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February 27, 2018

British Columbia Utilities Commission
Suite 410, 900 Howe Street
Vancouver, B.C.
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Attention: Mr. Patrick Wruck, Commission Secretary and Manager, Regulatory Support

Dear Mr. Wruck:

Re: FortisBC Inc. (FBC)

Project No. 1598945

Application for Amendment to Electric Tariff Rate Schedule 50 Lighting – All Areas (the Application)

Response to the British Columbia Utilities Commission (BCUC or the Commission) Information Request (IR) No. 1

On November 20, 2017, FBC filed the Application referenced above. In accordance with Commission Order G-37-18 setting out the Amended Regulatory Timetable for the review of the Application, FBC respectfully submits the attached response to BCUC IR No. 1.

If further information is required, please contact Corey Sinclair at (250) 469-8038.

Sincerely,

FORTISBC INC.

Original signed:

Diane Roy

Attachments

cc (email only): Registered Parties



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1 **A. RATE CALCULATIONS**

2 **1.0 Reference: INTRODUCTION**

3 **Exhibit B-1, Section 1.2, p. 2**

4 **Approvals sought**

5 On page 2 of FBC’s Application for Amendment to Electric Tariff Rate Schedule 50
6 Lighting – All Areas (Application) to the British Columbia Utilities Commission
7 (Commission), FBC states that the Type I and II Application, filed on September 25,
8 2015, “requested a LED street light constant of 19.36 cents per kWh effective January 1,
9 2016, which was approved by the Commission pursuant to order G-179-15.” Staff note
10 that the LED street light constant of 19.36 cents per kWh was approved by Order G-202-
11 15.

12 1.1 Please confirm that FBC applied the LED street light constant of 19.36 cents per
13 kWh, pursuant to order G-202-15. If not confirmed, please explain.

14
15 **Response:**

16 Confirmed. However, the referenced sentence should read that FBC requested an LED street
17 light constant of 18.80 cents per kWh in its Type I and II Application which was approved
18 pursuant to Order G-179-15, effective November 19, 2015. Order G-202-15 was issued
19 pursuant to FBC’s Application for Approval of 2016 Rates and approved a permanent rate
20 increase of 2.96 percent for all customers effective January 1, 2016, resulting in an LED street
21 light constant rate of 19.36 cents per kWh.

22

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1 **2.0 Reference: RS 50 TYPE III LED RATE**
2 **Exhibit B-1, Section 2.1, p 3; Section 2.2, pp. 3–4**
3 **Maintenance charge**

4 On page 3 of the Application, FBC states that:

5 FBC is proposing to bill Type III (Company-owned and Company-
6 maintained) lighting service compatible with LED lamps on a cost per
7 kWh basis...plus a basic monthly fixed maintenance charge per
8 fixture...The additional charge for existing Type III rates is approximately
9 \$13.40 per light per month based on RS 50 rates effective January 1,
10 2017.

11 FBC subsequently states on page 4, that “To reflect FBC’s forecast of reduced O&M site
12 visit costs by 60 percent...the new maintenance charge for LED lights would be \$5.36
13 per light per month.”

14 2.1 Please explain how the basic monthly fixed maintenance charge per fixture is
15 calculated.

16
17 **Response:**

18 As stated in the Application, the basic monthly fixed maintenance charge per fixture of \$5.36 per
19 light per month is calculated as 40 percent of the current \$13.40 per light per month
20 maintenance charge for Type III lights (a 60 percent reduction to the current maintenance
21 charge per fixture).

22 The derivation of the average current Type III maintenance charge of \$13.40 is contained in
23 Appendix D to the Application.

24 The \$13.40 that represents the maintenance component in the current rates is the result of the
25 value first introduced and calculated as part of the Street Lighting Restructuring Application filed
26 in 1998, and escalated by any general rate increase that has occurred since that time.

27 The \$13.40 is not therefore directly calculable from any current costs.

28
29

30
31 2.1.1 Please provide a detailed breakdown of associated costs included in
32 the basic monthly fixed maintenance charge for LED lighting.
33



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1 **Response:**

2 Please refer to the response to BCUC IR 1.2.1.

3
4

5

6 2.2 Please provide analysis on FBC's forecast of a 60 percent reduction in Operating
7 and Maintenance (O&M) costs for LED lights.

8

9 **Response:**

10 The forecast reduction of 60 percent is based strictly on maintenance savings related to site
11 visits. Table 1 below shows 2016 actual maintenance costs of approximately \$57 thousand.
12 FBC notes however that due to the recordkeeping of site visits for replacing existing street lights
13 it is difficult to assess the accuracy of the 2016 actual maintenance costs and expects that the
14 actual maintenance costs are slightly higher.

15 **Table 1: 2016 Maintenance and Material Costs for Type III Street Lights**

Operating Streetlight Repairs	Capital Replacements Units	Capital Replacement Material Cost	Est. Labor	Total
\$19,564	48	\$14,160	\$23,335	\$57,059

16

17 Table 2 below shows the forecast post-LED Retrofit maintenance costs for FBC's Type III Lights
18 of approximately \$20 thousand. The forecast annual maintenance costs shown in Table 2 are
19 based on the following assumptions: cost of the LED bulb, and a 60 percent reduction in site
20 visit costs related to street light replacements and repairs. The estimated 60 percent reduction
21 in the site visit costs was determined based on the lifespan of LED bulbs versus the existing
22 legacy lights. The manufacturers expected lifespan for LED bulbs is 15 years and the existing
23 high pressure sodium (HPS) lifespan is 5 years. LED bulbs last 3 to 4 times longer than existing
24 HPS bulbs. FBC currently conducts approximately three site visits with existing HPS lights and
25 based on the lifespan of LED bulbs FBC expects to eliminate two site visits, an approximate 60
26 percent reduction in maintenance costs related to site visits.

27 **Table 2: Forecast Maintenance Costs for Post-LED Retrofit Program (including non-program**
28 **fixtures)**

Operating Streetlight Repairs	Capital Replacements Units	Capital Replacement Material Cost	Est. Labor	Total
\$7,826	19	\$3,368	\$9,334	\$20,528



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1
2 The analysis presented in Tables 1 and 2 show estimated annual savings of approximate \$37
3 thousand, or 64 percent. As previously noted, due to current street light recordkeeping, FBC has
4 chosen to use a slightly more conservative estimate of a 60 percent reduction in maintenance
5 savings. The LED Retrofit Program will serve as an audit of and update to FBC’s database of
6 lighting assets. Once the LED Retrofit Program is complete, FBC will have more accurate
7 record keeping of its LED lighting assets and the associated O&M costs.

8
9

10
11 2.3 Has FBC identified any additional O&M costs that are specific to LED lighting?

12
13 **Response:**

14 FBC has not identified any additional O&M costs specific to LED lighting.

15
16

17
18 2.3.1 If yes, please provide details of these specific costs.

19
20 **Response:**

21 Please refer to the response to BCUC IR 1.2.3.

22

1 **3.0 Reference: APPENDIX D - TYPE III LIGHTING COST PER KWH DERIVATION**

2 **Exhibit B-1, Appendix D, p. 1; Appendix B, Sheet 21**

3 In Appendix D of the Application, FBC provides the following table illustrating the Types I
4 & II and Type III lighting cost per kWh, for Mercury and Sodium Vapour lights (Legacy
5 Lights).

			Rate for Customer- owned	Rate for Customer- owned	Maintenance Charge
		Monthly Use	Types I and II	Type III	Type III
Type of Light	Watts	(kW.h)	(\$ per Month)	(\$ per Month)	(\$ per Month/Fixture)
Mercury Vapour	125	55	11.00	24.30	13.30
	175	78	15.52	28.91	13.39
	250	107	21.31	34.69	13.38
	400	166	33.05	46.43	13.38
Sodium Vapour	70	33	6.67	19.96	13.29
	100	47	9.35	22.72	13.37
	150	70	13.90	27.3	13.40
	200	91	18.13	31.5	13.37
	250	111	22.14	35.45	13.31
	400	173	34.46	47.86	13.40
Average					13.40

6

7 3.1 Staff has calculated the Maintenance Charge Type III (\$ per Month/Fixture)
8 average at \$13.36. Please explain how FBC has calculated \$13.40.

9

10 **Response:**

11 The difference is due to rounding. FBC's calculation spreadsheet for the maintenance charge
12 derivation was rounded to the nearest tenth decimal place.

13

14

15

16 3.2 Please confirm that an update in calculating the average Maintenance Charge
17 Type III (\$ per Month/Fixture) will result in an update in the monthly maintenance
18 charge for LED lights. If not confirmed, please explain.



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Response:

FBC confirms that if the average Type III Maintenance Charge used to determine the monthly maintenance charge for LED lights is based on the unrounded number rather than the rounded number, the monthly maintenance charge for LED lights will change from \$5.36 per Month/Fixture to \$5.34 per Month/Fixture.

In Appendix B, FBC further states that Legacy Lights, with the exception of Sodium Vapour 70,200 and 250 watt fixtures are “No longer available at new locations or as replacement fixtures where existing fixtures are being replaced.”

3.3 Please confirm, or explain otherwise, that the average monthly maintenance charge will be calculated using only Sodium Vapour 70,200 and 250 watt fixtures, once remaining Legacy Lights are replaced with Sodium Vapour 70,200 and 250 watt fixtures.

Response:

Once the LED Retrofit Program is complete and when FBC has some experience with maintaining the LED lights, FBC will update the LED maintenance charge based on its actual experience.

FBC will also update the non-LED maintenance charges in RS 50 to exclude SV 70, 200 and 250 watt fixtures as new or replacement fixtures for Type III lights.

Both of these updates will require that FBC first gain enough experience with the installed fixtures to accurately determine the maintenance charges and the Company expects to file an update to the RS 50 tariff when that experience has been attained.

3.3.1 Please explain the effect this will have on the average maintenance charge per month.



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1 **Response:**

2 Please refer to the response to BCUC IR 1.3.3. FBC believes that the average maintenance
3 charge will decrease but cannot specify the amount without adequate field experience.

4

5

6

7 3.4 Please explain how FBC will calculate the fixed maintenance charge for LED
8 Type III lighting, currently based on a 60 percent reduction to the average fixed
9 maintenance charge for Legacy Lights, should LED technology become fully
10 utilised by customers and Legacy lights cease to exist.

11

12 **Response:**

13 Please refer to the response to BCUC IR 1.3.3.

14



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1 **B. IMPLEMENTATION AND COSTS ASSOCIATED WITH LED TYPE III LIGHTS**

2 **4.0 Reference: INTRODUCTION**

3 **Exhibit B-1, Section 1.2, p. 2**

4 **Approvals sought**

5 On page 2 of the Application, FBC states “FBC will be replacing existing Type III
6 Company-owned lights with new LED lights.”

7 4.1 Please provide details on how FBC plans to replace existing Type III Company-
8 owned lights with LED lights.

9

10 **Response:**

11 The existing high pressure sodium and mercury vapour luminaires Type III, will be replaced with
12 LED luminaires. Details regarding project execution are to be determined, but replacements will
13 be completed on a region-by-region basis in consultation with each municipality to ensure
14 efficiency. FBC expects to begin replacements in 2018 and finish at the end of 2020.

15

16

17

18 4.1.1 Would a replacement plan be specific to each customer? Please
19 explain.

20

21 **Response:**

22 Please refer to the response to BCUC IR 1.4.1. While the majority of Type III customers are
23 municipalities that FBC has been in ongoing communication with, there are a few non-municipal
24 Type III customers that FBC will make best efforts to communicate with in advance of
25 replacement. Given the low impact of the LED Retrofit Program on FBC’s service to Type III
26 customers, the replacement plan will not be specific to each customer.

27

28

29

30 4.1.1.1 If yes, please also explain how FBC would consult with, and
31 agree upon a replacement plan with each customer.

32

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1 **Response:**

2 Please refer to the responses to BCUC IRs 1.4.1 and 1.4.1.1.

3
4

5
6 4.2 Please discuss any issues FBC has identified with respect to the replacement of
7 existing Type III Company-owned lights.

8
9 **Response:**

10 FBC has not identified any issues with respect to Type III Company-owned light replacements.

11
12

13
14 4.3 Did FBC consult with interested customers on how this replacement would be
15 carried out? Please explain.

16
17 **Response:**

18 FBC has had ongoing communication with municipalities with regard to upgrading street
19 lighting. A final replacement plan has not been decided upon. Please also refer to the responses
20 to BCUC IRs 1.4.1 and 1.4.1.1.

21
22

23
24 4.3.1 If yes, please also provide details of the issues raised and feedback
25 received as part of this consultation.

26
27 **Response:**

28 While FBC has not conducted formal consultation with its municipal customers, interested
29 municipalities have been requesting LED light replacements and have been very supportive of
30 FBC's application.

31 The only issue raised by municipalities in their discussions with FBC is that they have been
32 hoping for a quicker timeline.

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4.4 Please provide a breakdown and analysis of the costs, per light, associated with replacing existing Type III Company-owned lights with new LED ones.

Response:

The table below provides a breakdown of the estimated capital costs, per unit, for replacing each type of existing Type III Company-owned street lights with new LED lights.

LED Lumens	4000 Lumens	5000 Lumens	11,500 Lumens	13,000 Lumens
Estimated equivalent	HPS 70W	HPS 100W & MV 175W	HPS 150W, HPS 200W & MV 250W	HPS 250W & HPS 400W
Capital Cost Estimate (\$/Unit)				
Material	\$ 251	\$ 264	\$ 352	\$ 372
Labour	\$ 138	\$ 139	\$ 143	\$ 144
Total Material & Labour (\$/Unit)	\$ 389	\$ 403	\$ 496	\$ 516

4.4.1 Please explain how FBC will recover the costs associated with replacement.

Response:

The LED Retrofit Program is a three-year program. The costs will be included in FBC’s regular sustaining capital in each year of the program and will be subject to the approved regulatory recovery treatment for each year in which the costs are incurred. For 2018 and 2019, the approved regulatory recovery treatment is the capital spending formula under FBC’s current Performance Based Ratemaking (PBR) plan and therefore the costs will be recovered through rates from all general customers, including customers of Type III Company-owned street lights under RS 50. This is consistent with other sustaining capital programs, some of which only benefit a particular location or particular group of customers yet with cost recovery from all customers.



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1 4.4.2 Please provide a detailed preliminary cost assessment for each
2 customer that has requested Type III LED services.

3

4 **Response:**

5 FBC clarifies that there is no direct cost to customers that have requested Type III LED
6 services. As discussed in response to BCUC IR 1.4.4.1, the LED Retrofit Program is to be
7 funded under FBC’s regular sustaining capital in each year of the three-year program. The cost
8 will be recovered through rates from all general customers, including customers of Type III
9 Company-owned streetlights. In other words, the cost recovered from each customer that has
10 requested Type III LED services will be based on the rates under RS 50 as part of the approvals
11 sought in this Application and the electricity consumption of the LED streetlights.

12