
Potential Program Changes:

- A. Increase refund window to 10 years for Extension Fees > \$500k
 - Better addresses large multi-phased developments that have high upfront connection costs
- B. Automatically process refund review at the end of 5 (or 10) years.
 - No need to track old completed projects, BC Hydro automatically reviews
- C. Set eligibility threshold when extension fees > \$50k
 - Extension fees less than the threshold would not be eligible for refunds

Ext Fee: \$1 – \$25k			\$25k – \$50k			\$50k – \$75k		
Projects Reviewed	# of Refunds	Total Refund	Projects Reviewed	# of Refunds	Total Refund	Projects Reviewed	# of Refunds	Total Refund
102	0	\$0	243	5	\$69k	99	2	\$53k

Data set: FY2018 Extensions

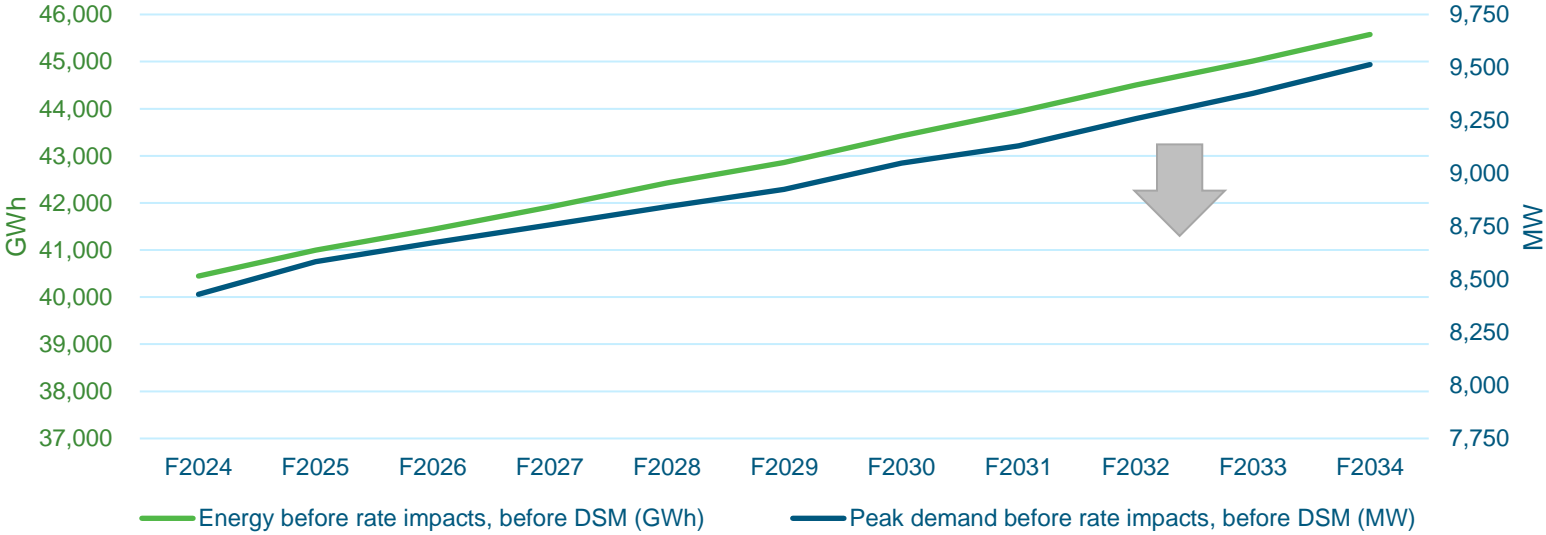
Extension Fee Refund Improvements



Refund Review
10 years after Customer A's extension is energized, BC Hydro will automatically review the subsequent customers and refund to Customer A, the excess contribution from extensions B & D (\$100k + \$50k)

Distribution Load Growth

10-year Load Forecast expects future distribution customer load growth



System Improvement - Capacity Context

Capacity is the maximum power we can deliver at one time

Underground Infrastructure



Capacity Required for Typical Loads



House: 3 kW to 5 kW
Home EV Charger: 7 kW



Office Tower:
200 kW to 2,000 kW+



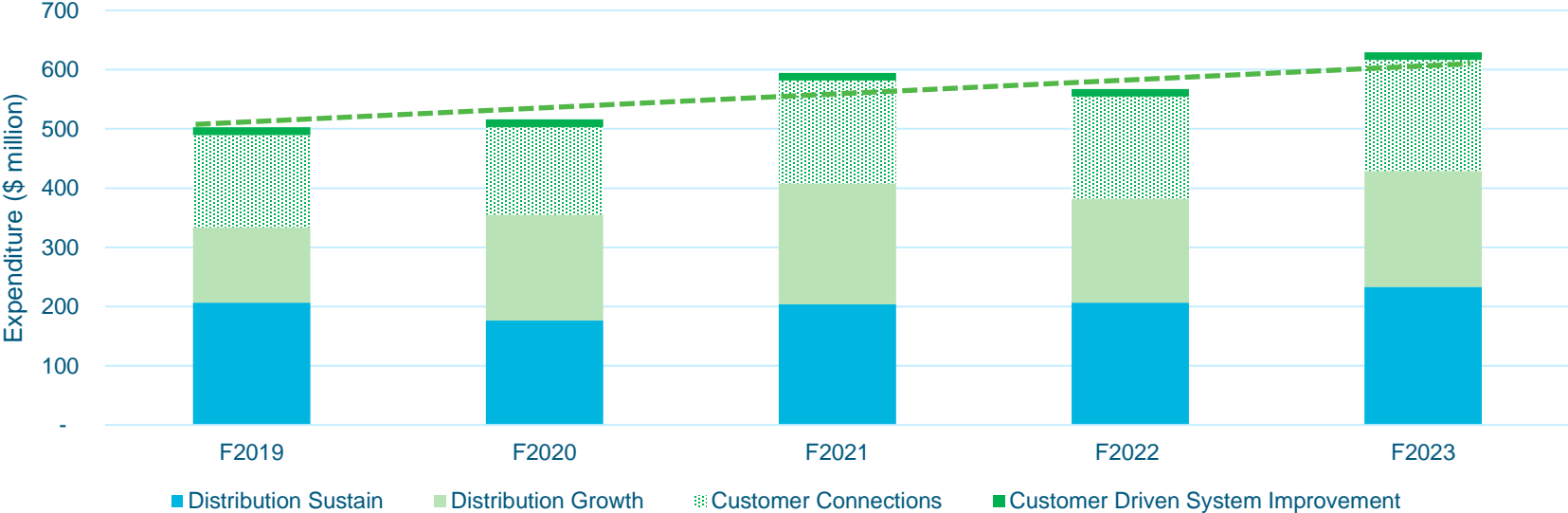
EV Charging Site:
Light: 1,000 to 2,500 kW+
Heavy (Truck) : 5,000 kW



District Heating:
100 kW to 10,000 kW++

Distribution Capital Expenditure

Approximately 30% is recovered from new customer connections



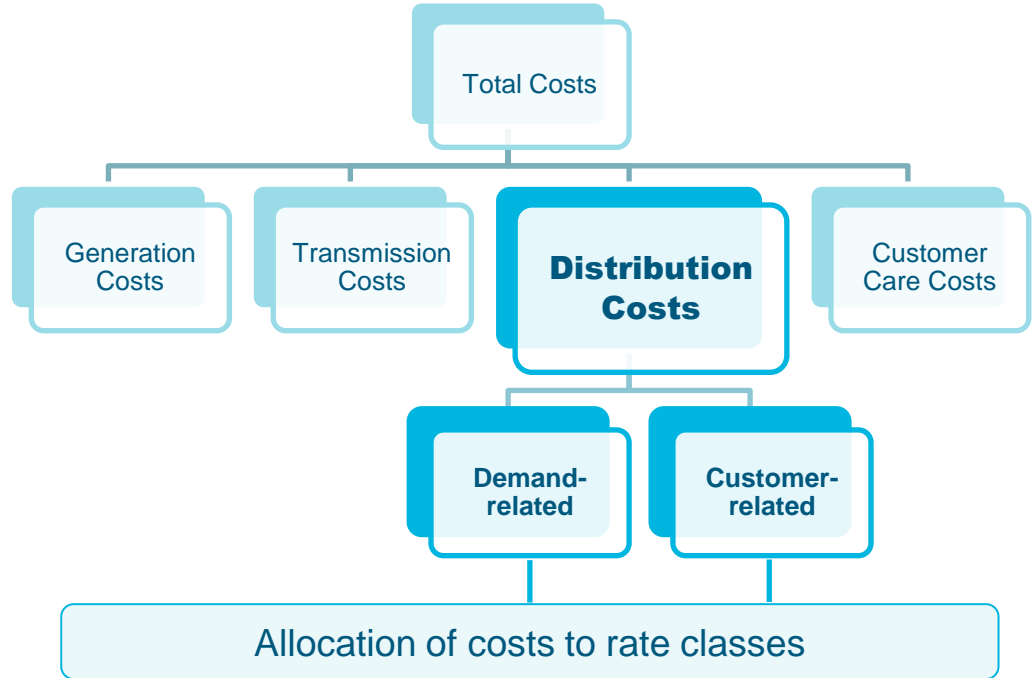
BC Hydro Contribution - Context

The functionalized costs of service are allocated to each rate class

Functionalization:

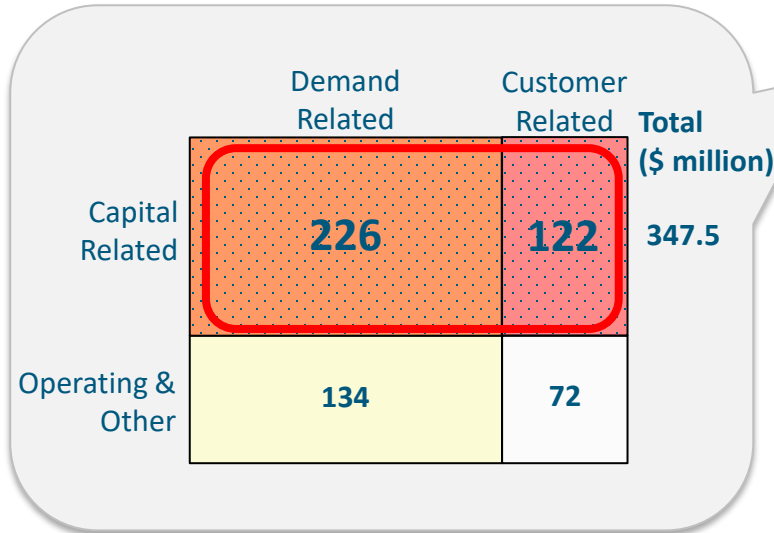
Classification:

Allocation:



BC Hydro Contribution

The 2007 methodology considered a discounted cash flow model to estimate future revenues



Key Inputs:	2007 RDA	Today
Distribution Costs Capital related	\$347.5M	\$520M*
Discount Rate WACC	8%	6%
Discount Period Average 40 years asset life	20 years	20 years
Residential dwelling	\$1,475/unit	\$1,850/unit
General Service	\$200/kW	\$450/kW

* F22 FACOS

Wrap and Next Steps

Chris Sandve

Chief Regulatory Officer

Wrap up & Next steps





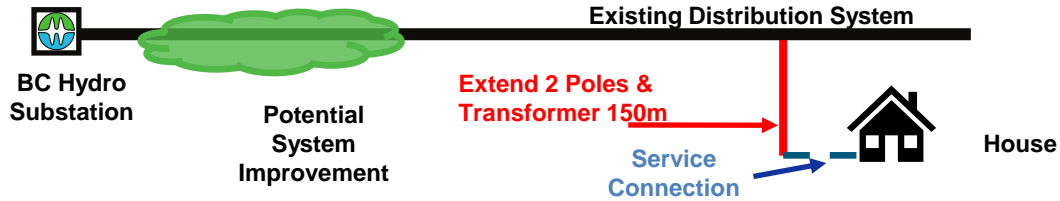


BC Hydro

Power smart

Appendix - Examples

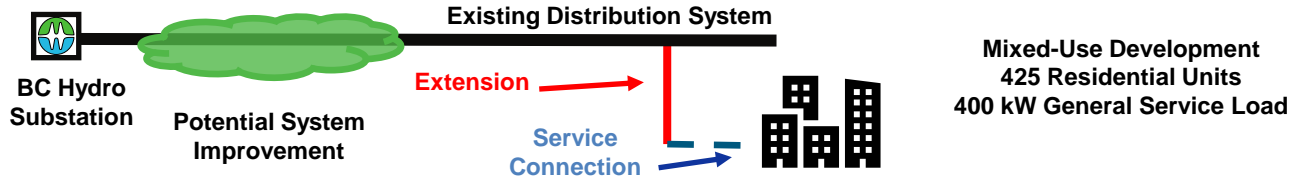
Example: House



Illustrative figures:

	Existing	Option 1 Update Contribution	Option 2 Unitized SI Fee	Option 3 Load Based Unitized Extension Fee	Option 4 Load & Distanced Based Unitized Extension Fee
Extension Cost	\$25,891	\$25,891	\$25,891	\$1,150	\$17,500
SI Fee	None	None	\$1,750		\$1,750
Contribution Credit	(\$1,475)	(\$2,700)	(\$4,250)		(\$4,250)
Safety Valve	-	-	-	\$0	-
Service Connection	\$838	\$838	\$838	\$838	\$181
Connection Cost	\$25,254	\$24,029	\$24,229	\$1,988	\$15,181

Distribution Extension – Mixed Use



Illustrative figures:

	Existing	Option 1 Update Contribution	Option 2 Unitized SI Fee	Option 3 Load Based Unitized Extension Fee	Option 4 Load & Distanced Based Unitized Extension Fee
Extension Cost	\$1,158,983	\$1,158,983	\$1,158,983	\$378,750 (\$750 x 425 units) (\$150/kW x 400kW)	\$598,250
SI Fee	None	None	\$833,750		\$833,750
Contribution Credit	(\$706,875)	(\$1,405,875)	(\$2,202,250)		(\$2,202,250)
Safety Valve	-	-	-	\$0	-
Service Connection	\$32,994	\$32,994	\$32,994	\$32,994	\$20,000
Connection Cost	\$485,102	\$32,994	\$32,994	\$411,494	\$20,000

Distribution Extension - Subdivision



Illustrative figures:

	Existing	Option 1 Update Contribution	Option 2 Unitized SI Fee	Option 3 Load Based Unitized Extension Fee	Option 4 Load & Distanced Based Unitized Extension Fee
Extension Cost	\$409,874	\$409,874	\$409,874	\$56,530 (\$1,150 x 49 Lots)	\$676,500
SI Fee	None	None	\$85,750		\$85,750
Contribution Credit	(\$72,275)	(\$132,300)	(\$208,250)		(\$208,250)
Safety Valve	-	-	-	\$190,000 (200m)	-
Service Connection	\$62,230	\$62,230	\$62,230	\$62,230	\$8,869
Connection Cost	\$399,829	\$339,804	\$349,604	\$308,580	\$562,869