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April 11, 2014

<u>Via Email</u> Original via Mail

B.C. Sustainable Energy Association c/o William J. Andrews, Barrister & Solicitor 1958 Parkside Lane North Vancouver, B.C. V7G 1X5

Attention: Mr. William J. Andrews

Dear Mr. Andrews:

Re: FortisBC Inc. (FBC)

Application for Approval of a Multi-Year Performance Based Ratemaking Plan for 2014 through 2018 (the Application)

Response to the B.C. Sustainable Energy Association and the Sierra Club British Columbia (BCSEA) Information Request (IR) No. 1 on FBC Rebuttal Evidence

On July 5, 2013, FBC filed the Application as referenced above. In accordance with Commission Order G-10-14 setting out the Amended Regulatory Timetable for the review of the Application, FBC respectfully submits the attached response to BCSEA IR No. 1 on FBC Rebuttal Evidence.

If further information is required, please contact the undersigned.

Sincerely,

FORTISBC INC.

Original signed:

Dennis Swanson

Attachments

cc: Commission Secretary Registered Parties (email only)



1	1.0	Topic	:	Qualifications
2 3		Refere	ence:	FBC Exhibit B-42, Rebuttal Evidence of FBC to Evidence of BCSEA- SCBC
4 5 6		1.1	Please rebutta	e identify the specific FBC employees and consultants who prepared this al evidence.
7	<u>Resp</u>	onse:		
8 9 10	FBC's who mana	s Rebutt have co gement,	al Evide onsidera energy	ence to the Evidence of BCSEA-SCBC was prepared by FortisBC staff, ble experience and technical expertise in the areas of demand side supply, and resource planning and development.
11 12				
13 14		1.2	Please	provide the qualification of each such author.
15	<u>Resp</u>	onse:		
16	Pleas	e refer to	o the re	sponse to BCSEA Rebuttal IR 1.1.1.
17 18				
19 20 21		1.3	Please rebutta	e explain the basis for their expertise in each of the issues raised in their al.
22	<u>Resp</u>	onse:		
23	Pleas	e refer to	o the re	sponse to FBC BCSEA Rebuttal IR 1.1.1.
24				



1	2.0	Topic	:	Avoided Costs
2		Refer	ence:	FBC Exhibit B-42, Rebuttal Evidence of FBC to Evidence of BCSEA-
3				SCBC, Answer 3, p. 2; FBC Exhibit C8-9, BCSEA-SCBC Evidence at
4				р.60; рр. 60–65
5		FBC r	refers to	FBC Exhibit C8-9, BCSEA-SCBC Evidence at p.60, line 12, which lists "1.
6		Failur	e to acc	ount for the exchange rate from US dollars to Canadian dollars" as one of
7		five "p	oroblem	s" [line 11] addressed concerning "FBC's Under-Estimation of Short-Term
8		Margi	nal Cost	t." [line 9]
9		FBC s	says "Th	is statement is incorrect and deliberately misleading."
10		2.1	Please	e provide the basis for the statement that Mr. Chernick's reference "to
11			FBC's	supposed 'Failure to account for the exchange rate from US dollars to
12			Canad	lian dollars'" was "deliberately misleading."
13				
14	Resp	onse:		

15 FBC's statement is to say that Mr. Chernick's disagreement with FBC's approach to the 16 exchange rate is not a "failure to account" for the exchange rate.

As described in its FBC's Rebuttal Evidence¹ and throughout FBC's responses to BCSEA IRs 17 on exchange rate, FBC did account for exchange rate in its analysis. The basis of the Mid-C 18 market prices analysis is GLJ's NYMEX natural gas commodity price forecast which is priced in 19 20 USD. In order to determine FBC's avoided cost in CAD, FBC had directed Midgard to use the 21 same GLJ's USD/CAD exchange projection that was based on the assessment of market and 22 price trends over the same period as the underlying GLJ NYMEX natural gas commodity price 23 forecast. FBC believes that the use of GLJ's exchange rate projection for this purpose is 24 appropriate.

25 26	
27 28	BCSEA-SCBC's evidence states on p.60, lines 20-23:
29 30	"Q: How does FBC convert the US dollars in which the Mid-Columbia prices are quoted to Canadian dollars?
31 32	A: <u>FortisBC assumes parity between US and Canadian dollars for 2014 to 2043</u> (Exhibit B-1-1, Appendix H, Attachment H4)." [underline added]

Exhibit B42, A3, page 2, lines 1-20.



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4

2.2 Does FBC dispute that "FortisBC assumes parity between US and Canadian dollars for 2014 to 2043"? If FBC believes that this statement is "deliberately misleading," please explain why.

5 **Response:**

No. FBC has not said that the entirety of BCSEA's evidence with regard to exchange rates was
deliberately misleading, only that characterizing FBC's exchange rate approach as a "failure to
account for the exchange rate" was misleading. Please refer to the response to FBC BCSEA
Rebuttal IR 1.2.1.

- 10
- 11

- 12 2.3 Please state whether the authors of the FBC Rebuttal were aware that Mr.
 13 Chernick evidence stated as follows on p.61, lines 9-12:
- "FortisBC ordered Midgard to discard Midgard's own forecast in favor of the parity
 projection. 'The GLJ January 1, 2013 forecast also included an exchange rate forecast
 which Midgard was directed to use because it was an independent publically available
 forecast.' (FBC Exhibit B-12 BCSEA 4.4)"
- 19
- 20 Response:
- 21 FBC is aware of statements made in Exhibit C8-9.
- 22
- 23
- 24
- 25 26
- 2.3.1 If so, please explain why they believe that this testimony was "deliberately misleading."
- 2728 Response:
- FBC has not said that the entirety of BCSEA's evidence with regard to exchange rates was deliberately misleading, only that characterizing FBC's exchange rate approach as a "failure to account for the exchange rate" was misleading.
- FBC did not specifically direct Midgard to assume exchange rate parity. FBC directed Midgard
 to use the GLJ exchange rate projection that was provided in the GLJ's January 2013 quarterly
 report, which also contained the underlying NYMEX commodity price forecast (in USD/MMBtu)



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1 that was used in the determination of FBC's long term avoided cost. In that report GLJ was 2 projecting exchange rate parity based on its market and economic assessment over the same 3 period which drove the commodity price forecast. FBC believes that the use of GLJ's exchange 4 rate projection for this purpose is appropriate.

- 5 Please refer to the response to FBC BCSEA Rebuttal IR 1.2.1.
- 6 7 8 2.3.2 If not, please explain whether they believe that this passage of Mr. 9 Chernick's testimony properly describes FBC's stated rationale for 10 assuming exchange rate parity, and if not, why. 11 12 Response: 13 Please refer to the response to FBC BCSEA Rebuttal IR 1.2.3 and 1.2.3.1. 14
- 15
- 16 2.4 Please state whether FortisBC believes that the GLJ projection of exchange rate 17 is driven by GLJ's projection of natural gas commodity prices, or vice versa, or 18 directly related to projected natural gas commodity prices in any other manner.
- 19
- 20

21 Response:

22 FBC understands that GLJ develops its projections of the USD/CAD exchange rates and natural 23 gas commodity prices independently. However, as described in the response to BCSEA IR 24 2.48.1, GLJ performs a comprehensive review of all information available at the time that it 25 prepares price and market forecasts which are then incorporated in the quarterly report. As 26 stated in that response, FBC believes it is appropriate to use the exchange rate projection that 27 is based on the same review of market and economic information that is incorporated in the 28 commodity price forecast used to determine FBC's avoided cost (i.e. the NYMEX commodity 29 price forecast in USD/MMbtu).

- 31
- 32 2.4.1 Please provide the evidence for the opinion that GLJ's projections of the 33 exchange rate and of natural gas commodity prices are not functionally 34 independent.



2 Response:

3 Please refer to the response to FBC BCSEA Rebuttal IR 1.2.4.



1 3.0 Topic: Avoided Costs

Reference: FBC Exhibit B-42, Rebuttal Evidence of FBC to Evidence of BCSEA SCBC, Answer 3, page 2, lines 21–32

- 3.1 FBC's cite (footnote 5) regarding the fallibility of forwards is to a web site. If FBC
 is relying on any published analysis of the relative accuracy of foreign-exchange
 forwards and other foreign-exchange forecasting approaches, please provide
 that analysis.
- 8

9 Response:

FBC has not made any assertion on the fallibility of forwards. The use of forward marketinformation is a useful tool when used appropriately.

As discussed in the response to FBC BCSEA Rebuttal IR 1.2.1, the most important input into the analysis of FBC's long term avoided costs is the underlying long term commodity price forecast and FBC believes it is appropriate that the exchange rate assumption be based on the same information source.

- 16
- 17
- 183.2Please provide any analysis that FBC has conducted of the accuracy of foreign-19exchange forwards as predictors of future spot exchange rates, compared to the20GLJ foreign-exchange forecasts.
- 21

22 Response:

- FBC has not conducted such analysis. Please refer to the response to FBC BCSEA Rebuttal IR1.3.1.
- 25
- 26
- 3.3 Please provide a table of the GLJ forecast of the US-Canadian exchange rate,
 for each GLJ forecast for which FBC has such information.
- 29
- 30 Response:

31 GLJ issues a Commodity Price Report on a quarterly basis. The exchange rate assumptions 32 associated with the commodity price forecasts are provided in each report. These reports for

the period January 2006 to April 2014 can be located at the following link.

34 <u>http://www.gljpc.com/commodity-price-library</u>



- 1 The information is also compiled in Attachment 3.3.
- 2
- 3
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- 5 6

Please provide the foreign-exchange forwards as of the first trading day of each 3.4 month, from the date of the earliest GLJ exchange-rate forecast.

7 Response:

8 This question is asking for an inordinate amount of historical information that FBC does not 9 have available and believes is unreasonable to request from any of our information sources.

10 However, in order to be responsive, FBC has obtained historical information based on 5 year

11 currency forwards based on the first trading day of the year as for the period 2006 to 2014. The

12 data provided in the chart below and the attached figure (Attachment 3.4) compares the actual

13 Bank of Canada noon rates on first trading day in January to the current and historic mid-market

14 forwards. For example, on January 2, 2009, the noon rate was .8260 USD per CAD, while on

15 that date the value of Canadian dollar one year out was 0.8303. The actual noon rate on

16 January 4, 2010, however was 0.9636.

USD per CAD	Forward Rates expressed in exchange rate terms					
Date selected	BOC Noon Rate	1-year	2-year	3-year	4-year	5-year
Jan.3/06	0.8642	0.8707	0.8747	0.8794	0.8843	0.8891
Jan.2/07	0.8584	0.8673	0.8744	0.8809	0.8870	0.8935
Jan.2/08	1.0074	1.0059	0.9963	0.9936	0.9894	0.9878
Jan.2/09	0.8260	0.8303	0.8352	0.8410	0.8452	0.8621
Jan.4/10	0.9636	0.9622	0.9589	0.9573	0.9586	0.9623
Jan.4/11	1.0014	0.9906	0.9804	0.9734	0.9704	0.9720
Jan.3/12	0.9911	0.9848	0.9811	0.9768	0.9755	0.9761
Jan.2/13	1.0143	1.0049	0.9937	0.9830	0.9736	0.9672
Jan.2/14	0.9405	0.9322	0.9244	0.9188	0.9161	0.9169

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3.5 If FBC believes there is a better predictor of spot foreign-exchange rates than the forwards, please identify that predictor and provide FBC's basis for believing that it is a better predictor.

24 **Response:**

25 FBC has not conducted any analysis to determine the best predictor of spot foreign exchange 26 rates. In this case, however, FBC has elected to apply the USD/CAN exchange rate assumed



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by GLJ in its January 2013 Commodity Price Report. FBC believes this is appropriate as the January 2013 report is the same source for the NYMEX natural gas price forecast that formed the basis for determination of FBC long term avoided cost. This is consistent with the referenced discussion in FBC's Rebuttal Evidence (FBC Exhibit B-42, A3, page 2, lines 12-20).

5

- 6
- 3.6 If a significantly better predictor of spot foreign-exchange rates than the forwards
 existed, does FBC agree that investors using that predictor could reliably make a
 long-term profit trading on the foreign-exchange futures market?
- 10

11 Response:

- Please refer to the response to FBC BCSEA Rebuttal IR 1.3.5. FBC does not have an opinion
 on the ability of investors to profit in futures markets regardless of the basis for their investment
- 14 decisions.
- 151617 3.6.1 If FBC does not agree, please explain why.
- 18
- 19 Response:
- 20 Please refer to the response to FBC BCSEA Rebuttal IR 1.3.6.



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1	4.0	Topic:	Avoided Costs
2 3		Reference:	FBC Exhibit B-42, Rebuttal Evidence of FBC to Evidence of BCSEA- SCBC, page 3, lines 1–5
4 5 6 7 8		"FBC acknow and change and Market changed, as exchange ra	wledges that both exchange rates and exchange rate forecasts are volatile with time. Some time has passed since the January 2013 GLJ Product Price Forecast used in the application. Exchange rates expectations have evidenced by the January 2014 GLJ Product Price and Market Forecast te assumption of \$0.95 dollars Canadian per US dollar."
9 10 11 12	<u>Respo</u>	4.1 Does dolla	FBC acknowledge that the current exchange rate is approximately \$0.90 rs Canadian per US dollar?
13 14	FBC co to appi	onfirms the B oximately 0.9	ank of Canada noon exchange rate and close rate for April 3, 2014 rounds 1 dollars Canadian per US dollar.
15 16			
17 18 19 20	<u>Respo</u>	4.1.1 • nse:	If not, please provide the basis for FBC's current estimate of the exchange rate.
21	Please	refer to the r	esponse to FBC BCSEA Rebuttal IR 1.4.1.
22			



1 **5.0 Topic:** Avoided Costs

Reference: FBC Exhibit B-42, Rebuttal Evidence of FBC to Evidence of BCSEA SCBC, page 3, lines 12-16

"...the same January 2014 GLJ Forecast also shows a decrease in natural gas
commodity prices of US\$0.25 to US\$0.50 per MMbtu over the forecast period compared
to the January 2013 forecast which more than offsets the change in the exchange rate
assumption and on a combined basis would have the effect of pushing FortisBC's
estimate of its avoided cost down."

- 9 5.1 Please provide FBC's computation supporting the claim that the "decrease in 10 natural gas commodity prices... more than offsets the change in the exchange 11 rate assumption."
- 12

13 **Response:**

GLJ's exchange rate assumption decreased from \$1.00 to \$0.95 between its January 2013 and January 2014 forecast. As the NYMEX market trades in USD, all else being equal, this would have resulted in an increase in natural gas prices when converted to Canadian dollars. However, at the same time, GLJ's forecast of NYMEX natural gas commodity prices (in USD/MMBtu) decreased. This decrease in the commodity price forecast more than offset the impact of the weaker Canadian dollar.

This is shown in the following table for based on GLJ Commodity Price reports for the forecast period of 2014 to 2022.

		January 2013		January 2014		
	FX Rate	NYMEX	NYMEX	FX Rate	NYMEX	NYMEX
	USD/CA		CAD/MMBt	USD/CA		CAD/MMBt
	D	USD/MMBtu	u	D	USD/MMBtu	u
2014	1.000	4.25	4.25	0.950	4.25	4.47
2015	1.000	4.75	4.75	0.950	4.50	4.74
2016	1.000	5.25	5.25	0.950	4.75	5.00
2017	1.000	5.50	5.50	0.950	5.00	5.26
2018	1.000	5.80	5.80	0.950	5.25	5.53
2019	1.000	5.91	5.91	0.950	5.50	5.79
2020	1.000	6.03	6.03	0.950	5.63	5.93
2021	1.000	6.15	6.15	0.950	5.74	6.04
2022	1.000	6.27	6.27	0.950	5.86	6.17
		Average			Average	
		CAD/MMBTU	5.55		CAD/MMBTU	5.44



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5.2 Please provide "FortisBC's estimate of its avoided cost" with the GLJ January 2014 commodity prices and the current \$0.90 exchange rate.

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6 **Response:**

FBC LRMC of Market Purchases using various GLJ forecasts and exchange rates aresummarized in the following table:

	GLJ Jan 2013, Exchange 1.00 \$Can/\$US	GLJ Jan 2013, Exchange 0.90 \$Can/\$US	GLJ Jan 2014, Exchange 1.00 \$Can/\$US	GLJ Jan 2014, Exchange 0.90 \$Can/\$US
FBC LRMC (\$2013)	\$56.61	\$62.90	N/A	N/A
FBC LRMC ² (\$2014)	\$57.12	\$63.47	\$54.40	\$60.44

² The annual average percent change to the Canadian CPI in 2013 was 0.9%. Therefore a 0.9% increase was used to convert the January 2013 LRMC at exchange rates of 1.00 and 0.90 into 2014 dollars.



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1	6.0	Торіс	:	Avoided Costs
2 3		Refer	ence:	FBC Exhibit B-42, Rebuttal Evidence of FBC to Evidence of BCSEA- SCBC, page 3, lines 25–26
4		"Mark	et purch	ases may be short term, or they can be locked in for a longer term."
5 6		6.1	Please prices	e provide the quantity of market purchases for which FBC has locked in for each year, 2015–2043, expressed as
7 8			6.1.1	annual MWh, and
9 10	Respo	onse:		

11 The following table shows the quantity of market purchases for which FBC has locked in prices 12 for each year, 2015–2043. FBC has not contracted for any market purchases after 2017.

	2015	2016	2017	2018	2019-2043
Annual Contracted Market Purchases (MWh)	143,400	78,600	78,600	-	-

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6.1.2 percent of required purchases without new construction.

17 <u>Response:</u>

- 18 The market contracts that FBC has entered into for 2015 to 2017 provided sufficient energy to
- 19 cover 100 percent of the required market energy purchases. From 2018 to 2043, FBC has not
- 20 contracted for any market purchases, therefore locked-in purchases represent 0 percent of the
- 21 required market purchases without construction of new generation resources.

	2015	2016	2017	2018	2019-2043
Percentage of Contracted Market Purchases required without new construction	100%	100%	100%	0%	0%

22

23

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6.2 For the anticipated market purchases that are not locked in, does FBC agree that the prices are not currently firm?



1 Response:

2 FBC agrees that for market purchases that are not locked in, the prices are not currently 3 considered firm.

- 4 5 6 6.2.1 If not, please explain why.
- 7

8 Response:

9 Please refer to the response to FBC BCSEA Rebuttal IR 1.6.2.



1	7.0	Topic:		Avoided C	Costs
2 3		Refere	ence:	FBC Exhib SCBC, pag	bit B-42, Rebuttal Evidence of FBC to Evidence of BCSEA- ge 3, lines 30–33
4 5 6 7		"For lo willing Mid-C premiu	nger-ter to offer hub. By im as th	m firm purc an option c y doing thi ey do wher	chases, in addition to offering fixed prices, power marketers are of having longer term market purchases indexed to prices at the is, they can reduce their risk, and do not have to add a risk in they offer a firm price."
8 9 10 11		7.1	Does F indexee risk of s	⁻ ortisBC ag d to prices a spot price a	gree that, when it contracts for "longer term market purchases at the Mid-C hub," FortisBC does not reduce its exposure to the at the Mid-C hub differing from FortisBC expectations?
12	<u>Respo</u>	nse:			
13 14	Yes. F the risk	BC agr	rees that ctual spo	t long-term ot market p	energy contracts indexed to the Mid-C spot price do not reduce prices may vary from FBC forecasts of spot market prices.
15 16					
17 18 19			7.1.1	If FortisB market p	3C believes that it reduces its risk by contracting for longer term burchases indexed to prices at the Mid-C hub, please
20 21				7.1.1.1	explain why, and
22	<u>Respo</u>	nse:			
23 24 25 26 27 28 29	It is no price ri the blo out) to such, a doesn' time.	t likely t sk was ock is no the sup a Mid-C t curren	that FBC very low ot neede oplier at indexed htly have	> would use w. It is mored for any p market rated block can any such	e a market block transacted at index to obtain energy unless the re likely that FBC would use such a block to obtain capacity. If particular day it is expected that it would be sold back (booked es for that day for a net cost of a small transaction premium. As to be a very useful tool to reduce the risk of a capacity gap. FBC blocks and is not expecting to enter into any such blocks at this
30 31					
32				7.1.1.2	quantify the risk reduction.



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2 **Response:**

- 3 FBC is not able to quantify the risk reduction of any such block at this time. At such time in the
- 4 future as the Company may apply to the Commission to accept such a transaction, the merits of
- 5 this approach compared to other options would be considered.



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1 8.0 Topic: **Avoided Costs**

2 **Reference:** FBC Exhibit B-42. Rebuttal Evidence of FBC to Evidence of BCSEA-3 SCBC, p. 4, line 21. Figure 1.2.5-A of the 2012 Resource Plan.

- "...FortisBC's peak loads are not at risk at this time or in the near future..."
 - Please define "near future" as used in this statement. 8.1
- 5 6

4

7 Response:

8 As indicated in the balance of the response that was not quoted, "With WAX, FortisBC's peak 9 loads are not at risk at this time or in the near future, and any potential requirements will be 10 examined in the 2016 Resource Plan."

11 Therefore, as used in this statement, "near future" is defined as up to such time as the 2016 12 Resource Plan can provide an opportunity to address any future capacity needs. In practical

13 terms, this is at least a 5 year period but could be much longer if loads remain at forecast levels.

14 The 2016 Resource Plan will address the longer term.

- 15
- 16
- 17 8.2 Please explain whether the "near future" is likely to end by 2020 or earlier, 18 depending on the amount of DSM implemented in the meantime.
- 19

20 **Response:**

21 Please refer to the response to FBC BCSEA Rebuttal IR 1.8.1. To the extent that loads remain 22 at forecast levels the Company currently expects that peak loads would not be at risk until 23 sometime after 2020.

- 24
- 25

28

- 26 8.3 Please provide FBC's estimate of the percentage of DSM savings from measures 27 implemented in 2014–2018 that would still be in place in 2020.
- 29 **Response:**

30 The minimum average effective measure life filed in DSM Appendix H, 'Table H-6: Effective

31 Measure Lifetime (EML) Weighted by Plan Cost', is 10 years, longer than the 6 year time period

32 from 2014 to 2020. Thus FBC estimates that all (100 percent) of the measures implemented

33 over the PBR 2014-18 period are anticipated to remain in service in 2020.



1 9.0 **Topic: Avoided Costs**

2 FBC Exhibit B-42, Rebuttal Evidence of FBC to Evidence of BCSEA-**Reference:** 3 SCBC, page 4, line 24-25.

- 4 "...FBC simply defers its purchases until another hour."
 - 9.1 Please provide the dates on which FBC has deferred its purchases until another hour, since July 2011.

8 Response:

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6

7

9 FortisBC does not track this information.

10 Congestion is the most common at times of heavy renewable energy generation. At such times,

11 FortisBC may be unable to purchase the very cheapest power that can be had for \$0 per MWh

12 or even lower since the transmission lines to Canada may be fully utilized. In such a case, the

13 Company will have to wait a few hours till the lines unload and buy at a higher, but still very

14 attractive, price.

15 In times of heaviest customer load on a peak winter day, transmission is expected to be 16 available with the price determined not by congestion but by available generation and the price

17 of natural gas.

18 However, congestion can occur at any time if the generation situation in BC is poor, for 19 whatever reason. The only example of this that the Company has on record since July 2011 20 occurred the week of October 20, 2013, where the Company was unable to purchase from the 21 market during the day due to transmission congestion but was generally able to purchase at 22 night.

- 23
- 24
- 25 9.1.1 For such event, please provide documentation of the timing and extent 26 of the deferral.
- 27

28 **Response:**

29 Please refer to the response to FBC BCSEA Rebuttal IR 1.9.1.



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1	10.0	Торіс	: /	Avoided Costs								
2 3		Refer	ences: Fl	BC Exhibit B-42, Rebuttal Evidence of FBC to Evidence of BCSEA, page 4, line 29;								
4		Exhibit BCSEA IR 2 2.59.1;										
5 6		FortisBC 2012–2013 Revenue Requirements Application, Exhibit B-1, Appendix 3A, Table A-3, pdf p.54 of 788.										
7		"The \$	5233/kW- <u>y</u>	year figure advanced by Mr. Plunkett is not adequately supported"								
8 9 10		10.1	Does Fo million ii	ortisBC agree that FBC Exhibit B-21, BCSEA IR 2.59.1 projects \$222.827 n load-related transmission and distribution investments in 2013–2019?								
11	<u>Respo</u>	onse:										
12 13 14	FBC a million 2019.	agrees i in load	that the d-related	response to FBC BCSEA IR 2.59.1 indicates an estimate of 222.827 transmission and distribution capital expenditures for the period 2013 –								
15 16												
17 18 19 20			10.1.1	If not, explain what the costs reported in FBC Exhibit B-21, BCSEA IR 2.59.1 mean, and provide the load-growth-related T&D investments for 2013–2019.								
21	Respo	onse:										
22	Please	e refer t	o the resp	ponse to FBC BCSEA Rebuttal IR 1.10.1.								
23 24												
25 26 27 28		10.2	Please Append Require	file a copy of Table A-3 - Long Term Peak Forecast Before DSM (MW), ix 3A, from Exhibit B-1 of the FortisBC 2012–2013 Revenue ments Application. (A copy is attached for reference.)								
29	<u>Respo</u>	onse:										
30	Please	e refer t	o the exc	erpt below.								



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2012 - 2013 REVENUE REQUIREMENTS



APPENDIX 3A - TAB 3 LOAD AND CUSTOMER FORECAST

Table	e A-3 -	Long	Ferm I	Peak	Forecast	Before	DSM	(MW)	
-------	---------	------	--------	------	----------	--------	-----	------	--

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Winter	Summer
2010	661	577	519	474	425	472	577	569	414	481	611	661	661	577
2011	664	607	565	492	455	499	556	539	448	523	610	677	715	563
2012	677	620	577	502	464	509	568	550	457	533	622	691	730	575
2013	692	633	589	512	474	520	580	562	467	545	636	706	745	587
2014	705	645	600	522	483	530	591	573	476	555	648	719	758	598
2015	718	657	611	531	491	539	601	583	484	565	659	732	770	609
2016	726	665	618	538	498	546	609	590	490	572	667	741	780	616
2017	735	673	626	544	504	553	616	597	496	579	675	750	789	624
2018	745	682	634	552	510	560	625	605	502	587	685	760	800	632
2019	755	691	643	559	517	567	633	613	509	594	694	770	810	640
2020	765	700	651	566	524	575	641	621	515	602	703	780	821	649
2021	775	709	660	574	531	583	650	630	522	610	712	791	832	657
2022	786	719	669	581	538	590	658	638	529	618	722	801	843	666
2023	796	728	677	589	545	598	667	646	536	626	731	811	854	675
2024	806	738	686	597	552	606	676	655	543	634	741	822	865	684
2025	817	747	695	604	559	614	684	663	550	643	750	833	877	692
2026	827	757	704	612	566	621	693	672	557	651	760	843	888	701
2027	838	766	713	620	573	629	702	680	564	659	769	854	899	710
2028	848	776	722	628	580	637	711	689	571	667	779	865	910	719
2029	859	786	731	635	588	645	720	697	579	676	789	876	922	728
2030	870	796	740	643	595	653	729	706	586	684	799	887	933	737
2031	879	805	748	651	602	661	737	714	592	692	808	897	944	745
2032	890	814	757	658	609	668	745	722	599	700	817	907	955	754
2033	900	823	766	666	616	676	754	731	606	708	827	918	965	763
2034	910	833	774	673	623	684	762	739	613	716	836	928	976	772
2035	920	842	783	681	630	691	771	747	620	724	845	939	987	780
2036	931	851	792	688	637	699	779	755	627	732	855	949	998	789
2037	941	861	800	696	643	706	788	764	633	740	864	959	1009	797
2038	951	870	809	703	650	714	796	772	640	748	873	970	1020	806
2039	961	879	817	711	657	722	805	780	647	756	882	980	1030	814
2040	971	888	826	718	664	729	813	788	654	764	892	990	1041	823

Note: This forecast does not include incremental DSM after 2010 and other savings.

- 1 2
- 3

FC	ORTIS BC [™]	Application	FortisBC Inc. (FBC or the Company) for Approval of a Multi-Year Performance Based Ratemaking Plan for 2014 through 2018 (the Application)	Submission Date: April 11, 2014						
		Response t (B	o B.C. Sustainable Energy Association and Sierra Club of British Columbia CSEA) Information Request (IR) No. 1 on FBC Rebuttal Evidence	Page 20						
1 2 3 4 5	Response:	10.2.1	Does FortisBC agree that Table A-3 Long Term Peak DSM forecasts load growth from winter 2013 through MW (810 MW – 745 MW = 65 MW)?	Forecast before winter 2019 of 65						
6 7 8	FBC agrees that based on the information provided in Table A-3 from the 2012-2013 Revenue Requirements Application, load growth of 65 MW is forecast from winter 2013 through winter 2019.									
9 10										
11 12 13 14 15	Response-	10.2.2	If not, provide the load-growth from 2012 to 2019 proj the costs reported in FBC Exhibit B-21, BCSEA developed.	jected at the time IR 2.59.1 were						
16	Please refer	to the resp	oonse to FBC BCSEA Rebuttal IR 1.10.2.1.							
17 18										
19 20 21 22 23	10.3 <u>Response:</u>	Does Fo 2019 an winter 2	ortisBC agree that the load-related T&D investments p e associated primarily with the load growth from winter 019/20?	lanned for 2013– 2012/13 through						
24 25 26 27 28 29	FBC considers that the load-related T&D investments planned for 2013-2019 (as identified in the 2012 ISP) are triggered by load growth occurring from winter 2012/13 through winter 2019/20. In other words, much of the load growth which has used up spare system capacity may have actually occurred in years prior to 2012/13. This is due to the "lumpy" nature of transmission investments, where a relatively small incremental load increase in this period may exhaust any remaining spare capacity and hence trigger the need for a large investment in new									

transmission infrastructure. However, this investment provides enhanced capacity which
 addresses the ensuing load growth for many subsequent years (potentially 20 to 40 years).

FORTIS BC ⁻		Application	Submission Date: April 11, 2014	
~		Response to (B	o B.C. Sustainable Energy Association and Sierra Club of British Columbia CSEA) Information Request (IR) No. 1 on FBC Rebuttal Evidence	Page 21
1		10.3.1	If not, please identify:	
2	Response:			
3	Please refer	to the resp	oonse to FBC BCSEA Rebuttal IR 1.10.3.	
4 5				
6 7 8			10.3.1.1 the load growth that drives the load-related planned for 2013–2019 and	T&D investments
9	<u>Response:</u>			
10	Please refer	to the resp	oonse to FBC BCSEA Rebuttal IR 1.10.3.	
11 12				
13			10.3.1.2 the load-related T&D investments planned to	to meet the load
14 15			growth from winter 2012/13 through winter 20	19/20.
16	Response:			
17	Please refer	to the resp	oonse to FBC BCSEA Rebuttal IR 1.10.3.	
18 19				
20	10.4	Does F	ortisBC agree that \$222.827 million in load-related t	ransmission and
21		would be	e a load-related investment of about \$3,400/kW?	Jeak load growin
23	Deenenee			
24	<u>Response:</u>			
25	Agreed.			
26 27				
28		10.4.1	If not, please explain why and provide FortisBC's con	nputation of load-
29 30				
31	Response:			
32	Please refer	to the resp	oonse to FBC BCSEA Rebuttal IR 1.10.4.	



3

4

5

- 10.5 Does FortisBC agree that its cost of capital and income taxes is about 6.1% in real terms?
- 6 **Response**:
- No, FortisBC does not agree. Based on the Evidentiary Update of October 18, 2013 the
 Forecast Cost of Capital including Income Taxes in real terms is approximately 6.7 percent.
- 9 Please also refer to the response to FBC BCSEA Rebuttal IR 1.10.5.1.
- 10
 11
 12 10.5.1 If not, please provide FortisBC's computation of its cost of capital, including income taxes, net of inflation.
- 14 15 **D**eeneneer
- 15 <u>Response:</u>
- 16 The requested calculation has been provided below:

	Forecast 2014
	Evidentiary Update
Proportion of Debt	60.00%
Weighted Average Cost of Debt	5.94%
Tax-Effected Debt Component	3.56%
Proportion of Equity	40.00%
Return on Equity	9.15%
Income Tax Rate	26.00%
Tax-Effected Equity Component	4.95%
Tax-Effected Cost of Capital	8.51%
Deduct: Inflation	1.83%
Tax-Effected Cost of Capital, net of inflation	6.68%

FORTIS BC ⁻		Auraliantian	FortisBC Inc. (FBC or the Company)	Submission Date:
		Application 1	April 11, 2014	
		Response to (B	o B.C. Sustainable Energy Association and Sierra Club of British Columbia CSEA) Information Request (IR) No. 1 on FBC Rebuttal Evidence	Page 23
1	10.6	Does Fo	ortisBC agree that the real-levelized carrying charge fo	r T&D with a 30-
2		year life	and a 6.1% real cost of capital and income taxes, is abo	out 7.3%?
3 ⊿	Response:			
5	Yes			
5	163.			
6 7				
8		10.6.1	If not, please provide FortisBC's computation of t	he real-levelized
9			carrying cost for these inputs.	
10 11	Response:			
12	Please refer	to the resr	oonse to FBC BCSEA Rebuttal IR 1 10 6	
12				
13 14				
15	10 7	Please r	provide FortisBC's estimate of its real-levelized carrying	charge for T&D
16	10.7	given its	s estimate of the average service life, real cost of ca	pital and income
17		taxes.		
18 10	Pasnansai			
19	<u>Response.</u>			
20 21 22	FortisBC's e of about 37 approximate	stimate of 7 years ai ly 7.4 perc	the real-levelized carrying charge for T&D, given an aven of a real cost of capital including income taxes or ent.	erage service life f 6.7 percent is
23 24				
25 26		10.8	Please provide FortisBC's estimate of the annualize related T&D, in \$/kW-year, as the product of load-related T&D.	ed cost of load- ted investment in
27			\$/kW and the real-levelized carrying charge.	
28 29	Response:			
20				
30 31	Please refer taxes, as dis	to the follo	owing table. Note that the real-levelized carrying charge the response to FBC BCSEA Rebuttal IR 1.10.7.	includes income



FortisBC Inc. (FBC or the Company) Application for Approval of a Multi-Year Performance Based Ratemaking Plan for 2014 through 2018 (the Application)	Submission Date: April 11, 2014
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		2012	2014	2015	2016	2017	2019	
(BCSEA) Information Request (IR) No. 1 on FBC Rebuttal Evidence								Pa

	2013	2014	2015	2016	2017	2018	2019
Load-Driven T&D Costs in \$000s (A)	14,421	11,826	22,141	30,321	22,361	53,739	68,018
Load Growth (MW) (B)	15	13	12	10	9	11	10
\$/kW-year (C = A / B)	961	910	1845	3032	2485	4885	6802
Carrying charge (D)	7.4%	7.4%	7.4%	7.4%	7.4%	7.4%	7.4%
Estimated Annualized cost \$/kW (C * D)	71.14	67.32	136.54	224.38	183.86	361.52	503.33

<u>Response</u>:

- 7 Yes, the forecast annual load factor is about 50 percent.

- 10.9.1 If not, please provide FortisBC's computation of its average load factor.
- **Response:**
- 13 Please refer to the response to FBC BCSEA Rebuttal IR 1.10.9.

- 10.10 Please provide FortisBC's estimate of the annualized cost of load-related T&D, in
 \$/MWh, computed from the \$/kW-year and the load factor.
- 19 Response:
- 20 Please refer to the following table.

^{10.9} Does FortisBC agree that its load forecast (FBC Exhibit B-1-1, Application Appendix E2) forecasts a load factor of about 50%?



 FortisBC Inc. (FBC or the Company)
 Submission Date:

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 Submission Date:

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	2013	2014	2015	2016	2017	2018	2019
Total Growth in \$000s (A)	14,421	11,826	22,141	30,321	22,361	53,739	68,018
Load Growth (MW) (B)	15	13	12	10	9	11	10
\$/kW-year (C = A*1000 / B*1000)	961	910	1845	3032	2485	4885	6802
Load Factor (D)	0.54	0.54	0.54	0.54	0.54	0.54	0.54
Annualized cost \$/MWh (C*1000)/ (B*D*8760)	13.55	14.79	32.50	64.10	58.36	93.89	143.79

1



FortisBC Inc. (FBC or the Company) Submission Date: Application for Approval of a Multi-Year Performance Based Ratemaking Plan for 2014 April 11, 2014 through 2018 (the Application) Response to B.C. Sustainable Energy Association and Sierra Club of British Columbia (BCSEA) Information Request (IR) No. 1 on FBC Rebuttal Evidence

1	11.0	Topic:	Avoided Costs
2		Reference	s: FBC Exhibit B-42, Rebuttal Evidence of FBC to Evidence of BCSEA-
3			SCBC, page 5;
4		PECO Pro	gram Years 2013–2015: Act 129 Revised Phase II Energy Efficiency and
5			Conservation Plan, Weighted Average Cost for Transmission and
6			Distribution, Table D-2
7			http://www.puc.state.pa.us/pcdocs/1211882.pdf

Table D-2. Weighted Average Avoided Costs for Transmission and Distribution (\$/kWh)

Year	Residential	\$/kWh Small C&I	Large C&I	C&I*
PY 5-2013	\$0.0644	\$0.0320	\$0.0151	\$0.0214
2014	\$0.0644	\$0.0320	\$0.0151	\$0.0215
2015	\$0.0644	\$0.0320	\$0.0151	\$0.0215
2016	\$0.0644	\$0.0320	\$0.0151	\$0.0214
2017	\$0.0657	\$0.0327	\$0.0154	\$0.0220
2018	\$0.0670	\$0.0333	\$0.0157	\$0.0225
2019	\$0.0684	\$0.0340	\$0.0160	\$0.0230
2020	\$0.0697	\$0.0347	\$0.0164	\$0.0236
2021	\$0.0711	\$0.0354	\$0.0167	\$0.0241
2022	\$0.0726	\$0.0361	\$0.0170	\$0.0247
2023	\$0.0740	\$0.0368	\$0.0174	\$0.0253
2024	\$0.0755	\$0.0375	\$0.0177	\$0.0259
2025	\$0.0770	\$0.0383	\$0.0181	\$0.0265
2026	\$0.0785	\$0.0390	\$0.0184	\$0.0271
2027	\$0.0801	\$0.0398	\$0.0188	\$0.0278
2028	\$0.0817	\$0.0406	\$0.0192	\$0.0284
2029	\$0.0834	\$0.0414	\$0.0195	\$0.0291
2030	\$0.0850	\$0.0423	\$0.0199	\$0.0298
2031	\$0.0867	\$0.0431	\$0.0203	\$0.0305

Source: Updated PECO avoided cost estimates as of September 14, 2012. *C&I is weighted average of small C&I and large C&I sales.

- 8
- 9 10

11.1 Page 5 of FBC Exhibit B-42 provides avoided transmission and distribution cost estimates for a handful of US utilities (five for transmission, eight for distribution). Please provide the derivation of those avoided costs.

11 12

13 **Response:**

14 As noted in Exhibit B-42 response A6 II. 31-33, the tables were produced by the Northwest

Power and Planning Council, and included in Appendix E of the Sixth Northwest Conservation 15



FortisBC Inc. (FBC or the Company) Application for Approval of a Multi-Year Performance Based Ratemaking Plan for 2014 through 2018 (the Application)	Submission Date: April 11, 2014
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and Electric Power Plan. Further, as noted in this plan "[...] the Council relied on data obtained
by its Regional Technical Forum (RTF) to develop a representative estimate of avoided
transmission and distribution costs." [Sixth Northwest Conservation and Electric Power Plan, pp.
E-13 and E-14]

5 FBC has no information on the derivation methodology of the avoided costs that are listed. 6

- 7
- 8
- 9

11.2 Please specify the year's dollars in which each of these estimates is stated.

10

11 Response:

12 The cited Sixth Northwest Conservation and Electric Power Plan was completed in late 2009.

13 No specific base year for the avoided T&D costs is stated in the plan. It should be noted that the

14 Sixth Power Plan Mid-Term Assessment Report (adopted in March 2013) has not suggested

- 15 any changes to the avoided T&D costs.
- 16
- 17

20

18 11.3 Does FortisBC agree that the Snohomish PUD finances its investments with tax 19 exempt municipal bonds, and pays no income taxes?

21 Response:

22 No. Although public utility districts typically do not pay federal income tax and employ tax-23 exempt municipal bonds to finance investments, the American Recovery and Reinvestment Act 24 of 2009 permits entities like the Snohomish PUD to issue taxable bonds to finance capital 25 projects that otherwise could be financed with tax-exempt bonds. FBC understands that the 26 Snohomish PUD completed a financing program in 2010 that included \$142 million of taxable 27 "Build America" bonds to fund, among other things, distribution system expansion and improvements and the construction of new generation resources.³ Further, FBC notes that 28 29 although PUDs are typically exempt from federal income tax and property tax. PUDs like the 30 Snohomish PUD are subject to a privilege tax, public utility tax, sales/use tax, City occupation 31 taxes, business and occupation tax, payroll taxes, and fuel taxes.

³ https://www.snopud.com/Site/Content/Documents/finance/SnohomishPUDAR-revised426.pdf



_™ Ap	pplication for Approval of a Multi-Year Performance Based Ratemaking Plan for 2014 through 2018 (the Application)	Submission Date: April 11, 2014
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1 2		11.3.1	If FortisBC disagrees, explain why.
3	<u>Response:</u>		
4	Please refer t	to the res	ponse to FBC BCSEA Rebuttal IR 1.11.3.
5 6			
7 8 9 10		11.3.2	Given the financial structure of the Snohomish PUD, would FortisBC agree that the PUD would have lower carrying charges than FortisBC? If not, please explain why.
11	Response:		
12 13	Given the ab probable that	ility for er PUDs wo	itities like the Snohomish PUD to issue tax-exempt municipal bonds, it is buld have lower carrying charges as compared to FBC.
14 15			
16	11.4	FortisB	C does not cite the PECO estimate of avoided T&D cost, starting at
17		\$64/MW	/h for residential and \$22/MWh for average C&I, and escalating over
18		time. Do	bes FortisBC agree that these estimates support the reasonableness of
19		Mr. Che	Thick's estimate of \$46/WWW for FortisBC?
20			
21	Response:		
22	FBC has refe	erenced t	he average value provided by the Northwest Power and Conservation
23	Council as the	ne particij	pant utilities operate in the same regional area as FBC and thus face

Council as the participant utilities operate in the same regional area as FBC and thus face similar system challenges and cost drivers. FBC notes that PECO is a single, high-density utility in Pennsylvania and is part of the highly-integrated Northeastern US interconnection. The customer density of PECO is over 30 times higher than that of FBC (1.6 million customers over 5440 km² for PECO compared to 164,000 customers over 18,000 km² for FBC). When compared to utilities in the WECC interconnection, PECO likely has significantly different cost drivers compared to utilities in the Pacific Northwest. On this basis, FBC is unable to confirm any conclusions based on T&D costs from this single Northeast US utility.



1 12.0 Topic: Customer Class DSM Spending

2

3

4

5

6

Reference: FBC Exhibit B-42, Rebuttal Evidence of FBC to Evidence of BCSEA-SCBC, p. 1, Answer 2.

- 12.1 Does FBC agree that while increasing incentive levels for cost-effective measures to get higher participation may increase program spending, doing so would not likely decrease program TRC cost-effectiveness, because incentives are transfer payments that would not affect the TRC costs per measure?
- 7 8

9 Response:

FBC disagrees with the term "may" as increased incentive levels *will* undoubtedly increase program spending. FBC agrees the incentives are a transfer payment and increased incentives do not change the TRC per se. Arguably the TRC B/C ratio will improve, assuming fixed program administration costs are spread over more participants.

- 14 Please also refer to the response to FBC BCUC Rebuttal IR 1.1.1.1.
- 15
- 16
- 1712.2Please explain whether FBC is concerned that pursuing all cost-effective DSM18for commercial/industrial customers will increase bills to residential customers. If19so, please discuss whether there is any reason that the funds expended for20commercial/industrial DSM could not be recovered from the commercial/industrial21customer classes.
- 22

23 Response:

Please refer to the responses to FBC BCUC Rebuttal IRs 1.1.3, 1.1.3.1, and 1.1.3.2. The Company believes that the allocation of DSM related costs as is currently done for COSA purposes is appropriate and that the direct allocation of costs to certain customer classes should not be done for the reasons expressed in these referenced responses.

- 28
- 29
- 3012.3Does FBC agree that it should be pursuing all achievable TRC cost-effective31DSM?
- 32



FortisBC Inc. (FBC or the Company) Application for Approval of a Multi-Year Performance Based Ratemaking Plan for 2014 through 2018 (the Application)	Submission Date: April 11, 2014
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1 Response:

Although FortisBC generally pursues all cost-effective measures (the exceptions are explained in the responses to FBC BCUC IR 1.248.8.1 and FBC Rebuttal BCUC IR 1.13.2), not all need to be addressed in DSM programs. Conservation can also be achieved through other mechanisms, such as conservation rates, the Customer Information Portal (Energy Analytics) etc.

Furthermore some measures are better suited to a Codes and Standards approach. For
example most televisions sold are EnergyStar qualified, and televisions sold in Canada after
April 2012 are regulated to consume one watt or less of standby power.

10 11 12 12.3.1 Does FBC agree that to leave out cost-effective measures would be 13 denying British Columbia net benefits? If not, why not? 14 15 **Response:** 16 FBC agrees and provides an explanation for the measures left out of the DSM portfolio in the 17 response to FBC BCUC Rebuttal IR 1.13.2. 18 19 20 If the objective is to maximize TRC net benefits, then what is the relevance of the 12.4 21 Participant Cost Test ratios for the different customer classes provided by FBC in 22 A2? 23 24 **Response:**

FBC disagrees that the objective [of DSM programs] is to maximize TRC net benefits. FBC's
 DSM programs target major end-uses in each customer class to allow all customers
 opportunities to participate.

Although the TRC is the governing test, the PCT and UCT test ratios inform different aspects or viewpoints, namely from the Participant's and Utility respectively.



(BCSEA) Information Request (IR) No. 1 on FBC Rebuttal Evidence

1 13.0 Topic: Customer Class DSM Spending

2Reference:FBC Exhibit B-42, Rebuttal Evidence of FBC to Evidence of BCSEA-3SCBC, A2, p.1; FBC Exhibit C8-9, BCSEA-SCBC Evidence, Table 16

4 FBC states:

5 "A2. The DSM program savings targets are fundamentally a function of the economic 6 potential and a market take-up (ramp rate), adjusted for past program results – which 7 are a measure of the market's capacity...."

- 8 "...In establishing the mix of customer DSM programs, FBC looks at a number of factors,
 9 including addressing key end uses, the cost-effectiveness tests, customer payback
 10 periods, and the take-up rate of customers..."
- 11Mr. Plunkett and Mr. Chernick say that "It does not appear that FBC actually used the12TRC or UCT to design its proposed DSM portfolio." [FBC Exhibit C8-9, p.42]
- Mr. Plunkett and Mr Chernick say: "Table 16 lists the measures that pass the TRC test in FBC's screening, but for which FBC reduced the number of planned installations from the existing portfolio (FBC Exhibit B-12 Attachment 20.1.1) to the proposed portfolio (FBC Exhibit B-12 Attachment 20.1). Table 16 also lists the measures with TRC ratios greater than 1.0 that FBC chose not to include in either the original portfolio or the proposed portfolio."
- Mr. Plunkett and Mr. Chernick say: "As indicated in Table 16, even where FBC finds a
 measure to be cost-effective, it has often reduced the proposed rate of implementation
 of that measure, or omitted the measure entirely."
- 13.1 Please confirm that FBC did not actually use the TRC or UCT to design itsproposed DSM portfolio.

25 **Response:**

26 Not confirmed. The TRC was the primary determinant used, whereas the UCT was a 27 secondary consideration.

28

- 29
- 3013.2Please confirm that Table 16 accurately lists the measures that pass the TRC31test in FBC's screening but for which FBC reduced the number of planned32installations from the existing portfolio.
- 33



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1 Response:

2 FBC believes Table 16 is an accurate representation of reduced/eliminated measures.

As stated in the response to FBC BCUC IR 1.248.8.1 (FBC Exhibit B-7), in certain cases, FortisBC has opted not to pursue cost effective DSM measures. These reasons are related to the characteristics of specific energy efficiency markets that inhibit the effectiveness of DSM programs: the complexity of delivering a program (e.g., consumer electronics); low program uptake based on previous experience; the use of efficient equipment is already the norm; and high levels of free ridership in certain market segments.

9 The following table provides a more detailed explanation for each measure.

Sector	Measure	Explanation
	Insulation	FBC is pursuing 80% of the estimated potential for residential insulation.
Residential	Windows	Energy performance is already mandated by existing provincial regulation. FBC is participating in a program that will offer window upgrades as a bonus measure to customers who undertake primary measures (e.g. insulation).
Residential	Appliances	Energy Star products are now the norm, and the province has scheduled the codification of this market transformation.
	Consumer Electronics	The province and federal government have existing and proposed energy performance agreements and regulations targeted at the manufacturers and importers of such equipment (e.g., set top boxes, battery chargers).
	Optimization	FortisBC has already engaged the majority of eligible customers.
Commercial	Servers	Limited customer interest in this measure doesn't warrant a stand- alone program. Larger "data centre" projects are addressed via the custom option path in the BIP program. For individual computers, the regulatory process is now underway in California and anticipated to cascade (up the Pacific coastal region, including BC).
	Wastewater	Evaluation reports indicate a high level of free-ridership for local government infrastructure enhancements.
Industrial	Energy Management Systems	Limited customer interest in this measure doesn't warrant a stand- alone program. EMIS projects being considered by our customers are addressed via the custom option path in the Industrial Efficiency Program.

Cost-Effective Measures Curtailed in FBC Proposal

- 11 FortisBC believes that the DSM budget as filed presents the appropriate expenditure under the
- 12 current long run marginal cost of electricity and given existing market conditions.



1 2		
3 4 5 6	13.3	Please confirm that Table 16 also lists the measures with TRC ratios greater than 1.0 that FBC chose not to include in either the original portfolio or the proposed portfolio.
7	<u>Response:</u>	
8	Please refer t	o the response to FBC BCSEA Rebuttal IR 1.13.2.
9 10		
11 12 12	13.4	Please provide an expanded version of Table 16 and a functioning spreadsheet that:
13 14 15		13.4.1 corrects any numbers in the existing Table 16 if necessary,
16	<u>Response:</u>	
17	Please refer t	o the response to FBC BCSEA Rebuttal IR 1.13.2.
18 19		
20 21 22		13.4.2 shows "the economic potential and a market take-up (ramp rate), adjusted for past program results" for each efficiency measure,
23	<u>Response:</u>	
24 25	Please refer BCSEA IR 1.2	to the Live Spreadsheet in Attachment 20.1.1, provided in the response to FBC 20.1.1 (FBC Exhibit B-12) upon which Table 16 was originally based.
26 27	Columns E an respectively.	nd F of the "kWh" tab show the economic potential and market take-up (ramp rate)
28 29	Column AR c and customer	of the "TRC" tab and column N of the "\$prog" tab show the Participant Cost Test payback period, in years, respectively.
30 31	Columns G a amount respe	and H of the "TRC" tab show the per unit measure cost and per unit incentive ectively.
32 33		

FORTIS BC [*]		Application	Submission Date: April 11, 2014						
		Response to (B	Page 34						
1 2 3 4 5	<u>Response:</u>	13.4.3	shows the Participant Cost Test ratio and customer participant cost Test ratio and customer participant of the listed efficiency measures in (a) the scenario and (b) the Proposed Portfolio scenario,	ayback period for Original Portfolio					
6	Please refer	to the resp	oonse to FBC BCSEA Rebuttal IR 1.13.4.2.						
7 8									
9 10 11 12	13.4.4 shows the per unit measure cost and the per unit incentive on w Participant Cost Test has been calculated for (a) the Original scenario and (b) the Proposed Portfolio scenario,								
13	<u>Response:</u>								
14	Please refer	to the resp	oonse to FBC BCSEA Rebuttal IR 1.13.4.2.						
15 16									
17 18 19		13.4.5	shows in the spreadsheet all formulas and data use results.	d to produce the					
20	<u>Response:</u>								
21	Please refer	to the resp	oonse to FBC BCSEA Rebuttal IR 1.13.4.2.						
22 23									
24 25 26 27	13.5 Please provide references to any and all quantitative evidence FBC has file this proceeding concerning how FBC has established the mix of customer I programs.								
28	<u>Response:</u>								
29 30	Please refer IR 1.20.1 (Fl	to the Live BC Exhibit	e Spreadsheet in Attachment 20.1, provided in response B-12).	e to FBC BCSEA					
31 32									



3

4

13.6 What metric or metrics does FBC use when it "looks at a number of factors, including addressing key end uses, the cost-effectiveness tests, customer payback periods, and the take-up rate of customers"?

5 **Response:**

- 6 FortisBC considers the following metrics when making program-related decisions:
- The number and breadth of programs that target key end-uses (such as lighting, heating
 & cooling, process) offered in different customer classes

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- Demographics (such as low income programs in the residential sector) or market
 segments (commercial/industrial sector),
- Points of contact for energy efficiency decisions (such as individuals, businesses, contractors, and wholesalers)
- Types of incentives (instant, product, custom or loan option) appropriate to the measure
- The California Standard Practise cost tests including the Total Resource Cost, modified
 Total Resource Cost, Participant Cost and the Utility Cost test.
- FBC's Electric Tariff which limits incentives to the lesser of the avoided cost of
 estimated annual savings, 50% of installed measure cost, 100% of incremental costs for
 new construction, or the amount sufficient to achieve a two-year payback.
- Program participation including number of participants, budget allocation and spending,
 and achieved electricity and capacity savings.
- 21

Attachment 3.3

GLJ Petroleum Consultants Ltd. Exchange Rate Assumption USD/CAD

Date extracted from each Quartley Report Issued on first of listed month:

	Jan-06	Apr-06	Jul-06	Oct-06	Jan-07	Apr-07	Jul-07	Oct-07	Jan-08	Apr-08	Jul-08	Oct-08	Jan-09	Apr-09	Jul-09	Oct-09	Jan-10	Apr-10	Jul-10	Oct-10	Jan-11	Apr-11	Jul-11	Oct-11	Jan-12	Apr-12	Jul-12	Oct-12	Jan-13	Apr-13	Jul-13	Oct-13	Jan-14	Apr-14
2007	0.850																																	
2008	0.850	0.850	0.890	0.890	0.870	0.870	0.930	1.000	1.000																									
2009	0.850	0.850	0.890	0.890	0.870	0.870	0.930	1.000	1.000	1.000	1.000	1.000	0.825																					
2010	0.850	0.850	0.890	0.890	0.870	0.870	0.930	1.000	1.000	1.000	1.000	1.000	0.850	0.970	1.000	0.970	0.950																	
2011	0.850	0.850	0.890	0.890	0.870	0.870	0.930	1.000	1.000	1.000	1.000	1.000	0.875	0.970	1.000	0.970	0.950	0.950	0.950	0.950	0.980													
2012	0.850	0.850	0.890	0.890	0.870	0.870	0.930	1.000	1.000	1.000	1.000	1.000	0.925	0.970	1.000	0.970	0.950	0.950	0.950	0.950	0.980	0.980	0.980	0.980	0.980									
2013	0.850	0.850	0.890	0.890	0.870	0.870	0.930	1.000	1.000	1.000	1.000	1.000	0.950	0.970	1.000	0.970	0.950	0.950	0.950	0.950	0.980	0.980	0.980	0.980	0.980	0.980	0.980	0.980	1.000					
2014	0.850	0.850	0.890	0.890	0.870	0.870	0.930	1.000	1.000	1.000	1.000	1.000	0.950	0.970	1.000	0.970	0.950	0.950	0.950	0.950	0.980	0.980	0.980	0.980	0.980	0.980	0.980	0.980	1.000	1.000	1.000	0.970	0.950	
2015	0.850	0.850	0.890	0.890	0.870	0.870	0.930	1.000	1.000	1.000	1.000	1.000	0.950	0.970	1.000	0.970	0.950	0.950	0.950	0.950	0.980	0.980	0.980	0.980	0.980	0.980	0.980	0.980	1.000	1.000	1.000	0.970	0.950	0.900
2016	0.850	0.850	0.890	0.890	0.870	0.870	0.930	1.000	1.000	1.000	1.000	1.000	0.950	0.970	1.000	0.970	0.950	0.950	0.950	0.950	0.980	0.980	0.980	0.980	0.980	0.980	0.980	0.980	1.000	1.000	1.000	0.970	0.950	0.900
2017	0.850	0.850	0.890	0.890	0.870	0.870	0.930	1.000	1.000	1.000	1.000	1.000	0.950	0.970	1.000	0.970	0.950	0.950	0.950	0.950	0.980	0.980	0.980	0.980	0.980	0.980	0.980	0.980	1.000	1.000	1.000	0.970	0.950	0.900
2018					0.870	0.870	0.930	1.000	1.000	1.000	1.000	1.000	0.950	0.970	1.000	0.970	0.950	0.950	0.950	0.950	0.980	0.980	0.980	0.980	0.980	0.980	0.980	0.980	1.000	1.000	1.000	0.970	0.950	0.900
2019													0.950	0.970	1.000	0.970	0.950	0.950	0.950	0.950	0.980	0.980	0.980	0.980	0.980	0.980	0.980	0.980	1.000	1.000	1.000	0.970	0.950	0.900
2020																	0.950	0.950	0.950	0.950	0.980	0.980	0.980	0.980	0.980	0.980	0.980	0.980	1.000	1.000	1.000	0.970	0.950	0.900
2021																					0.980	0.980	0.980	0.980	0.980	0.980	0.980	0.980	1.000	1.000	1.000	0.970	0.950	0.900
2022																									0.980	0.980	0.980	0.980	1.000	1.000	1.000	0.970	0.950	0.900
2023																													1.000	1.000	1.000	0.970	0.950	0.900
2024																																	0.950	0.900

Attachment 3.4

