

Line Extension Policy Development

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Line Extension Analysis

- Identify the contribution margins for fixed cost recovery from new customers
- Identify the impacts on the transmission and substations of CWL
- Develop a policy to help ensure growth is good for all rate payers and fair to new customers

Contribution Margin

- Contribution margin to recover distribution costs from a new customer
 - Revenues less variable costs (power supply) is contribution toward fixed cost recovery
- Net Present Value of fixed cost recovery over time considering the risks of providing service to customer
- Desired outcome – Growth will be good for everyone and fair to new customer

Fixed Cost Contribution

Customer Class	COS Revenue Requirement	Variable Costs	Fixed Cost Contribution from Class
Residential Service	\$ 31,868,269	\$ 27,064,530	\$ 4,803,739
Residential Service Space Heating	\$ 13,552,142	\$ 11,056,758	\$ 2,495,384
Residential Heat Pump	\$ 3,617,721	\$ 2,960,427	\$ 657,294
Small General Service	\$ 12,408,028	\$ 10,337,201	\$ 2,070,826
Demand Metered Combined	\$ 32,258,887	\$ 25,518,627	\$ 6,740,259

Determination of Maximum Investment

Customer Class	COS Revenue Requirement	Fixed Costs Contribution	Average Contribution per Customer	Recovery Period (Years)	Utility Investment	
Residential Service	\$ 31,868,269	\$ 4,803,739	\$ 171	7	\$0.0927	per kWh
Residential Service Space Heating	13,552,142	2,495,384	266	7	\$0.1111	per kWh
Residential Heat Pump	3,617,721	657,294	352	7	\$0.1053	per kWh
Small General	\$ 12,408,028	\$ 2,070,826	\$ 400	5	\$0.0800	per kWh
Demand Metered Combined	32,629,642	6,740,259	6,482	3	\$ 12.21	per kW
Developer Contribution					\$0.0673	per kWh

- Utility Investment = Contribution towards extension multiplied by customers annual usage. For example; Demand Metered customer with estimated annual demands of 10,000 KW multiplied by \$12.21 would make a maximum investment of \$122,100. Prior to impact assessment.

Determination of Contribution

Customer Class	Maximum Utility Investment per Customer	Average Annual kWh Usage
Residential Service	\$ 952	10,266
Residential Service Space Heating	1,485	13,359
Residential Heat Pump	1,967	18,684
Small General	\$ 0.0800	
Demand Metered Combined	\$ 12.21	
Developer Contribution	\$ 551	Extension to Customer \$400 Allowance

New Customers Impact on Transmission and Substations

	Residential	Small General Service	Large General Service
Gross Investment in Transmission Plant	\$ 31,426,954	\$ 31,426,954	\$ 31,426,954
Peak NCP Demand of System from COS	338,125	338,125	338,125
Cost per kW of Demand	\$ 92.94	\$ 92.94	\$ 92.94
Revenue from Rates	38.43	30.48	18.29
Impact Charge per kW	\$ 54.51	\$ 62.46	\$ 74.66
Average Residential kW NCP from COS	3.33		
Average Commerical KWH per KW of NCP		2,660	
Transmission and Transmission Substation Impact	\$ 181.54	0.0235	\$ 6.22

- New customer use additional capacity on the backbone infrastructure. A portion of this backbone is recovered in rates charged to all customers.

Net Maximum Investment

Customer Class	Allowable Limits	Less Impact	Net Maximum Contribution
Residential & Apt. Service	\$ 952	181	\$ 771
Residential & Apt. Service Space Heating	\$ 1,485	181	\$ 1,304
Residential & Apt Heat Pump	\$ 1,967	181	\$ 1,786
Residential Combined	\$ 1,127	181	\$ 946
Small General Service	0.0800	0.02348	0.05650
Demand Metered Combined	\$ 12.21	\$ 6.22	\$ 5.99
Developer Contribution	\$ 551	181	\$ 370

How Policy Works - Developers

	Per Lot	Subdivision
		No. of Lots
Contribution per Lot	551	100
Maximum Investment		\$ 55,066
Less:		
Substation Charge per Lot	182	
Total Adjustment	\$ 182	18,154
Maximum Contribution		\$ 36,912
Determination of Contribution in Aid of Construction		
Total Estimated Project Cost		\$ 100,000
Developer Charge		\$ 63,088

How Policy Works – Large General Service

	Demand Monthly	Contribution
Customers Average Monthly Demand - KW	7,000	
Contribution per KW	12.21	
Maximum Investment		\$ 1,025,347
Less:		
Transmission and Substation Impact	\$ 6.22	
Total Adjustment		522,589
Maximum Contribution		\$ 502,758
Determination of Contribution in Aid of Construction		
Total Estimated Project Cost		\$ 1,000,000
Customers Contribution		\$ 497,242

How Policy Works – Small General Service

	Demand Monthly	Contribution
Customers Average KWH	2,436	
Contribution per KWH	0.080	
Maximum Investment		\$ 2,338
Less:		
Transmission and Substation Impact	\$ 0.0235	
Total Adjustment		686
Maximum Contribution		\$ 1,652
Determination of Contribution in Aid of Construction		
Total Estimated Project Cost		\$ 10,000
Customer's Contribution		\$ 8,348

Policy Applies to Existing Customer Requesting an Upgrade of Service

Customers with an existing service who are requesting an upgrade of the facilities to serve additional load, the Columbia Water and Light will contribute the following amounts based on the additional (new) load. (Amount times the estimated annual usage of new load)

- Residential & Apt Services \$0.0751 per annual kWh's of estimated sales
- Residential and Apt Service Space Heating \$.0934 per annual kWh's of estimated sales
- Residential and Apt Heat Pump \$.0876 per annual kWh's of estimated sales
- Small General Service \$.056 per annual kWh's of estimated sales
- Demand Metered \$5.99 per annual kW of estimated sales