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September 17, 2013

Via Email
Original via Mail

Industrial Customers Group
c/o #301 – 2298 McBain Avenue
Vancouver, BC V6L 3B1

Attention: Mr. Robert Hobbs

Dear Mr. Hobbs:

Re: British Columbia Utilities Commission (BCUC or the Commission) Generic Cost of Capital (GCOC) Proceeding – Stage 2

FortisBC Inc. (FBC) Response to the Industrial Customers Group (ICG) Information Request (IR) No. 2

In accordance with the Regulatory Timetable set out for Stage 2 of the GCOC proceeding by Commission Order G-77-13, FBC respectfully submits the attached response to ICG IR No. 2.

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. Reference: FortisBC Inc Evidence, Appendix A, Business Risk, p. 11

Rationale: FBC states, "Historically, FBC's Commercial normalized load and Provincial GDP has been very highly correlated; from 2000 to 2009 Commercial normalized load and Provincial GDP had a correlation coefficient of 0.95."

Request: ICG would like more information on FBC's belief that "FBC's Commercial normalized load and Provincial GDP has been very highly correlated."

(a) Please provide working electronic spreadsheets with embedded formulas containing all underlying data and calculations that establish FBC's reported correlation coefficient.

Response:

Attachment 1(a) contains the requested working electronic spreadsheet.

(b) Please provide the corresponding historical data re FBC's Commercial normalized load and Provincial GDP from 1990 to 2000 and from 2009 to the present.

Response:

FBC is unable to provide the requested Commercial loads for the period 1990 to 1992, but has provided Commercial loads back to 1993 in the tables below. Commercial load has not been normalized since 2003 because there is low correlation to weather sensitivity, therefore the loads from 2003 to 2012 shown below are not normalized.

The Provincial GDP information below was provided by the Conference Board of Canada.

Normalized Commercial Loads from 1993 to 2000

Year	Commercial Loads (GWh)
1993	409
1994	400
1995	425
1996	465
1997	459

Year	Commercial Loads (GWh)
1998	483
1999	485
2000	512

Commercial Loads from 2001 to 2012

Year	Commercial Loads (GWh)
2001	520
2002	524
2003	520
2004	539
2005	576
2006	616
2007	650
2008	661
2009	675
2010	660
2011	657
2012	681

Provincial GDP from 1990 to 2012

Year	GDP Growth (%)
1990	2.1%
1991	1.4%
1992	3.2%
1993	4.7%
1994	4.8%
1995	2.7%
1996	2.2%
1997	3.3%
1998	1.2%
1999	3.0%
2000	4.5%
2001	1.1%
2002	3.2%
2003	2.6%
2004	3.8%
2005	4.7%
2006	4.1%

Year	GDP Growth (%)
2007	2.7%
2008	-2.3%
2009	-2.3%
2010	3.7%
2011	1.9%
2012	2.5%

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2

2. Reference: FortisBC Inc Evidence, Appendix A, Business Risk, p. 21

Rationale: FBC states: "Recently, the lower natural gas prices as well as the rapid development of new wind resources in the region have resulted in an overall lower market price environment in the Pacific Northwest. Nevertheless, while market price shocks such as occurred in the early 2000's have not been widespread since that time, there remains significant volatility in market prices depending on water flows, generation availability (particularly wind generation) and weather related demand."

Request: ICG would like more information on FBC's assertion that there remains significant volatility in market prices.

(a) Please confirm that the market price referenced above refers to market prices for electricity.

Response:

Confirmed.

(b) Please provide the historical monthly "market prices," to which the text quoted above refers, from the beginning of 2000 to the present.

Response:

The text quoted above refers to "market prices" which fluctuate hour by hour in response to prevailing supply and demand conditions and on average can fluctuate significantly from year to year as well as seasonally based on a number of factors as discussed in the responses to ICG IR1 Q2(c) and Q2(d). The data provided in this response illustrates this variability over different periods. (Note that this data is also provided in the spreadsheet attached to the response to ICG IR1 Q2(e))

Wholesale power markets in the Pacific Northwest is generally represented by the Mid-C market.

- Table 1 provides the monthly and annual average of the day ahead Mid-C prices for heavy load hours (HLH) and light load hours (LLH) for the period since January 2000. This shows the variability from year to year and seasonally, but as is based on the

average of all hours in the month it does not show the range of prices in any hour or the hour to hour volatility.

- Figure 1 illustrates the hourly price volatility, by showing the average hourly prices for 2012. As shown in the graph, hourly market prices can range dramatically within the day, and throughout the year, even though the average price remains relatively low.

- Figure 2 illustrates how actual settled prices can vary significantly from market expectations by showing the annual market heavy load annual forward price curve for the next several years as of the middle of June each year, compared to the actual market average annual heavy load market prices. For example, the line labelled 15/06/2004 gives the forward market prices as of June 15, 2004 for 2005 to 2010. As can be seen, the forward market prices as of June 15, 2004 were below the final market prices through 2008 and then above the final market price for 2009 and 2010.

Table 1

Average of Day Ahead Heavy Load Hour (HLH) Price

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Average
2000	$ 27.38	$ 26.86	$ 27.79	$ 27.87	$ 59.80	$ 181.43	$ 122.25	$ 213.44	$ 134.80	$ 103.69	$ 171.98	$ 554.38	$ 137.20
2001	$ 278.30	$ 287.37	$ 276.62	$ 317.47	$ 276.29	$ 70.34	$ 60.10	$ 45.88	$ 24.28	$ 26.10	$ 23.44	$ 25.76	$ 138.62
2002	$ 19.53	$ 20.80	$ 35.50	$ 21.04	$ 21.13	$ 9.37	$ 10.81	$ 18.11	$ 25.50	$ 30.51	$ 31.61	$ 39.68	$ 23.68
2003	$ 38.14	$ 51.89	$ 47.43	$ 32.66	$ 32.49	$ 35.52	$ 47.15	$ 41.97	$ 42.19	$ 37.41	$ 37.02	$ 40.56	$ 40.31
2004	$ 46.36	$ 41.86	$ 38.42	$ 42.04	$ 46.44	$ 33.38	$ 50.34	$ 50.00	$ 39.56	$ 45.49	$ 47.59	$ 49.58	$ 44.32
2005	$ 49.36	$ 46.95	$ 51.81	$ 53.84	$ 36.32	$ 40.65	$ 56.19	$ 70.94	$ 79.86	$ 85.86	$ 69.12	$ 109.09	$ 62.64
2006	$ 57.64	$ 51.39	$ 44.57	$ 23.96	$ 30.98	$ 34.81	$ 68.16	$ 63.94	$ 48.91	$ 52.38	$ 59.81	$ 59.85	$ 49.77
2007	$ 53.26	$ 58.71	$ 39.45	$ 46.58	$ 53.29	$ 51.79	$ 62.41	$ 60.13	$ 55.78	$ 62.29	$ 63.86	$ 66.25	$ 56.14
2008	$ 74.98	$ 70.61	$ 73.48	$ 90.25	$ 58.98	$ 36.11	$ 69.69	$ 71.77	$ 59.73	$ 53.21	$ 49.31	$ 60.75	$ 64.06
2009	$ 40.13	$ 39.19	$ 30.76	$ 22.49	$ 25.31	$ 21.47	$ 34.76	$ 37.99	$ 37.32	$ 43.96	$ 35.44	$ 55.38	$ 35.39
2010	$ 46.65	$ 44.54	$ 39.94	$ 38.40	$ 29.70	$ 15.83	$ 35.37	$ 39.35	$ 36.27	$ 31.36	$ 34.62	$ 34.19	$ 35.49
2011	$ 29.29	$ 26.92	$ 20.20	$ 28.14	$ 22.35	$ 23.12	$ 29.71	$ 33.42	$ 33.98	$ 26.78	$ 32.95	$ 31.71	$ 28.22
2012	$ 26.01	$ 24.49	$ 18.37	$ 14.05	$ 10.27	$ 8.65	$ 19.90	$ 30.22	$ 25.58	$ 32.62	$ 28.87	$ 26.06	$ 22.11
2013	$ 28.78	$ 29.00	$ 32.54	$ 31.11	$ 33.40	$ 33.78	$ 43.48						$ 33.22

Average of Day Ahead Light Load Hour (LLH) Price

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Average
2000	$ 23.16	$ 25.07	$ 26.45	$ 15.36	$ 35.91	$ 54.20	$ 67.61	$ 94.51	$ 90.55	$ 84.01	$ 153.28	$ 443.92	$ 93.36
2001	$ 243.85	$ 260.05	$ 225.11	$ 246.68	$ 148.20	$ 47.88	$ 38.95	$ 29.34	$ 20.45	$ 22.42	$ 19.65	$ 21.19	$ 109.38
2002	$ 16.84	$ 19.53	$ 31.80	$ 15.75	$ 14.56	$ 3.83	$ 8.68	$ 17.02	$ 22.82	$ 25.39	$ 27.40	$ 32.01	$ 19.66
2003	$ 32.42	$ 46.90	$ 39.79	$ 29.99	$ 21.67	$ 25.25	$ 40.12	$ 36.17	$ 32.81	$ 29.88	$ 32.37	$ 37.18	$ 33.64
2004	$ 40.80	$ 38.56	$ 33.57	$ 37.17	$ 37.43	$ 29.10	$ 43.77	$ 42.28	$ 33.29	$ 39.01	$ 44.64	$ 43.85	$ 38.66
2005	$ 40.99	$ 43.56	$ 46.22	$ 44.90	$ 23.54	$ 26.40	$ 38.58	$ 55.20	$ 66.55	$ 77.91	$ 63.62	$ 88.29	$ 51.39
2006	$ 45.88	$ 47.47	$ 42.95	$ 11.14	$ 12.14	$ 13.67	$ 43.83	$ 49.90	$ 38.86	$ 46.63	$ 49.04	$ 51.63	$ 37.79
2007	$ 47.57	$ 53.06	$ 26.10	$ 34.13	$ 38.12	$ 38.52	$ 37.55	$ 39.22	$ 43.02	$ 52.35	$ 55.14	$ 55.46	$ 43.29
2008	$ 65.77	$ 63.28	$ 70.22	$ 81.54	$ 35.63	$ 1.64	$ 47.38	$ 56.48	$ 47.33	$ 42.71	$ 43.91	$ 47.77	$ 50.26
2009	$ 34.66	$ 35.92	$ 27.49	$ 16.89	$ 15.94	$ 12.30	$ 26.25	$ 29.01	$ 25.27	$ 36.11	$ 28.48	$ 45.40	$ 27.82
2010	$ 40.24	$ 39.52	$ 33.17	$ 30.51	$ 24.12	$ 2.00	$ 23.48	$ 26.72	$ 27.41	$ 28.26	$ 30.23	$ 30.05	$ 27.94
2011	$ 21.90	$ 14.63	$ 10.18	$ 9.50	$ 2.66	$ (2.41)	$ 6.08	$ 20.39	$ 27.97	$ 24.66	$ 27.52	$ 28.53	$ 15.93
2012	$ 23.43	$ 21.89	$ 11.97	$ 1.80	$ 0.04	$ (1.29)	$ 0.85	$ 17.34	$ 23.20	$ 27.51	$ 26.04	$ 22.04	$ 14.55
2013	$ 25.06	$ 27.85	$ 30.05	$ 18.78	$ 10.51	$ 19.17	$ 20.86						$ 21.69

1 **Figure 1: Hourly Mid-C Pri**

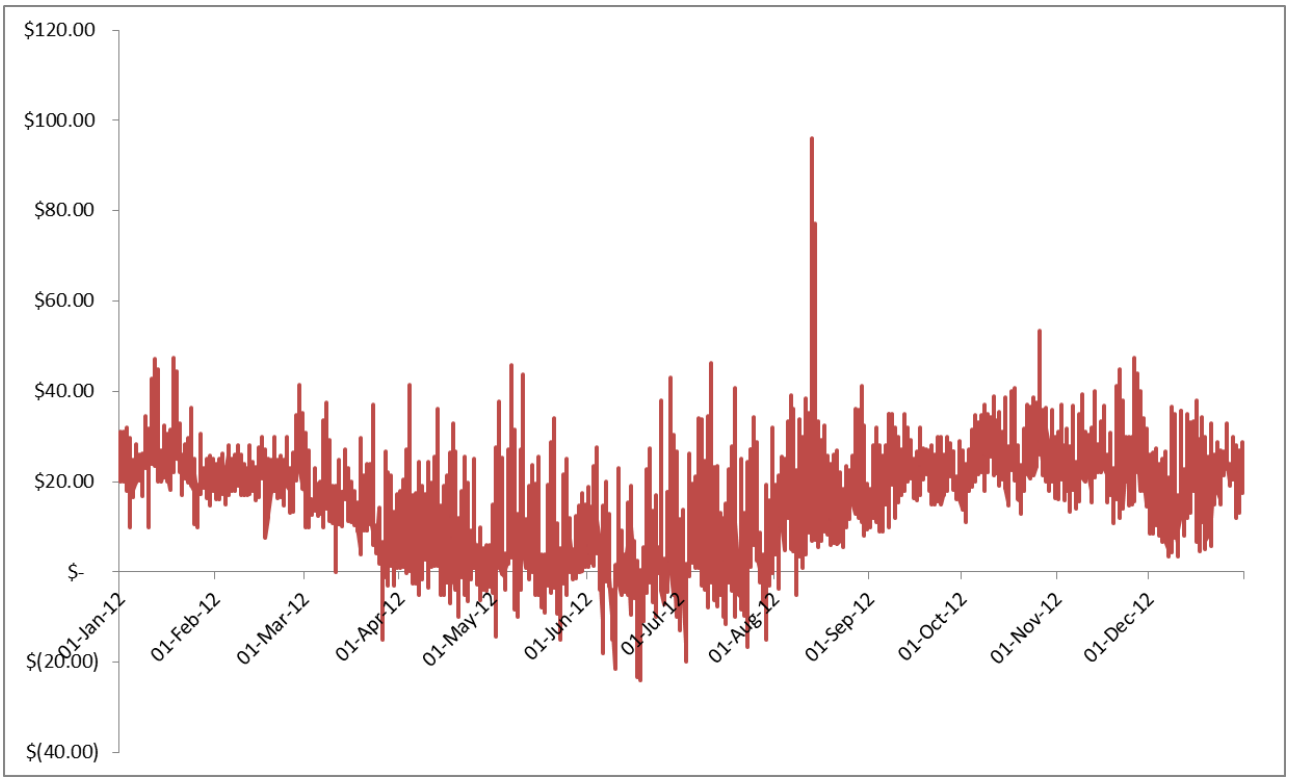

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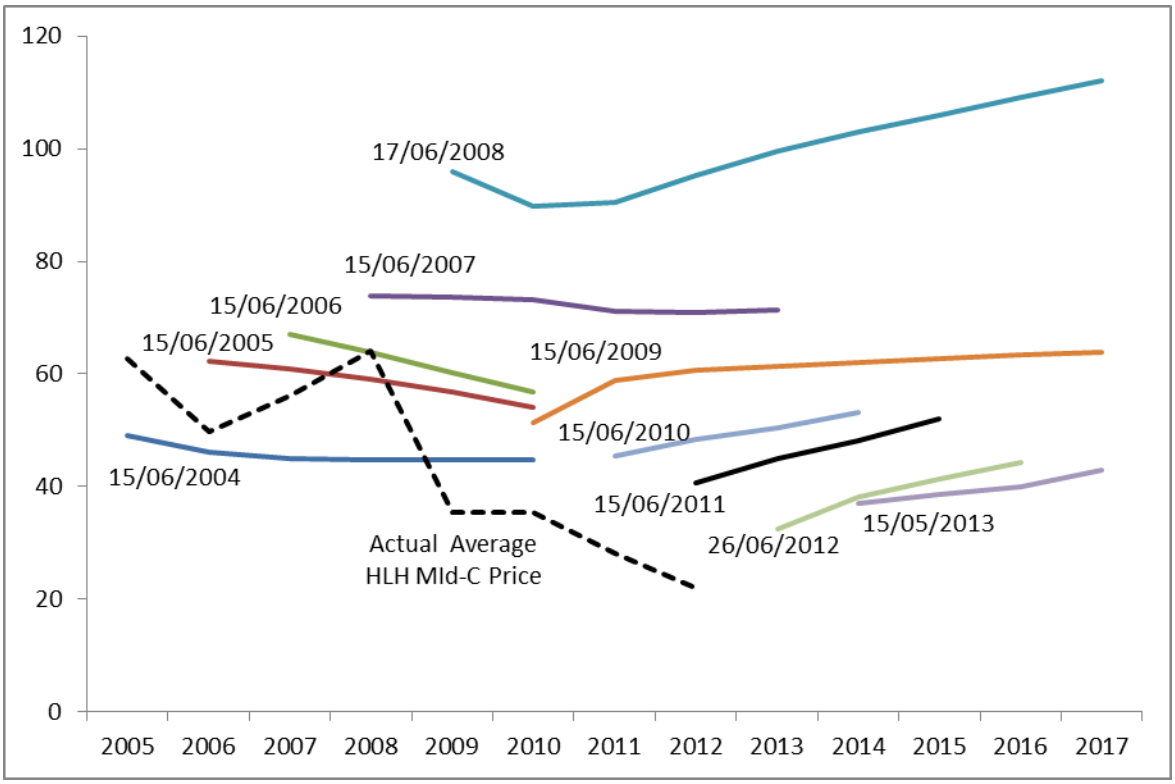
Figure 2



(c) How does FBC measure volatility?

Response:

In general, FBC views volatility in wholesale energy markets as referring to the amount of uncertainty or risk about the size and frequency of changes in market prices over a period of time. A higher volatility means that prices can potentially be spread out over a larger range of values, or that the prices can change dramatically over a short time period in either direction. A lower volatility means that values do not fluctuate dramatically, although changes in value could happen at a steady pace over a period of time. Although FBC does not currently use quantitative tools to measure volatility, FBC's assessment that there is significant volatility in the PNW market (as represented by Mid-C) is based on its observation and experience of historical annual, seasonal , and hourly price fluctuations, as described in the response to ICG IR2 Q2(a), and the recognition of the many factors that contribute to the uncertainty and unpredictability of future power prices as described below.

Electricity prices are extremely sensitive to the laws of supply and demand since it is very costly to directly store electricity and therefore it is generated on demand. Not all generators are able or willing to respond to changes in demand and the large majority of short term demand is totally insensitive to a load/supply imbalance. Therefore either supply shortages (resulting in price spikes) or over supply (resulting in prices that may even go negative) result. This can happen on short notice if regional imbalances come about as the result of the loss of key transmission lines or generation units. There is no guarantee from one hour to the next, one season to the next or year over year that prices will remain as predicted in previous periods.

The Pacific Northwest market is driven by many uncertain factors that drive price volatility, including stream flows, water supply, hydro generation, weather and temperatures, wind generation levels, thermal generation and unit outages, available transmission and system congestion, demand for energy, coal and natural gas prices, electric prices in neighbouring jurisdictions, and market liquidity. Economic drivers will impact both the load as well as the cost of alternative fuels such as natural gas. Weather directly impacts load through temperature and generation through wind and water supply. Other factors such as environmental considerations can be variable and can have major impacts on the flexibility of the generation system.

Given the large number of factors that can influence prices, it is difficult to predict with certainty year over year what the actual settled prices will be. A combination of events such as a critical water year combined with high loads could stress the system with the result that prices increase rapidly from their expected values with little notice. Any portion of the load that is subject to market price risk would then become costly to meet. Alternatively, a large water year combined with a sharp drop in economic activity would make any forecast of surplus power sales difficult to meet with no guarantee that there is sufficient load to take advantage of the low prices.

(d) What does FBC consider “significant” volatility?

Response:

Please refer to the responses to ICG FBC IRs 1.2(b) and 1.2(c). FBC considers market price volatility in the PNW significant due to the large and frequent fluctuations, and the number of factors that can result in large price movements from year to year, in particular in response to hydrological conditions. This volatility can create power purchase expense planning risk for FBC as there is often a significant variance between forecast and actual market prices.

(e) Please provide working electronic spreadsheets with embedded formulas containing all underlying data and calculations used to establish that "there remains significant volatility in market prices."

Response:

Attachment 2.2(e) provides an electronic spreadsheet that contains the data that is summarised in the response to 2.2(b). Please also refer to the responses to ICG FBC IRs 2.2(c) and 2.2(d).

3. Reference: FortisBC Inc Evidence, Appendix A, Business Risk, p. 23.

Rationale: FBC states: "Furthermore, in order to ensure the long-term viability of FBC's refurbished generating assets, there is a need to invest in the physical infrastructure that supports the electrical and mechanical components that have been refurbished. The infrastructure integrity risk presented by FBC's generation assets relates primarily to the ability of FBC to plan and execute long-term infrastructure sustainment and replacement programs for these critical assets. The concrete and structural work for these assets is spread over a number of years to ensure regular sustaining investment and prevent large capital expenditures in future years. However, the advanced age and condition of some of the physical generation assets present a risk of an increased rate of deterioration and an increase in construction costs in future years to address this deterioration."

Request: FBC would like a better understanding of the risk associated with FBC's infrastructure integrity.

(a) In what manner is FBC's ability to "plan and execute long-term infrastructure sustainment and replacement programs for these critical assets" risky? In what manner is it more risky than sustaining and replacing FEI's infrastructure?

Response:

There are two primary risks related to FBC's ability to plan and execute long-term infrastructure sustainment and replacement programs. The first relates to the risks associated with attracting and retaining adequate personnel with the required knowledge, skill, and experience to successfully manage and execute these programs. In particular, given the relatively low population and geographic isolation of the West Kootenay region, this risk could result in increased costs to complete these programs. In contrast to FEI whose infrastructure sustainment and replacement programs are performed over a much larger area, FBC faces a higher risk of labour cost escalation for completion of generation asset sustainment work in the West Kootenay region.

The second risk relates to the terms of the Canal Plant Agreement under which FBC receives generation entitlements from BC Hydro, as well as the management and execution of these programs within a limited seasonal construction window. As outages to FBC's river plants result in reductions of capacity and energy available to the Company under the Canal Plant Agreement, there is a risk of cost escalation from schedule delays that result in higher than anticipated replacement power purchase costs associated with any required generator outages. The cost escalation risk associated with schedule delays is also affected by the limited

construction window during which these programs can be completed. This is in contrast to FEI which has a much longer seasonal construction window in a significant portion of its service territory (as compared to FBC's West Kootenay region), and who do not face the same constraints and cost escalation risk associated with the completion of infrastructure sustainment and replacement programs under a supply agreement like the Canal Plant Agreement.

(b) In what manner has the risk of the rate of deterioration increased?

Response:

With respect to the concrete generation assets, a risk of increased deterioration is associated with two factors; freeze thaw cycles, and hydraulic erosion resulting from cavitation. Freeze thaw deterioration of concrete results in accelerated deterioration as each cycle may result in larger cracks and openings in the concrete, allowing deeper penetration of moisture and consequently even greater deterioration. Cavitation associated with hydraulic erosion can occur when roughness or surface irregularities is present along the flow path. As the process of hydraulic erosion creates more irregularities over time, cavitation will increase thus leading to further increases in the erosion rate. Although the actual rate of deterioration is difficult to predict, given the advanced age of these assets there is an increased risk of acceleration in the rate of deterioration associated with the factors discussed above.

(c) Can this risk be quantified?

Response:

Although it is clear that these risks exist, it is difficult to accurately provide a numberic quantification of these risks given the number of possible variables that could impact the risks, including the timing and scope of the required sustainment and replacement programs, the construction costs and availability of qualified resources in future years, and the costs of any replacement power required as a result of any necessary unit outages in future years.

(d) Has FBC conducted or commissioned any studies that have attempted to quantify or measure the infrastructure integrity risk or increased risk? If so, please provide.

Response:

FBC has conducted studies using external consultants to quantify the condition of existing infrastructure and quantify the infrastructure integrity risk. These studies and assessments can include prioritization of remediation and, when required, remediation is carried out from with areas of potential hazard receiving the highest priority for rehabilitation.

Examples, of these types of studies and assessments are provided in CONFIDENTIAL Attachment 3(d), and are being filed on a confidential basis in accordance with the Commission's Practice Directive on Confidential Filings, as this information should not be made public for asset security reasons. CONFIDENTIAL Attachment 3(d) includes:

1. Upper Bonnington: Head & Sluice Gate Structures – Structural Inspection, Appendix E – Structural Analysis, prepared by Redwood Engineering, dated 2008 – Note that FBC was not able to locate the remainder of this report at the time of filing;
2. Concrete – Visual Inspection Report for Lower Bonnington (P1), Upper Bonnington (P2), South Slocan (P3) and Corra Linn (P4), prepared by Redwood Engineering Inc., dated November 2009;
3. Lower Bonnington: P1 Head & Sluice Gate Structures – Structural Inspection Report, prepared by Redwood Engineering Ltd., dated December 2010;
4. South Slocan: P3 Head Gate Superstructures – Structural Inspection Report, prepared by Redwood Engineering Ltd., dated December 2010;
5. Lower Bonnington: Rock Slope Stability Assessment, prepared by Golder Associates Ltd., dated December 19, 2012; and
6. Corra Linn Hydroelectric Project: Dam Breach Inundation Study, prepared by Knight Piésold Consulting Ltd., dated January 21, 2013.

(e) Has FBC conducted any studies that have attempted to quantify or predict the probability of infrastructure failure? If so, please provide.

Response:

Yes, FBC has conducted probability of failure analysis when required to assess risk.

Examples, of these types of studies and assessments are provided in CONFIDENTIAL Attachment 3(e), and are being filed on a confidential basis in accordance with the Commission's Practice Directive on Confidential Filings, as this information should not be made public for asset security reasons. CONFIDENTIAL Attachment 3(e) includes:

1. Corra Linn Hydroelectric Project: Sluice Gates – Structural Analysis and Risk Assessment, prepared by Scouten & Associates Engineering Ltd., November 2010;
2. Corra Linn Hydroelectric Project: Spillway Gates Analysis, prepared by Scouten & Associates Engineering Ltd., dated 2011;
3. Corra Linn Hydroelectric Project: Dam Safety Review, prepared by Knight Piésold Consulting Ltd., dated December 20, 2012; and
4. Lower Bonnington: Dam Safety Review, prepared by Knight Piésold Consulting Ltd., dated May 24, 2013.

4. Reference: FortisBC Inc Evidence, Appendix B, Expert Opinion of Kathleen McShane, p. 8.

Rationale: Ms. McShane states: "The relative cost of A rated debt versus Baa/BBB rated debt varies with market conditions, but ratings in the Baa/BBB category can be materially more costly to ratepayers than ratings in the A category." She elaborates in a footnote: "Over the past 15 years, the average spread between yields on long-term BBB-rated and A-rated corporate debt in Canada has been 75 basis points. During the same period, the spread has been as high as 200 basis points."

Request:

(a) Please provide the monthly historical data series over the past 15 years for the yield on AAA, AA, A, BBB, BB+ rated (DBRS nomenclature) Canadian corporate debt, including the yield on A rated Canadian corporate debt and the yield on BBB rated Canadian corporate debt referred to in footnote 11 of Ms. McShane's evidence.

Response:

The cited passage of Ms. McShane's testimony does not refer to AAA, AA or BB+ data. Ms. McShane does not have the requested BB+ data. Otherwise, all requested data are proprietary and under strict-use license. Therefore, the data cannot be provided to other parties under the terms of the license.

5. Reference: FortisBC Inc. Response to BCUC Information Request No. 1, Question & Response 22.3.

Rationale: In response to a Commission IR, FBC provided a table containing FBC's allowed and achieved ROE from 2003 through 2012.

Request: ICG would like more information on the history of FBC and FEI's allowed and actual ROE, capital structure, and credit ratings.

(a) Please provide FBC and FEI's allowed and actual ROE from 1994 to the present. Please also indicate for each year what the benchmark ROE was and what FBC's equity risk premium was.

Response:

Please refer to the table below. The Allowed ROE for both FBC and FEI are shown post sharing in those years where ROE sharing mechanisms were in place.

	FBC		FEI			
	Allowed ROE	Achieved ROE	Allowed ROE	Achieved ROE	Benchmark ROE	FBC Equity Risk Premium
1994	11.00%	10.44%	10.65%	9.73%	n/a	n/a
1995	12.25%	12.42%	12.00%	12.03%	AAM	25 bp
1996	11.25%	12.57%	11.00%	11.80%	AAM	25 bp
1997	10.50%	11.94%	10.25%	11.27%	AAM	25 bp
1998	10.25%	10.26%	10.00%	9.41%	AAM	25 bp
1999	9.50%	10.48%	9.25%	10.70%	AAM	25 bp
2000	9.90%	10.00%	9.50%	10.75%	9.50%	40 bp
2001	9.65%	10.20%	9.25%	9.31%	9.25%	40 bp
2002	9.53%	8.24%	N/A	9.73%	9.13%	40 bp
2003	9.82%	10.88%	9.42%	10.23%	9.42%	40 bp
2004	9.55%	10.70%	9.15%	9.25%	9.15%	40 bp
2005	9.43%	9.88%	9.03%	9.91%	9.03%	40 bp
2006	9.20%	9.94%	8.80%	9.64%	8.80%	40 bp
2007	8.77%	9.23%	8.37%	9.55%	8.37%	40 bp
2008	9.02%	9.28%	8.62%	9.63%	8.62%	40 bp
2009	8.87%	9.41%	8.99%	10.44%	8.47%	40 bp
2010	9.90%	9.65%	9.50%	9.42%	9.50%	40 bp
2011	9.90%	10.67%	9.50%	10.15%	9.50%	40 bp
2012	9.90%	10.52%	9.50%	10.12%	9.50%	40 bp

(b) Please provide FBC and FEI's allowed and actual common equity ratio from 1994 to the present.

Response:

Please refer to the table below.

	FBC		FEI	
	Allowed Common Equity	Actual Common Equity	Allowed Common Equity	Actual Common Equity
1994	39.00%	43.98%	33.00%	33.00%
1995	36.50%	43.53%	33.00%	33.00%
1996	39.99%	42.42%	33.00%	33.00%
1997	40.00%	42.76%	33.00%	33.00%
1998	40.00%	41.51%	33.00%	33.00%
1999	40.02%	42.72%	33.00%	33.00%
2000	40.00%	42.03%	33.00%	33.00%
2001	40.00%	45.14%	33.00%	33.00%
2002	40.00%	46.73%	33.00%	33.00%
2003	40.00%	42.49%	33.00%	33.00%
2004	40.00%	43.02%	33.00%	33.00%
2005	40.00%	41.70%	33.00%	33.00%
2006	40.00%	40.21%	35.00%	35.00%
2007	40.01%	40.38%	35.01%	35.01%
2008	40.00%	41.66%	35.01%	35.01%
2009	40.00%	42.19%	35.01%	35.01%
2010	40.00%	41.97%	40.00%	40.00%
2011	40.00%	40.69%	40.00%	40.00%
2012	40.00%	41.38%	40.00%	40.00%

(c) Please provide FBC and FEI's credit ratings from all sources from 1994 to the present.

Response:

In addition to the 2002 to 2012 history of credit ratings provided as part of the minimum filing requirements evidence in Stage 1, the requested credit ratings have been provided.

FortisBC Inc.		
Year	**DBRS**	**Moody's[1]**
Unsecured Debentures		
2013	A(low) Stable	Baa1 Neg
Secured Debentures		
2013	A(low) Stable	n/a
2001	BBB (high) Stable	n/a
2000	BBB (high) Stable	n/a
1999	BBB (high) Stable	n/a
1998	BBB (high) Stable	n/a
1997	BBB (high) Stable	n/a
1996	BBB (high) Stable	n/a
1995	BBB (high) Stable	n/a
1994	A(low) Neg	n/a
NOTES: 1 - Moody's credit rating was issued in November 2004 at the time of the Company's first public unsecured debenture issuance.		

FortisBC Energy Inc.				
Year	**DBRS**	**CBRS**	**S&P**	**Moody's**
Unsecured Debentures				
2013	A Stable	n/a	n/a	A3 Neg
2001	A Stable	n/a	BBB+	A2
2000	A Stable	A-	n/a	n/a
1999	A Stable	A(low)	n/a	n/a
1998	A Stable	B++(high)	n/a	n/a
1997	A Stable	B++	n/a	n/a
1996	A Stable	B++	n/a	n/a
1995	A neg	B++	n/a	n/a
1994	A neg	B++	n/a	n/a
Secured Debentures				
2013	A Stable	n/a	n/a	A1 Neg
2001	A Stable	n/a	A-	A1
2000	A Stable	A	n/a	n/a
1999	A Stable	A	n/a	n/a
1998	A Stable	A(low)	n/a	n/a
1997	A Stable	A(low)	n/a	n/a
1996	A Stable	A(low)	n/a	n/a
1995	A neg	A(low)	n/a	n/a
1994	A neg	A(low)	n/a	n/a

S&P acquired CBRS. Following the acquisition, the ratings were issued under S&P.

FortisBC Inc. (Electric) Credit Rating Reports from 1994-2013

Year	Rating Agency	Rating
2013	DBRS	A(low)
2012	DBRS	A(low)
2011	DBRS	A(low)
2010	DBRS	A(low)
2009	DBRS	BBB(high)
2008	DBRS	BBB(high)
2007	DBRS	BBB(high)
2004	DBRS	BBB(high)
2003	DBRS	BBB(high)
2002	DBRS	BBB(high)
2001	DBRS	BBB(high)
2000	DBRS	BBB(high)
1999	DBRS	BBB(high)
1998	DBRS	BBB(high)
1997	DBRS	BBB(high)
1996	DBRS	BBB(high)
1995	DBRS	A(low)
1994	DBRS	A(low)

Year	Rating Agency	Rating
2013	Moody's	Baa1
2012	Moody's	Baa1
2011	Moody's	Baa1
2010	Moody's	Baa1
2009	Moody's	Baa2
2008	Moody's	Baa2
2007	Moody's	Baa2
2004	Moody's**	Baa3

**FortisBC's initial Moody's debt rating was issued in November 2004, prior to the Company's first public debt offering. In order to make a public debt offering, a company requires two debt ratings and DBRS was already rating the Company's Secured Debentures. All of FortisBC's long-term debt offerings prior to November 2004 had been private placements.

1
2

6. Reference: FortisBC Inc. Evidence, pp. 8-9, Tables 1 and 2 and FortisBC Inc. Response to BCUC Information Request No. 1, Response 3.12 Tables 1 and 2

Rationale: In its response to the Commission's IR No. 1, Response 3.12, FBC provided a table giving the results of calculations asked by the Commission. ICG would like to understand better the calculations underlying FBC's credit metrics tables.

Request: Please provide working electronic spreadsheets containing all underlying calculations for tables 1 and 2 in FBC's evidence and tables 1 and 2 in FBC's response to BCUC IR No 1., 3.12.

Response:

Attachment 6 contains the requested working electronic spreadsheet.

7. Reference: FortisBC Inc Evidence, Appendix A, Business Risk, pp.6-10 and FortisBC Inc Evidence, Appendix B, Expert Opinion of Kathleen McShane, pp. 6-8.

Rationale: FBC and Ms. McShane argue that the failure to receive a requested ROE of 9.25% to 9.5% and a requested equity ratio of 40% would put the utility at risk of being downgraded by the credit rating agencies. Moreover, a lower credit rating is seen as adversely affecting FBC's ability to raise new debt or refinance old debt in the credit market.

Request: ICG would like some more information on FBC's view of the financial effect of a failure to receive its requested ROE and equity ratio.

(a) Provide an estimate of the debt cost FBC believes it would be able to achieve if it were to receive its requested ROE and equity ratio.

Response:

FBC expects that it would be able to maintain a cost of debt representative of an entity rated A(low) by DBRS and Baa1 by Moody's, should it receive a risk premium of 50 to 75 basis points and equity thickness of 40 percent. FBC's long-term and short-term cost of debt included in the July 5, 2013 filing of FBC's 2014-2018 PBR Application is based on ratings of A(low) and Baa1 by DBRS and Moody's respectively, as follows:

Table 1 – FBC's forecasted long-term cost of debt

	2013	2014	2015	2016
30 YR GOC	2.75%	3.25%	3.75%	4.00%
Indicative Spread	1.50%	1.50%	1.50%	1.50%
New Issue Rate	4.25%	4.75%	5.25%	5.50%

Table 2 – FBC's forecasted short-term cost of debt

	2013	2014	2015	2016
Banker's Acceptances				
3-month T-Bills	0.98%	1.17%	2.03%	2.80%
Spread to CDOR	0.27%	0.27%	0.27%	0.27%
Acceptance Fee Rate	1.00%	1.00%	1.00%	1.00%
Bankers' Acceptance (Rounded)	2.30%	2.50%	3.40%	4.10%
Prime Lending Rate				
Prime Rate	3.00%	3.20%	4.06%	4.79%
Prime Rate Margin	0.00%	0.00%	0.00%	0.00%
Prime Lending Rate	3.00%	3.20%	4.06%	4.79%
Weighted Average Short-term Debt Rate	**2.40%**	**2.60%**	**3.50%**	**4.20%**

Note that this forecasted cost of debt is based on a credit rating of A(low) by DBRS and Baa1 by Moody's at a point in time used to file the July 5, 2013 2014-2018 PBR RRA. The estimates for the borrowing costs are subject to change. An update to the cost of debt will be provided as an Evidentiary Update to FBC's 2014-2018 PBR RRA.

(b) Under the assumption that FBC failed to receive its requested ROE and equity ratio, receiving instead the benchmark levels, please calculate the effect of an ensuing increase in debt costs of (i) 25 basis points, (ii) 50 basis points, (iii) 75 basis points and (iv) 100 basis points on FBC's revenue requirement over the next 3 years.

Response:

The following forecasted revenue requirements for FBC, based off of the July 5, 2013 filing of the 2014-2018 PBR Application, holding all other factors equal, and based on the sensitivities set out in the IR question are as follows:

Benckmark ROE @ 8.75% + 40 bps premium and Equity Ratio @40% (FBC's current ROE and equity)

	2014	2015	2016
	($000s)		
Revenue Requirements from July 5, 2013 filing of 2014-2018 PBR Application	323,405	335,990	349,102

Using a benchmark ROE @ 8.75% and Equity Ratio @ 38.5%

	2014	2015	2016
Increase in debt costs of	($000s)		
@ 0 bp	319,110	331,758	344,919
@ 25 bps	319,471	332,500	345,755
@ 50 bps	319,832	333,242	346,591
@ 75 bps	320,192	333,985	347,427
@ 100 bps	320,553	334,727	348,263

The requested increases in "cost of debt" pursuant to the IR have been applied to the new forecasted long-term debt issuances in each of 2014 and 2016 and short-term interest rates. Also note that revenue requirements forecast for 2015 and 2016 are indicative only and will be subject to change and reforecast as part of the Annual Reviews over the PBR term.

(c) Please provide an estimate of FBC's revenue requirement were it to receive its requested ROE and equity percentage and be able to borrow at the debt cost level given in section (a) above and compare it to the revenue requirements estimated in section (b) above.

Response:

The following table provides the base case revenue requirements , which is FBC's revenue requirements as filed in the July 5, 2013 filing of FBC's 2014-2018 PBR Application., including its forecast cost of debt, an allowed ROE of 9.15% and equity thickness of 40%.

Benckmark ROE @ 8.75% + 40 bps premium and Equity Ratio @40% (FBC's current ROE and equity)*

	2014	2015	2016
	($000s)		
Revenue Requirements from July 5, 2013 filing of 2014-2018 PBR Application*	323,405	335,990	349,102

*representative of the revenue requirements and debt costs included in the July 5, 2013 2014-2018 PBR Application

The following table (Comparison 1) is comparing:

- FBC's estimated revenue requirements with an allowed ROE of **9.25%** and equity thickness of 40% and a cost of debt subject to ratings of A(low) with DBRS and Baa1 with Moody's as at the time of filing FBC 2014-2018 PBR RRA on July 5, 2013 as per the response to ICG IR 2.7(a), with

- FBC's estimated revenue requirements with the benchmark utility's allowed ROE of 8.75% and equity thickness of 38.5% and the requested increases in cost of debt requested pursuant to ICG 2.7(b)

COMPARISON 1 - Benckmark ROE @ 8.75% + 50 bps premium and Equity Ratio @40%

	2014	2015	2016
	($000s)		
Estimated Revenue Requirements with cost of debt subject to ratings of A(low) with DBRS and Baa1 with Moody's per ICG IR 2.7(a)	324,061	336,662	349,787

Variance from Estimated Revenue Requirement in ICG IR 2.7(b) which is using the benchmark ROE@8.75% and equity thickness of 38.5% plus the following increases in cost of debt:	2014	2015	2016
	($000s)		
@ 25bps	(4,590)	(4,162)	(4,032)
@ 50bps	(4,229)	(3,420)	(3,196)
@ 75bps	(3,869)	(2,677)	(2,360)
@ 100bps	(3,508)	(1,935)	(1,524)

The following table (Comparison 2) is comparing:

- FBC's estimated revenue requirements with an allowed ROE of **9.50%** and equity thickness of 40% and a cost of debt subject to ratings of A(low) with DBRS and Baa1

with Moody's as at the time of filing FBC 2014-2018 PBR RRA on July 5, 2013 as per the response to ICG IR 2.7(a), with

- FBC's estimated revenue requirements with the benchmark utility's allowed ROE of 8.75% and equity thickness of 38.5% and the requested increases in cost of debt requested pursuant to ICG 2.7(b)

COMPARISON 2 - Benckmark ROE @ 8.75% + 75 bps premium and Equity Ratio @40%

	2014	2015	2016
	($000s)		
Estimated Revenue Requirements with cost of debt subject to ratings of A(low) with DBRS and Baa1 with Moody's per ICG IR 2.7(a)	325,699	338,341	351,500

Variance from Estimated Revenue Requirement in ICG IR 2.7(b) which is using the benchmark ROE@8.75% and equity thickness of 38.5% plus the following increases in cost of debt:	2014	2015	2016
	($000s)		
@ 25bps	(6,228)	(5,841)	(5,745)
@ 50bps	(5,867)	(5,099)	(4,909)
@ 75bps	(5,507)	(4,356)	(4,073)
@ 100bps	(5,146)	(3,614)	(3,237)

Note that the revenue requirements forecast for 2015 and 2016 are indicative only and will be subject to change and reforecast as part of the Annual Reviews over the PBR term. Further, an Evidentiary Update to the 2014-2018 PBR Application will be filed in October 2013 which will result in a change to revenue requirements and cost of debt.

Attachment 1(a)

REFER TO LIVE SPREADSHEET MODEL

Provided in electronic format only

(accessible by opening the Attachments Tab in Adobe)

Attachment 2(e)

REFER TO LIVE SPREADSHEET MODELS

Provided in electronic format only

(accessible by opening the Attachments Tab in Adobe)

Attachment 3(d)

FILED CONFIDENTIALLY

(Provided in electronic format only due to document size and in order to conserve paper)

Attachment 3(e)

FILED CONFIDENTIALLY

(Provided in electronic format only due to
document size and in order to conserve paper)

Attachment 6

REFER TO LIVE SPREADSHEET MODELS

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