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February 29, 2016

British Columbia Utilities Commission
Sixth Floor
900 Howe Street
Vancouver, B.C.
V6Z 2N3

Attention: Ms. Laurel Ross, Acting Commission Secretary and Director

Dear Ms. Ross:

Re: Project No. 3698852

FortisBC Energy Inc. (FEI or the Company)

Application for its Common Equity Component and Return on Equity (ROE) for 2016 (the Application)

Rebuttal Evidence

In accordance with Exhibit A-6 setting out the Regulatory Timetable for the review of the Application, FEI respectfully submits the attached Rebuttal Evidence. The Rebuttal Evidence is provided in two components, Rebuttal Evidence from the Company and separate Rebuttal Evidence from expert, Mr. James Coyne of Concentric Energy Advisors Inc.

If further information is required, please contact the undersigned.

Sincerely,

FORTISBC ENERGY INC.

Original signed:

Diane Roy

Attachments

cc (email only):   Registered Parties

BRITISH COLUMBIA UTILITIES COMMISSION
2016 COST OF CAPITAL PROCEEDING

Rebuttal Evidence of
FortisBC Energy Inc.

February 29, 2016

1 **Q1:   What is the purpose of this Rebuttal Evidence and how is it organized?**

2 **A1:** The purpose of this Rebuttal Evidence is to provide FEI's response to aspects of the

3   evidence of Dr. Laurence Booth (Exhibit C7-7-1). Specifically, FEI responds to Dr. Booth's

4   discussion regarding:

5   o   FEI's access to debt markets;

6   o   Business risk assessment;

7   o   Credit ratings issues; and

8   o   Debt issuance test under FEI's Trust Indenture.

9

10   FEI has not sought to reply to every matter, particularly where matters have already

11   been addressed in FEI's primary Evidence or they relate to the scope of Mr. Coyne's

12   testimony. Our silence should not be construed as agreement.

13

14   Mr. Coyne has provided separate rebuttal as it relates to the scope of his evidence.

15 **FEI's ACCESS TO DEBT MARKETS**

16 **Q2:   On page 26, lines 6-10, Dr. Booth states:**

17   *"At the current point in time with the low overnight rate, 91 day Treasury Bills are at 0.45%*
18   *and high grade commercial paper is at 0.82% or a premium of 0.37%. In contrast, at the time*
19   *of my GCOC evidence in 2012 the cost of commercial paper was 0.34% higher at 1.16%. There*
20   *is no question that top quality credits can now access funds in the short term money market*
21   *more cheaply than in 2012".*

22   **How do you respond to these statements?**

23

24 **A2:**   Dr. Booth's conclusion regarding FEI's access to short-term debt markets does not

25   address the increase in credit spreads (the premium over the T-bill rate) associated with

26   commercial paper borrowings during this period.

27

28   *The credit spread relative to 90 day T-Bills has actually increased since 2012:* Dr. Booth

29   states that the CP premium over the T-bill rate at the time of his analysis in this

30   proceeding was 0.37%. Comparatively and as indicated in the table below, the implied

31   credit spread for his 2012 evidence in the GCOC Stage-1 proceeding, was only 0.24%,

1 based on the 90 day T-bill rate of 0.92% and the CP rate of 1.16%[1]. That is, the implied
2 premium over the T-bill has increased by 13 bps.

(%)	T-Bill Rate	CP Rate	Implied Spread
Rates used by Dr.Booth in GCOC-Stage 1 proceeding	0.92	1.16	0.24
Rates used by Dr.Booth in this proceeding	0.45	0.82	0.37
Differential	0.47	0.34	(0.13)

Note: Based on 90 day T-Bill rate (daily series).

3
4
5 Based on the above table, one may conclude that markets view commercial paper
6 issuers as relatively riskier in 2015 in comparison with 2012 or that investors are more
7 risk averse today than in 2012.
8
9 This conclusion is further supported by an assessment of the commercial paper rates of
10 FEI. The following table considers this same premium above T-bill rates, using FEI's
11 annual average commercial paper rates and the average Bank of Canada 90 day T-bill
12 rate in 2012 and 2015.

(%)	T-Bill Rate[1]	FEI CP Rate	Implied Spread
Average 2012 rates	0.94	0.97	0.03
Average 2015 rates	0.53	0.76	0.23
Differential	0.41	0.21	(0.20)

1 - T- Bill rates are based on Bank of Canada 90 day T-Bill rate (daily series).

13
14 There has been an increase of 20 bps in FEI's credit spread above the T-bill rate from
15 2012 to 2015.

16 **BUSINESS RISK ASSESSMENT**

17 **Q3:   On page 66, lines 4-11, Dr. Booth states:**

18 *"In 2002 the BCUC had to decide how to protect Pacific Northern Gas (PNG) from significant*
19 *load losses. In response it allowed a special Industrial Customers Deliveries Deferral Account to*
20 *capture the difference between forecast and actual sales to Methanex and some other big*
21 *industrial customers. It also approved a longer term contract with Methanex at reduced tolls*
22 *to keep it on PNG's system. This is the normal regulatory response in Canada, which is to set*
23 *up a deferral account to capture hard to estimate items to make sure that they are passed on*
24 *to customers and not born by the utility's shareholders".*
25

---

[1] GCOC Stage 1 Proceeding, Exhibit C6-12, Evidence of Dr. Booth, p. 48, lines 5-6.

1   **How do you respond to these statements?**

2

3 **A3:**   The case of PNG demonstrates that utility shareholders remain exposed to significant
4   losses even following significant regulatory intervention. In 2000, Methanex shut down
5   its operation for a one-year period. PNG's stock prices dropped from $27.30 per share
6   (1998 last price) to $7.95 per share (2000 last price). Similarly, PNG's dividend per share
7   decreased from $1.10 per share in 1998 to $0.56 per share in 2000[2].

8

9   Unlike residential and commercial customers that represent the largest portion of FEI's
10   load, Methanex was an industrial customer with take or pay clauses. When Methanex
11   finally terminated its Transportation Agreement with PNG it had to pay close to $23.3
12   million in termination fees to PNG (approximately equal to the net present value of the
13   remaining firm payment obligations under the agreement, net of PNG's avoided costs)[3].
14   This contractual clause helped PNG to recover some of the cost of service associated
15   with Methanex, and the payment was amortized over 44 months to smooth the rate
16   impact that would have otherwise resulted from Methanex leaving the system. The
17   same type of take or pay clauses do not exist for FEI's residential and commercial
18   customers.

19 **Q4:**   **On page 69 of his evidence, Dr. Booth provides a graph of FEI's allowed ROE vs pre-**
20   **sharing earned ROE and states:**

21   *"Over the period since 1994 the difference between FEI's allowed and earned ROE, prior to any*
22   *sharing from performance based regulation, has been 0.86%. This average is slightly high due*
23   *to a 0.92% under earning in 1994. The more recent performance since 2003 when there is*
24   *uninterrupted data is for a 1.17% over earning. To all intents and purposes FEI's shareholders*
25   *have not suffered any losses or experienced any risk."*

26   **What is your response to this evidence?**

27 **A4:**   FEI confirms that, on average, it has achieved or exceeded its allowed ROE since 1994
28   (there are two instances where FEI under-earned its allowed ROE). However, the results
29   presented by Dr. Booth in terms of the magnitude of the past variances are overstated.

---

[2] Bloomberg database.
[3] Retrieved from: http://www.png.ca/history/.

1   For 11 of the 21 years between 1994 through 2014 that Dr. Booth has examined, FEI
2   was subject to formulaic rate setting mechanisms. FEI operated under PBR plans in the
3   years 1998-2001 and 2004-2009 and 2014. During those periods, one or both of O&M
4   and capital were set according to formula. These PBR mechanisms are designed to
5   encourage the utility to find operating and capital efficiencies that can yield savings.
6   Any savings achieved during PBR are shared equally between customers and the
7   shareholder, and costs are rebased at the conclusion of the PBR plan so that the savings
8   are embedded in rates in subsequent years.

9   As Dr. Booth acknowledged in his testimony, his graph depicts pre-sharing ROE, not
10   post-sharing ROE. FEI has re-created Dr. Booth's graph reflecting post-sharing ROE.
11   With that adjustment, the average ROE over the 1994-2014 period is 0.52% over the
12   allowed ROE.

13

FEI's Allowed and Actual (pre-ESM and post ESM) ROE

14
15
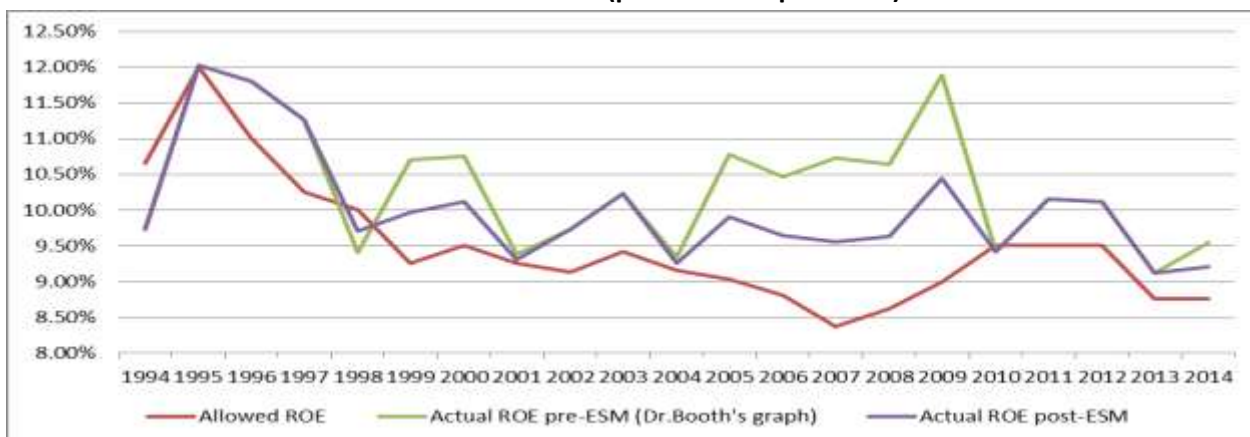
16   FEI does not accept Dr. Booth's contention that utilities which generally achieve their
17   allowed ROE are risk-free.

18 **Q5:**   **On page 71, Dr. Booth provides a graph of capital investments in the natural gas sector**
19   **in 2014. He then states:**

20   *"As the CGA explains, upstream extraction invested $19 billion, pipeline expansion another $1*
21   *billion and there was a further $2.6 billion in distribution spending. The significant amount*
22   *spent on distribution indicates that the industry does not see any long run market problems."*
23
24   **How do you respond to this evidence?**
25

1 **A5:**   The data cited by Dr. Booth relates to the entire spectrum of Canadian natural gas
2   distribution utilities in various jurisdictions, and not BC alone. The stated amount is not
3   limited to the growth capital, but also includes sustainment and integrity as well as IT
4   and facilities capital expenditures.[4] Regulated utilities are obliged to provide safe and
5   reliable service to their customers and as such have to invest in their networks,
6   irrespective of future demand risk.

8   As shown in the figure below and based on 2014 data, sustainment capital represents
9   the biggest share of FEI's total capital expenditure with close to 60 percent of FEI's
10   regular capital expenditure going towards system reinforcements, asset renewals and
11   replacements. IT capital investments are also necessary to increase efficiency and
12   reduce the long-term operational expenditures of utilities, and cannot be directly
13   equated to growth investment either. Furthermore, incremental growth capital
14   expenditure in developing sectors (such as natural gas for transportation or renewable
15   natural gas) may be required to mitigate the challenges faced by utilities in more mature
16   but declining sectors; that is the case for FEI, as described on page 13 of FEI's Business
17   Risk appendix.

18   FEI's 2014 capital expenditure by category

---
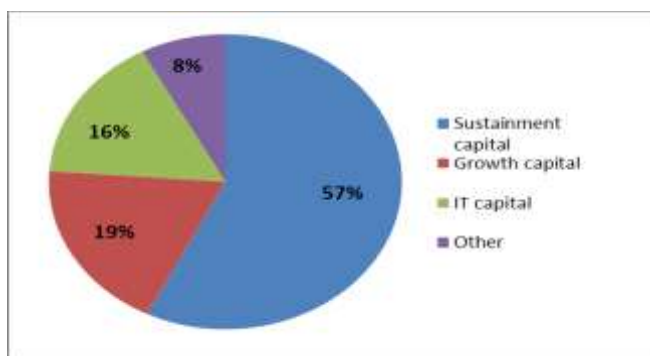
[4] Dr. Booth confirmed this in his response to FEI-AMPC IR 1.23.1. Dr. Booth did not provide any break-down of the total capital expenditure.

1 **Q6:** **On page 80, Dr. Booth provides a graph of Canada's GHG Emissions per kilometers of**
2 **transmission, distribution and service lines trend and concludes that:**

3 *"Despite the continued expansion of the natural gas distribution system, green-house gas*
4 *emissions from the system (GHG) are declining. What this means is that the distribution*
5 *system itself is getting cleaner."*

6

7 **What is your response to Dr. Booth statement?**

8

9 **A6:** The graph provided on page 80 of Dr. Booth's evidence relates to entire transmission
10 and distribution kilometers of mains and service lines in Canada. In other words, it
11 includes data for provinces such as Ontario and Alberta, which are increasingly
12 transitioning from coal powered power plants to natural gas fired and combined cycle
13 power plants to curb their GHG emissions and have invested in new infrastructure to
14 transport the required natural gas to consumption points. For instance, in 2014 the
15 government of Ontario announced that it became coal-free (for power generation
16 purposes)[5]. This is significant considering that in 2004 close to 25 percent of Ontario's
17 power was generated by coal fired plants[6]. On the other hand, more than 93 percent of
18 BC's power is generated by hydro-electric plants. Unlike many other parts of Canada,
19 reductions of GHG emissions on FEI's system are associated with loss of load
20 (particularly residential load), which is a business challenge for FEI, not a competitive
21 advantage.

22 **Q7:** **On page 80, Dr. Booth states:**

23 *"Further, I do not see slower growth prospects as a risk factor, since it does not affect the*
24 *value or the risk of assets in place. If FEI does see the provincial government requiring the*
25 *removal or modification of natural gas heating systems, the correct response is a depreciation*
26 *study to depreciate the assets more quickly and reduce any stranded asset risk. In this way*
27 *t[sic] keep FEI whole in terms of its risk exposure."*
28

29 **What is your response to this statement?**

30

31 **A7:** FEI's problems with respect to slower growth prospects, and in particular the provincial
32 and local governments requiring the removal or modification of natural gas heating

---

[5] Coal-fired electricity was replaced by a mix of baseload, intermittent and peaking capacity, including 5,500 MW
     of new gas fired and combined cycle power plants.
[6] http://www.energy.gov.on.ca/en/archive/the-end-of-coal/

1 systems, cannot be solved by a depreciation study, even one with accelerated
2 depreciation rates. Accelerating depreciation does not keep FEI whole in terms of its
3 risk exposure, as it increases costs to any customers that remain on the system.

4

5 FEI takes the City of Vancouver (CoV) as an example. The CoV's Renewable City Strategy
6 which was discussed in the response to CEC IR 1.44.1 establishes two targets:

7

8 Target 1: Derive 100% of the energy used in Vancouver from renewable sources before
9   2050
10 Target 2: Reduce Greenhouse Gas emissions by at least 80% below 2007 levels before
11   2050

12

13 If the objectives established by the CoV are achieved, there would be negligible natural
14 gas consumption within the CoV by 2050.

15

16 The loss of existing load in the CoV of approximately 27 PJ by itself represents
17 approximately $100 million in annual delivery revenue at current rates. The loss of load
18 would mean an incremental rate increase each year until fully realized in 2050, with the
19 increases each year dependent on the pattern of the load loss over that period of time.

20

21 In addition to the load loss, FEI has over $172 million (net book value) of mains and
22 services installed in the CoV. FEI would incur incremental costs to decommission the
23 assets, which at FEI's current net salvage rates of 20% for mains and 50% for services
24 would amount to approximately $90 million in today's dollars.

25

26 Dr. Booth's proposed solution of a depreciation study does not consider the revenue
27 deficiency and associated rate impacts[7] created by:
28   1. The $100 million loss of load;
29   2. The recovery of $172 million of assets on an accelerated basis; or
30   3. The $90 million of decommissioning costs.

31

32 All of these costs would need to be recovered from fewer remaining customers.

---

[7] FEI's 2016 non-bypass delivery revenue requirement is $730 million.

1

2   Although these rate impacts would be significant on their own, they still do not capture
3   the facts that:

4   1.   Sustainment capital would still be required in the CoV for those assets that
5   remain in service, to serve adjacent load and to ensure the safety and reliability
6   of FEI's system.

7   2.   The loss of any growth opportunities in the CoV, including the loss of any current
8   or future CNG load in the area.

9   3.   The above analysis is limited to the CoV assets. To the extent that other
10   municipalities pursue similar GHG emissions targets, the impact on any
11   remaining customers will be greater.

12

13 ## CREDIT RATINGS ISSUES

14 **Q8:   On page 81, lines 8-12, Dr. Booth states the following:**

15 *"In terms of its "financial metrics" I am extremely reluctant to benchmark my*
16 *recommendations against guidelines issued by the rating agencies, such as Moody's for two*
17 *reasons. First, DBRS has long maintained the exact same "A" rating on FEI and its predecessor*
18 *companies through periods when it had a 33% common equity ratio, a 35% common equity*
19 *ratio, a 40% common equity ratio and most recently a 38.5% common equity ratio."*

20 **On page 82, lines 1-4, Dr. Booth further expands on this subject with the following**
21 **points:**

22 *"Also as DBRS indicates FEI has had an interest coverage ratio below 2.0 on many occasions in*
23 *the past and it is a variant of this ratio that FEI focusses on in its evidence. The fact is that*
24 *DBRS has given FEI an A rating for the last 15 years even during periods when it had 33%*
25 *common equity and an interest coverage ratio below 2.0."*

26 **What is your response to these statements?**

27 **A8:   There are three main shortcomings with Dr. Booth's assessment.**

28 - *While Dr. Booth focuses on the DBRS credit rating, Moody's financial metrics and past*
29   *rating actions are more important because the Moody's rating is currently only one*
30   *notch above the BBB category:*

1 FEI currently carries an A3 rating from Moody's. A downgrade would put FEI into the
2 Baa/BBB category, which would result in a split-rating. Being split-rated would
3 negatively impact FEI's access to and cost of debt capital. As outlined in FEI's
4 Application, FEI's financial metrics under the current Moody's rating methodology are
5 already weak.

6

7 Moody's downgraded FEI's rating from A2 to A3 in 2005, stating that the "downgrade is
8 reflective of the company's financial profile which Moody's considers to be weak
9 relative to global peers". Despite receiving increases in ROE and equity percentage in
10 subsequent decisions, Moody's never upgraded FEI's rating back to A2.

11

12 - ***Dr. Booth's assessment of DBRS' rating does not account for several salient facts with***
13 ***respect to DBRS' rating methodology and FEI's past allowed ROE and capital structure:***
14 The DBRS methodology incorporates factors beyond those specifically mentioned by Dr.
15 Booth. For example, DBRS heavily weights the utility company's regulatory framework
16 in its rating determination in conjunction with its financial metrics. The 7.5% ROE
17 suggested by Dr. Booth, would be viewed as "Below Average" under the DBRS
18 methodology of regulated utilities, and would also negatively impact other regulatory
19 considerations under this methodology.

20

21 In addition, as discussed in response to AMPC IR 1.2.b an assessment of FEI's historic
22 credit ratings should also consider FEI's higher historic allowed ROE as well as the
23 changes in its business risk.

24

25 - **Dr. Booth incorrectly characterizes FEI's debt issuance test under its Trust Indenture as**
26 **a variant of DBRS' interest rate coverage and draws erroneous conclusions:**
27 The interest coverage ratio determined by DBRS is different from the Issuance Coverage
28 ratio discussed in FEI's evidence. Under FEI's Trust Indenture, FEI cannot issue new debt
29 if its issuance coverage ratio is below 2.0x. FEI elaborates on this in a separate rebuttal
30 point, but it is inappropriate to compare these two ratios as Dr. Booth has done.

31

32 **Q9:** **On page 83, Dr. Booth states in response to the question "Do your recommendations**
33 **satisfy the fair return standards?":**

34 *I would also add that recently Moody's has changed its view of US regulatory protection. In a*
35 *request for comment on September 23, 2013 Moody's stated:*

1   *"Our revised view that the regulatory environment and timely recovery of costs is in*
2   *most cases more reliable than we previously believed is expected to lead to a one*
3   *notch upgrade of most regulated utilities in the US, with some exceptions. This*
4   *evolving view is independent of the proposed changes in the methodology that are*
5   *highlighted in the Summary section that follows, and would have taken place even if*
6   *the 2009 methodology were to remain in place without modification."*

7   *To the extent that Moody's has traditionally viewed Canadian regulation as more protective*
8   *than that in the US, this comment indicates that we can take the US guidelines and add a*
9   *notch for Canadian utilities, rather than just reading off from the guidelines.*

10   **What is your response to these statements?**

11 **A9:**   The Moody's 2013 report does not suggest or support a one notch addition for Canadian
12   utilities. To the contrary, the Moody's 2013 Report suggests a convergence between the
13   US and Canada in terms of regulatory environment:

15   *"While we had previously viewed individual state regulatory risks for US utilities*
16   *as generally being higher than utilities in most other developed countries (where*
17   *regulation usually occurs at the national level), we have observed an overall*
18   *decrease in regulatory risk in the US. While state regulatory jurisdictions seem to*
19   *be more prone to highly visible disputes and parochial political intervention than*
20   *national regulatory frameworks, which has sometimes raised concerns about*
21   *regulatory consistency, we now believe that the more openly adversarial process*
22   *in the US does not lead to materially less reliable regulatory outcomes for credit*
23   *quality"*.

25   ...
26   *"A comparison of key financial ratios used under the Regulated Electric and Gas*
27   *Utilities Rating Methodology in rating utilities across several developed*
28   *international jurisdictions with credit supportive regulatory frameworks*
29   *(including Canada and Japan) shows that US regulated utilities in recent years*
30   *have exhibited stronger financial ratios relative to similarly rated regulated*
31   *international utility peers"*[8].

33   FEI is unaware of any rating agency that automatically provides utilities in Canada with a
34   one notch upgrade.

---

[8] Moody's; September 2013, "Request for comments: Proposed refinements to the regulated utilities rating methodology and our evolving view of U.S. utility regulation", pp. 5-6.

1 **DEBT ISSUANCE TEST UNDER FEI'S TRUST INDENTURE**

2 **Q10:** **On page 84, lines 3-7, Dr. Booth states in response to the question "Are some financial**
3 **metrics important?":**

4   *"To issue MTNs a 2.0X new issue test based on its interest coverage ratio (ICR) has to be met.*
5 *FEI analyses in depth (evidence pages 27-31) the implications of this restriction as it refinances*
6 *its purchase money mortgages and the implications of the BCUC reducing its financial*
7 *parameters to 37% common equity and an 8.25% allowed ROE."*

8 **On page 85, lines 5-7, Dr. Booth further expands on this response with the following**
9 **points:**

10 *"There are some timing differences in the numbers used in the ICR as there are some*
11 *smoothing options, but the net result is that FEI has considerable financing flexibility and is*
12 *not currently constrained by the ICR in issuing MTNs"*

13 **What is your response to this statement?**

14 **A10:** Dr. Booth has made the same error in his evidence as he made in 2012 in referencing
15 the SEDAR filed ratio[9], which he refers to as the Interest Coverage Ratio or ICR, as the
16 test used to determine FEI's ability to issue new debt under the Trust Indenture. The
17 SEDAR filing is a requirement for securities compliance purposes and should not be
18 considered in evaluating future debt issuance constraints. As FEI had pointed out in its
19 2012 rebuttal evidence, the issuance test under the Trust Indenture differs from the
20 SEDAR ratio in that the Trust Indenture ratio is prospective whereas the SEDAR ratio is a
21 historic earnings coverage ratio. The SEDAR ratio only includes earnings and interest
22 from the past year, whereas the issuance test ratio requires the interest on the new
23 debenture being issued to be covered as well.
24
25 Furthermore, the SEDAR ratio includes interest payments for the Purchase Money
26 Mortgages ("PMMs"), whereas the Trust Indenture allows for the interest on this debt
27 to be excluded. As FEI outlines in section 6.3 of its evidence, the total amount of the
28 PMM's will need to be refinanced as they will fully mature by Q3 2016, and as such the
29 Trust Indenture issuance test will lose the ability to exclude interest expense related to
30 these amounts.
31
32 FEI has discussed the implications of the proper test under the Trust Indenture in
33 section 6.3 of the Application, including providing a sample calculation showing that
34 there could be significant constraints on debt issuance capacity during FEI's current

---

[9] Dr.Booth refers to FEI's filing with Ontario Securities Commission to explain how the interest coverage restriction works.

1   period of high capital expenditure requirements, even at an ROE and capital structure
2   well above those proposed by Dr. Booth.
3
4   FEI has calculated this issuance capacity calculation from Table 6 of the Application,
5   using Dr. Booth's recommended ROE of 7.5% and equity of 35%. The resulting decrease
6   in issuance capacity would be $389 million[10] from the current status quo issuance
7   capacity, after accounting for the impact of refinanced PMM's. In an increasing interest
8   rate environment, this capacity would become even further constrained. Furthermore,
9   there would be considerable risk of a downgrade by Moody's if Dr. Booth's
10   recommended ROE and capital structure are adopted. A downgrade could lead to
11   further constraint on the debt issuance coverage ratio through higher borrowing costs.
12
13   **Q11:   Does this conclude this rebuttal evidence?**

14   **A11:**   Yes.

---

[10] Decrease in issuance capacity is derived using the formulas outlined in footnotes 1, 2 and 3 of Table 6 in the Application.

PREPARED REBUTTAL TESTIMONY:
JAMES M. COYNE

PREPARED FOR:
FORTISBC ENERGY INC.

BEFORE THE:
BRITISH COLUMBIA UTILITIES COMMISSION

FEBRUARY 29, 2016

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1   **I.   INTRODUCTION**

2   **Q.   Please state your name and business address.**

3   A.   My name is James M. Coyne, and I am employed by Concentric Energy Advisors, Inc.

4   ("Concentric") as a Senior Vice President.   My business address is 293 Boston Post

5   Road West, Suite 500, Marlborough, MA 01752.

6   **Q.   Did you also submit pre-filed Direct Testimony in this proceeding?**

7   A.   Yes, I submitted evidence on behalf of FortisBC Energy Inc. ("FEI" or the

8   "Company").

9   **Q.   What is the purpose of your Rebuttal Testimony?**

10 A.   The purpose of my Rebuttal Testimony is to respond to the Direct Testimony of

11   Laurence D. Booth on behalf of the Association of Major Power Customers of BC

12   ("AMPC"), the British Columbia Old Age Pensioners Organization ("BCOAPO"),

13   and the Commercial Energy Consumers Association of British Columbia ("CEC"),

14   pertaining to the recommended return on equity ("ROE") and proposed regulatory

15   capital structure for FEI.

16   **II. OVERVIEW**

17   **A. Summary of Response to Dr. Booth's Testimony**

18 **Q.   Please provide a brief overview of Dr. Booth's testimony.**

19 A.   Dr. Booth recommends an ROE of 7.5 percent for FEI on a capital structure

20   comprised of 35 percent equity and 65 percent debt. He relies primarily on his CAPM

21   analysis to which he makes adjustments for higher than normal credit spreads of 45

1   bps and lower than normal bond yields (due to government economic policy

2   initiatives) of an additional 130 bps. He also incorporates a financing and flexibility

3   adjustment of 50 bps. Dr. Booth recommends that the BCUC maintain its AAM,

4   inclusive of the 3.8 percent floor on long Canada bond yields, though he does not

5   expect it to be triggered in the upcoming rate period.[1]

6   **Q.   Are there areas in which you and Dr. Booth are in agreement?**

7   A.   Yes. I share several areas of agreement with Dr. Booth.

8   • I agree that the Canadian economy has slowed and that the economic

9   slowdown is likely attributable to the collapse of energy resource prices and

10   the impact of the slowdown in China.

11   • I also agree that this would have the greatest impact for resource intensive

12   sectors like Alberta, but may provide stimulus to others, in particular, Ontario

13   and Quebec.

14   • I also agree that analysts project that Canada's economy will adjust to these

15   influences and should be headed towards a more normal interest rate

16   environment over the next several years.

17   • I agree that the BC economy is among the strongest of the Canadian provinces,

18   in terms of economic growth, though my analsyis shows that BC, Ontario and

19   Alberta are essentially equal in this regard.[2]

---

[1]   See Evidence of Dr. Booth, p. 2.
[2]   See Direct Evidence of James M. Coyne, Table 13, p. 65.

1   • I agree with Dr. Booth that interest rates are abnormally low and have been

2   influenced by global economic policy and that forecasts of interest rates must

3   anticipate central bank decisions.

4   • Further, I agree that analyses that depend on the current level of government

5   interest rates, such as the CAPM analysis or risk premium analysis, will not

6   provide reasonable results. I have accounted for this by using a forward-

7   looking interest rate and by incorporating a forward-looking (ex-ante) market

8   risk premium into my market risk premium estimates.

9   • I agree with Dr. Booth that amalgamation has not materially changed FEI's

10   risk.

11   • Lastly, I agree with Dr. Booth's 50 bps adjustment for financing and flexibility.

12 **Q.**   **Which are the primary areas in which you and Dr. Booth disagree?**

13 A.   Dr. Booth's ROE and capital structure estimates of 7.5 percent on 35 percent are both

14   individually and collectively lower than a reasonable estimate of FEI's cost of equity.

15   These recommendations are not reflective of proxy group results using commonly

16   accepted inputs for cost of capital analyses, and do not adequately reflect the risk of

17   FEI relative to the other Canadian or U.S. gas distributors. The following lists my key

18   areas of difference and disagreement with Dr. Booth:

19   • Dr. Booth's judgmental estimate of beta of 0.45 to 0.55 is substantially below

20   the Value Line and Bloomberg beta estimates used in my CAPM analyses for

21   the U.S. and Canadian proxy groups, of 0.78 and 0.65, respectively; and does

22   not account for the well-documented empirical evidence that beta coefficients

23   (below 1.0) systematically understate returns and thus warrant an adjustment

1   towards 1.0.[3] Dr. Booth's evidence recommends adjustment towards the

2   "grand mean" of utility betas which results in ROE estimates that are

3   unreasonably low.[4]   I have only experienced debate on the adjustment

4   methodology for beta in proceedings in which Dr. Booth has been involved

5   as a testifying witness.[5]

6   •   Dr. Booth's estimated market risk premium of between 5.0 and 6.0 is lower

7   than the market risk premium I have relied on of 7.6 percent. It does not

8   reflect the inverse relationship between the market risk premium and the

9   current level of interest rates and is significantly below any forward-looking

10   ex-ante risk premium estimate based on current market information. When

11   interest rates are near historically low levels, the market risk premium should

12   be higher than the long-term average.

13   •   Dr. Booth has relied primarily on the results of his CAPM analysis to support

14   his ROE recommendation. He has performed a DCF analysis for a U.S. proxy

15   group, but uses this analysis only as a check on his CAPM results.   Dr. Booth's

16   DCF results are biased downwards, since he has not provided an analysis using

17   Canadian utilities. In my analysis, the Canadian proxy group's DCF results

---

[3]   See Marshall E. Blume, On the Assessment of Risk, The Journal of Finance, Vol. XXVI, No. 1 (March 1971) and Marshall E. Blume, Betas And Their Regression Tendencies, The Journal of Finance, Vol. XXX, No. 3 (June 1975), where Blume found that there was strong evidence that beta regressed toward the market mean, and that tendency was strongest in the case of the lowest risk portfolios.

[4]   Note Dr. Booth on p. 40 of his evidence refers to his adjustment as the "Blume adjustment methodology toward their grand mean of 0.50," but the Blume methodology is premised on the tendency of beta to migrate toward the grand mean of the market, not the grand mean of utility betas.

[5]   I note that beta adjustment methodology was not an issue in the OEB Consultative Process on Cost of Capital and the Board did not take exception to my use of adjusted Value Line and Bloomberg betas, See Report of the Board EB-2009-0084 (December 11, 2009).

1   were higher than those of the U.S. group for both the constant growth and

2   multi-stage DCF models.

3   • The single DCF analysis that Dr. Booth has performed uses only sustainable

4   growth rates for a U.S. proxy group and by relying exclusively on sustainable

5   growth rates, he has understated future utility growth prospects and

6   accordingly has understated his DCF results.

7   • Dr. Booth's proposal for a deemed capital structure consisting of 35 percent

8   common equity and 65 percent long-term debt would position FEI with less

9   equity in its capital structure than every major investor-owned gas or electric

10   utility in Canada, including utilities that both Dr. Booth and I rank as lower

11   risk than FEI. The only major investor-owned utility that is more risky than

12   FEI is Gaz Metro, which after consideration of its deemed preferred equity

13   has effectively 46 percent equity.

14   • I also disagree with Dr. Booth's characterization of utility risk versus the

15   broader market as signaling a return to normalcy. In my opinion the recent

16   upward movement of utility credit spreads indicates that utilities are in fact

17   viewed by investors as more risky than they were previously.

18   • Lastly, I disagree with Dr. Booth's analysis that directionally, the ROE should

19   be lower in 2016 than what it was determined to be in 2012. My analysis

20   indicates it should be higher.

1 **Q. Can you place Dr. Booth's recommendations in the context of other Canadian**

2 **gas and electric distributors?**

3 A. Yes. From the data Concentric provided to the CGA and CEA in its May 2015 Report

4 of allowed returns in Canada, the following chart illustrates where Dr. Booth's

5 recommendations fall compared to other Canadian distributors' ROEs and capital

6 structures. As the figure shows, Dr. Booth's collective recommendations for ROE

7 and capital structure fall well below every other Canadian gas or electric distributor

8 that sets rates through a litigated proceeding. This includes provincial distributors like

9 SaskEnergy and Hydro Quebec, who have the full force of the provincial government

10 supporting their operations and have substantially different risk profiles than FEI's.

11 Though the figure below shows Dr. Booth's combined recommendation for ROE and

12 capital structure (by multiplying ROE and equity ratio), Dr. Booth's recommendation

13 for either ROE or capital structure would also be the lowest for any gas or electric

14 distributor in Canada and would place FEI at a significant disadvantage relative to

15 other Canadian utilities when raising capital.

1   *Figure 1: Recommendation vs. Allowed for Canadian Distributors*

2   *(ROE x equity ratio)*
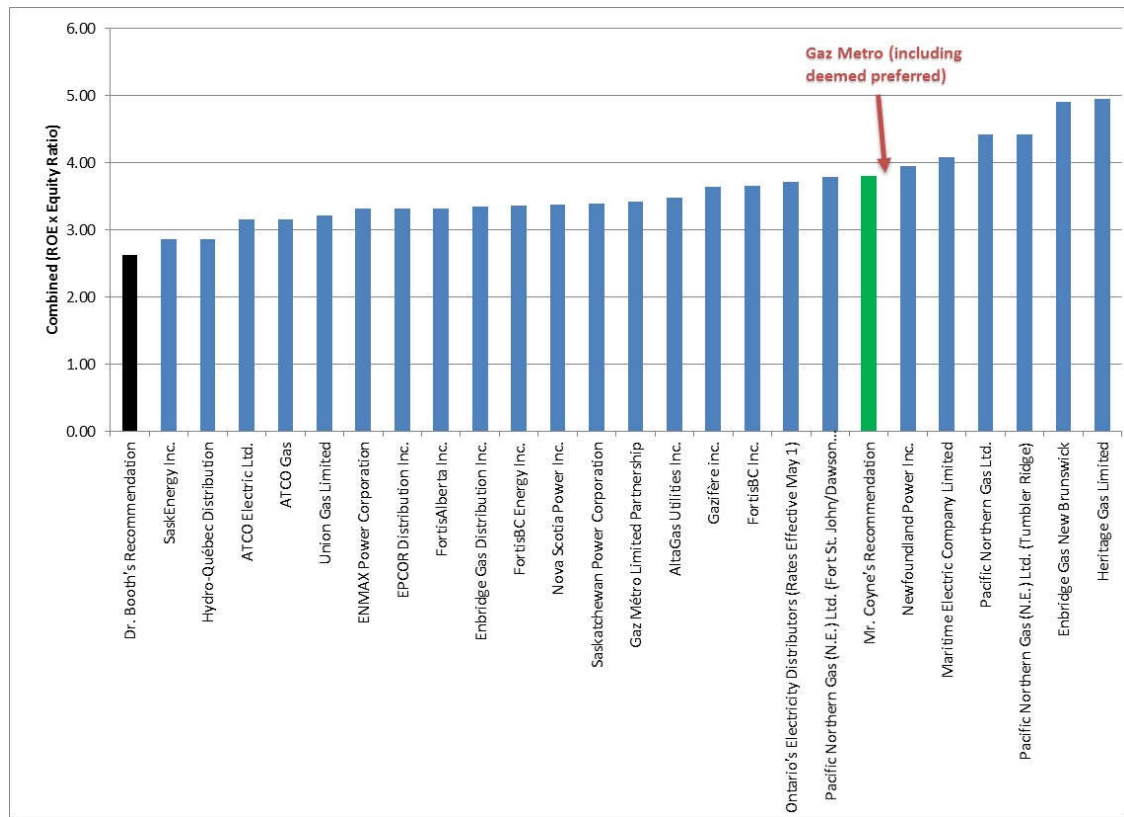
3
4   *Source: Concentric Energy Advisors Authorized Return on Equity for Canadian and U.S. Gas and Electric*
5   *Utilities, Volume III, May 1, 2015. Note that Gaz Metro would be just above Mr. Coyne's recommendation if we*
6   *consider its 7.5% deemed preferred equity and its allowed return on preferred as part of Gaz Met's allowed return on*
7   *total equity.*

8   **Q.   Dr. Booth recommended the same authorized return and equity ratio in the**

9   **BCUC GCOC Proceeding in 2012, what is your view on this?**

10   A.   Dr. Booth indicates in his testimony that his recommendation for 2012 should remain

11   unchanged "until the forecast long Canada bond yield exceeds 3.80 percent."[6] As a

12   result, Dr. Booth recommends a continuation of both his ROE and ROE AAM

13   recommendations from 2012 to 2016. In both 2012 and the present proceeding, Dr.

14   Booth has adjusted his CAPM results for higher than normal credit spreads and lower

---

[6]   See Direct Evidence of Dr. Booth, p. 86.

1   than normal government bond yields, which he attributes to 'Operation Twist', though

2   those adjustments are higher today than in 2012. It should also be noted that Dr.

3   Booth has recommended a 7.5 percent equity return in every case I am aware that he

4   has testified since August 2012. Despite changes in interest rates, credit spreads,

5   business cycle, market volatility, differing utility risk profiles and growth prospects, his

6   recommendation of 7.5 percent has been consistent for each of the utility cases he has

7   testified (NSPI, FEI, ATCO Pipelines, Hydro Quebec Distribution and Hydro

8   Quebec Transmission). All of the above factors affect the cost of capital. No

9   Canadian regulator, that I am aware of, has awarded any investor-owned Canadian

10   energy distributor a combination of ROE and equity ratio as low as 7.5 percent on 35

11   percent equity.

12   **Q.   Dr. Booth indicates in his testimony that the two factor model adopted by the**

13   **BCUC in its 2012 GCOC proceeding suggests that FEI's ROE should be**

14   **decreased by 37 bps from 8.75.[7] Do you agree that the AAM formula would**

15   **yield a decrease today from where rates were set in the 2012 GCOC Proceeding?**

16   A.   No. I believe Dr. Booth would agree that the formula would not be triggered today

17   and likely would not be triggered in 2016[8] since the actual long Canada bond yield

18   must exceed 3.8 percent to trigger the AAM. The very reason the Commission

19   established the floor in the AAM was that the formula was considered to be unreliable

20   in periods of abnormally low interest rates.[9] The formula is triggered and the period

---

[7]   Direct Evidence of Laurence D. Booth, p. 5.
[8]   Ibid at 63.
[9]   BCUC Generic Cost of Capital Proceeding (Stage 1) Decision (May 10, 2013) at 90.

1   of abnormally low interest rates is considered to have ended only after the actual

2   Canada long bond yield reaches 3.8 percent.

3   **Q.   Do you agree that the AAM formula would directionally yield a decrease today**

4   **from where rates were set in the 2012 GCOC Proceeding?**

5   A.   No. In reaching his conclusion that the AAM would yield a lower ROE today by 37

6   bps than in 2012, Dr. Booth has used two dates from Concentric's ROE newsletter

7   that bear no association with either the 2012 GCOC filing or the current proceeding.

8   If one were to perform the directional exercise Dr. Booth has provided in his

9   testimony, we should use data from the relevant periods in which evidence was filed

10   in the GCOC proceeding (August 2012) compared to most recently available monthly

11   information (January 2016). Below is a table of the changes in the long Canada bond

12   yield and the A-rated utility credit spread between August 2012 and January 2016.

13   *Table 1: Changes in the 30-Year Government Bond Yield and the A-Rated Utility Credit Spread*

DATE	A-RATED UTILITY BOND	LONG CANADA BOND	CREDIT SPREAD
AUGUST 2012	3.793	2.336	1.457
JANUARY 2016	4.071	2.035	2.036
DIFFERENCE		**(0.301)**	**0.579**

14   *Source: Bloomberg*

15   As the Table indicates, long Canada bond yields have decreased by 30 bps since August

16   2012, but credit spreads have increased by 58 bps. Since the increase in credit spread

17   is greater than the decrease in long Canada bond yields, the data indicates that the

18   ROE would increase by 14 bps[10] - not decrease by 37 bps, as suggested by Dr. Booth.

---

[10]   Calculated as follows: ROE = Base ROE (8.75%) + 0.50 x (LCBFt – BaseLCBF) + 0.50 x (UtilBondSpreadt – BaseUtilBondSpread), if we consider the base utility bond spread to be the August 2012 figures, the formula is: ROE = 8.75% + 0.50 x (2.035 – 2.336) +0.50 x (2.036 – 1.457) = 8.89%; and 8.89% - 8.75% = 0.14%.

1 **Q.   Do you agree with Dr. Booth's rationale that calculating the change in the**

2 **formula since 2012 (ignoring the trigger and floor) and adding that result to the**

3 **current authorized return would provide an indication of the direction ROE**

4 **should take in this proceeding?**

5 A.   No. The use of any formulaic AAM introduces the potential for error in setting ROE.

6 The potential for error exists in the starting level of ROE itself, and also the risk that

7 the formulaic coefficients (bond yields and credit spreads) do not effectively model

8 utility equity returns. As I stated in my testimony in the GCOC proceeding on the

9 AAM:

10   …care must be exercised in establishing the initial ROE, as the effects
11   of any understatements or overstatements will be felt with each
12   succeeding application of the formula. Concentric is of the view that
13   the initial ROE should be set in accordance with traditional ROE
14   setting methodologies, utilizing multiple approaches based on a
15   proxy group of companies with similar risk profiles in a process where
16   the regulator considers evidence from the company and its
17   stakeholders. Most jurisdictions go through this process each time
18   ROE is set. A regulatory process where stakeholder evidence is
19   presented and considered by the commission generally provides a
20   sound basis for a fair determination of ROE.
21
22   A fair starting point promotes objectivity in setting the parameters of
23   the AAM. Ultimately, any formula that is based on incorrect
24   parameters will lead to more not less regulatory inefficiency, and
25   ultimately serves to undermine the foundation and purpose for
26   adopting an AAM formula, i.e., regulatory expediency and a fair result.
27   For these reasons, it is best to first settle on a rebased result that is fair
28   before setting out the parameters and methodologies of a proposed
29   AAM.[11]

30 In my opinion, the formula represents a compromise between accuracy and

31 expediency, and should only be relied upon to make interim changes to cost of capital

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[11]   Concentric Energy Advisors, *A Review of Automatic Adjustment Mechanisms for Cost of Capital; Update and Recommendations* (August 3, 2012) at 8-9.

1   analyses between rate proceedings, and is not a substitute for proceedings where cost

2   of capital evidence is presented and vetted by the stakeholders. The Commission in

3   this proceeding has a full body of evidence before it to make its ROE determination

4   for FEI and an opportunity to recalibrate the formula should it deem it necessary based

5   on the results of its review.

6   **Q.   How is the remainder of your rebuttal testimony organized?**

7   A.   In Section III, I discuss areas of difference with Dr. Booth's observations of capital

8   market conditions; in Section IV, I discuss where Dr. Booth and I diverge with respect

9   to CAPM; in Section V, I discuss areas of difference with Dr. Booth in his application

10   of the DCF model; and in Section VI, I discuss my differences with Dr. Booth's

11   relative risk ranking of FEI against other major Canadian gas distributors, and finally

12   I affirm my ROE recommendation.

13   **III. CAPITAL MARKET CONDITIONS**

14   **Q.   On p. 27 of his testimony, Dr. Booth indicates that the increase in "A" credit**

15   **spreads is due to the general level of volatility and a "minor flight to quality"**

16   **and is not indicative of increased risk, and that the important issue to consider is**

17   **that utilities "do not pay the spread they pay the full interest cost." Do you**

18   **agree?**

19   A.   No. The difference between the risk free yield and the corporate yield is the credit

20   spread which is a quantification of default risk in the current capital market

21   environment. When the credit spread increases either default risk is perceived to be

22   higher or investors are becoming more risk averse. Either scenario results in higher

1   capital costs in relation to the risk free rate.   I agree that the total interest rate paid is

2   an important consideration.   However, the credit spread quantifies the compensation

3   investors demand for making the investment in relation to the risk-free investment. If

4   the credit spread is increasing, investors are demanding more compensation and this

5   points to higher risk relative to the comparative period. This is a very important point

6   and should not be dismissed or overlooked as Dr. Booth suggests.   In my opinion,

7   investors are growing more risk averse in the wake of the sluggish Canadian economy,

8   troubles in China and volatile equity markets, and are demanding more compensation

9   for making equity investments (including utility investments) despite the fact that the

10   general trend in bond yields has been downwards.

11   **Q.   On p. 27, Dr. Booth also comments on the yield difference between the**

12   **"generic" BBB bond in Canada versus the Utility BBB yield in the U.S., noting**

13   **that the U.S. utility yield was higher by 81 bps, suggesting that the higher U.S.**

14   **bond yield indicates that the cost of capital for Canadian utilities is significantly**

15   **lower than for U.S. utilities. Have you performed a similar calculation and are**

16   **your findings consistent with those of Dr. Booth?**

17   A.   Yes, I have performed my own calculation to assess Dr. Booth's statements, but my

18   findings differ. First, it seems to me that his comparison of Generic BBB bond yields

19   in Canada to Utility BBB bond yields in the U.S. is not a useful comparison. These

20   are not comparable bond baskets. Differences in bond terms and the types of

21   companies in each index are not factored into Dr. Booth's comparison. Further, all

1   but two of the companies[12] we have studied in this proceeding have been A-rated

2   companies, so a comparison of BBB- rated bond yields provides very little insight into

3   FEI's capital costs relative to the proxy group. Nevertheless, I have constructed a

4   chart of U.S. Utility BBB-rated and Canadian Corporate BBB-rated bond yields from

5   Bloomberg's 30-year fair value curves. In this way, we can at least eliminate differences

6   due solely to differing debt maturities and issuer characterisitics. According to this

7   data, the 30-year Canadian Corporate BBB bond yield is currently above the U.S.

8   Utility BBB 30-year bond yield by roughly 30 bps. The average difference for the

9   period is 42 bps. I find this difference reasonable in light of the lower risk of the utility

10   bond.

11   *Figure 2: Canadian Corporate BBB vs. U.S. Utility BBB bond yields*
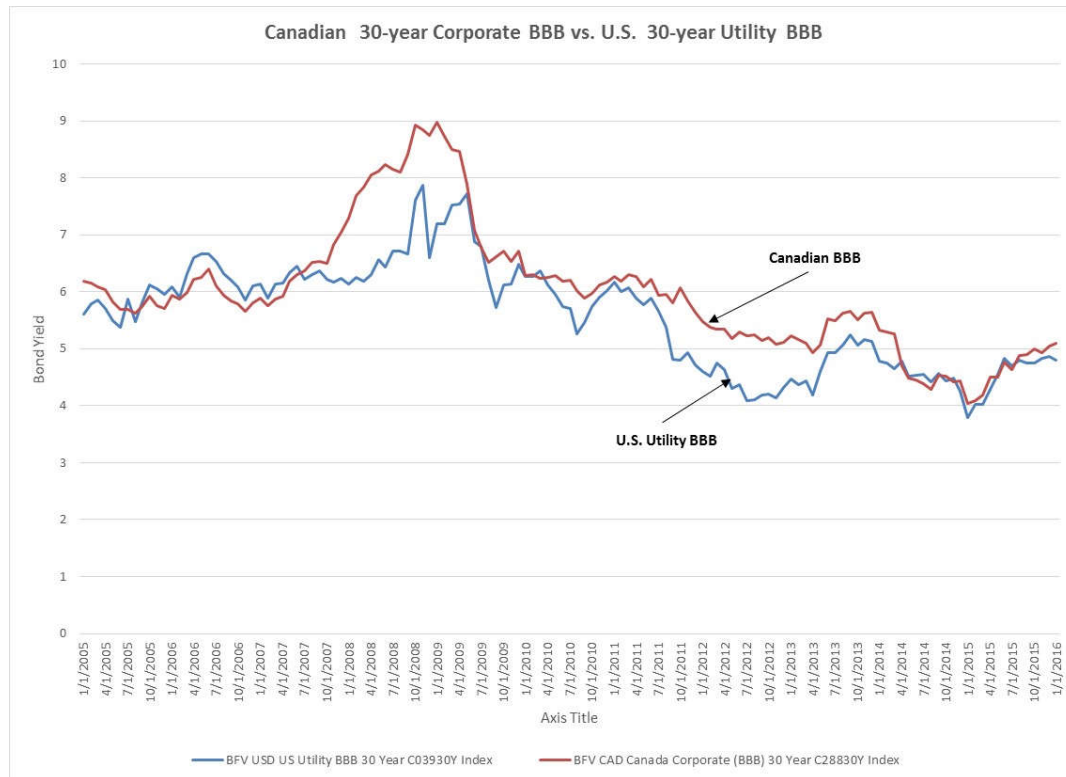
12
13   *Source: Bloomberg 30-year fair value curves*

---

[12]   South Jersey Industries, Inc. and Southwest Gas Corporation are rated BBB+.

1 **Q.** **You state that comparing BBB U.S. Corporate bond yields to BBB Canadian**

2 **utility bond yields is not a useful comparison. Have you performed a more**

3 **relevant comparison between U.S. and Canadian bond yields?**

4 A. Yes. I have compared A-rated and BBB-rated U.S. and Canadian utility bonds.   This

5 analysis shows that although Canadian utilities pay a slightly lower absolute level for

6 debt capital the difference is due to the 71 bps higher U.S. 30-year government bond

7 yield, partially offset by higher credit risk in Canada. At January 29, 2016, the U.S. 30-

8 year, A-rated and BBB-rated utility bond yields were 4.182 percent and 4.797 percent,

9 respectively. The Canadian 30-year fair value utility bond yields were 4.071 percent and

10 4.378 percent. Thus, the U.S. A-rated utility bond yield is roughly 11 bps higher than its

11 Canadian counterpart; and the U.S. BBB-rated utility bond yield is roughly 42 bps

12 higher than its Canadian counterpart. The 71 bps higher risk free bond yield in the U.S.

13 is largely due to stronger economic growth and inflation expectations in the U.S.

14 relative to Canada.

15 However, the absolute difference in U.S. and Canadian utility bond yields provides little

16 informataion about the risk of a Canadian utility relative to the U.S. utility. If Dr. Booth

17 wishes to compare the risk between U.S. and Canadian utility investments, the credit

18 spread would provide one indication of that. I have calculated the credit spread by

19 subtracting the 30-year government bond yield from the applicable corporate and

20 applicable utility bond yields.   Below is a graph of 30-year, U.S. and Canadian, A-rated

21 and BBB-rated utility bond credit spreads.

22

1   *Figure 3: U.S. and Canadian 30-year Utility Bond Credit Spreads over 30-year Government Bonds*
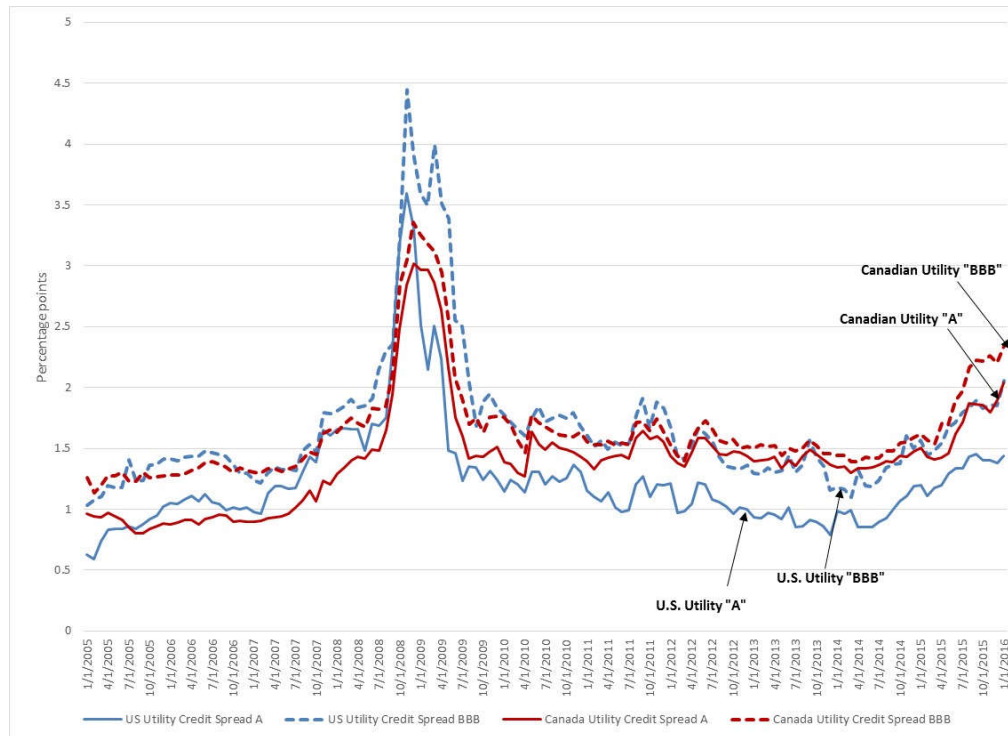
2
3   *Source: Bloomberg 30-yr utility bond fair value curves for U.S. and Canada less applicable 30-year govt. bond yield*

4   As the Figure shows, Canadian utility credit spreads are above those in the U.S. and

5   have been so since 2008-2009. To examine the differences more closely, I have plotted

6   the difference between Canadian and U.S. utility credit spreads for both the A-rated and

7   BBB-rated bonds by subtracting the U.S. credit spread from the Canadian credit spread.

8

1   *Figure 4: Difference in Canadian Utility Credit Spreads over U.S. Utility Credit Spreads*
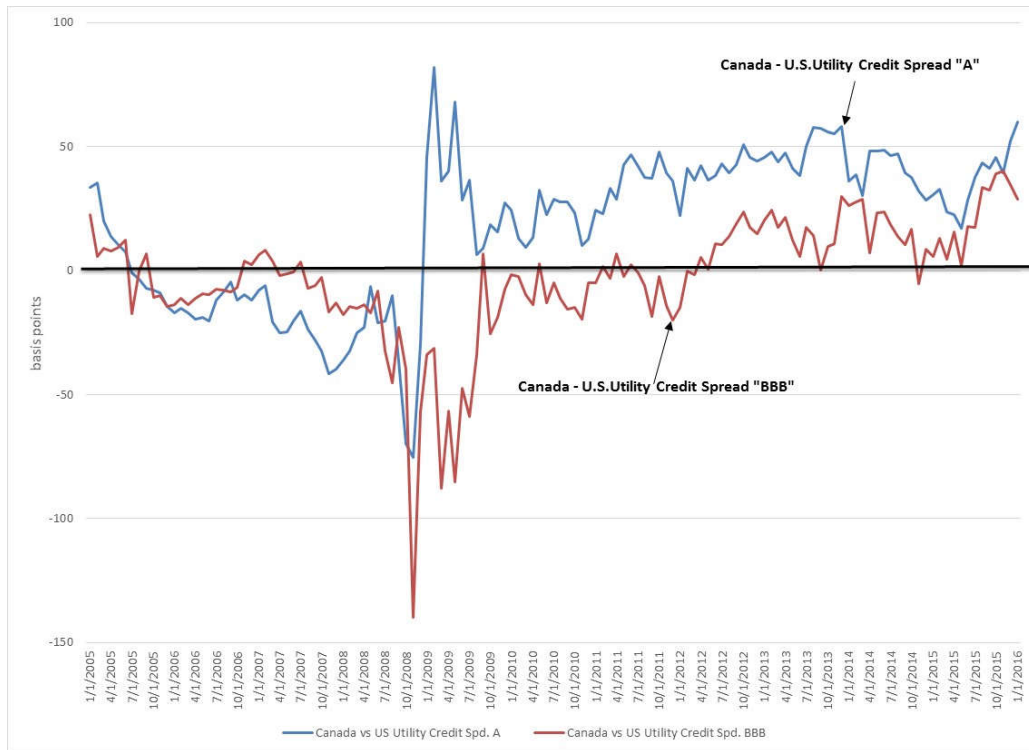

2
3   *Source: Bloomberg 30-yr utility bond fair value curves for U.S. and Canada less applicable 30-year govt. bond yield*

4   As the Figure above illustrates, both the A-rated and BBB-rated Canadian utility bond

5   credit spreads have been consistently higher than in the U.S. for several years and the

6   difference appears to be widening. With respect to the above figures, I draw a different

7   conclusion than Dr. Booth. These figures confirm that differences in utility financing

8   between Canada and the U.S. are smaller than Dr. Booth has suggested and such

9   differences are due primarily to lower government bond yields in Canada relative to the

10   U.S. However, credit risk for Canadian utilities is higher than for U.S. utilities. The

11   offsetting impact of these differences make U.S. and Canadian utility bond costs very

12   close in terms of absolute cost, currently only 11 bps.

13   **Q.   On p. 28 of his evidence, Dr. Booth states that "utility yields were consistently**

14   **lower than generic A yields as the financial crisis started to emerge and**

1   **remained so until two years or so ago when they merged. Currently the market**

2   **seems to be valuing similarly rated utility and non-utility debt the same. This is**

3   **further support for a return to normality in the bond market as the extra "safety"**

4   **implicit in A rated utility bonds is not valued to the same degree that it is during**

5   **the financial crisis."   Do you agree with Dr. Booth's statement?**

6   A.   No. As shown by the Bloomberg fair value bond curves in the following figure, prior

7   to the Global Financial Crisis, Canadian A-rated utility yields typically ran slighltly

8   below that of the A-rated corporate bond yields of the same term. Since the yield for

9   corporate bonds has generally been higher than for utility bonds, a merging of

10   corporate bond yields does not signal a return to normalcy, but instead a devaluing of

11   utility bond debt relative to corporate debt.   We can see that Utility A-rated bond

12   yields and Corporate A-rated bond yields have been essentially merged since the

13   financial crisis and have not returned to the pre-financial crisis spread that Corporate

14   A-rated debt yielded over Utility A-rated debt.

1   *Figure 5: Canadian 30-yr A-rated Corporate and Utility Bond Yields 2005-2016*
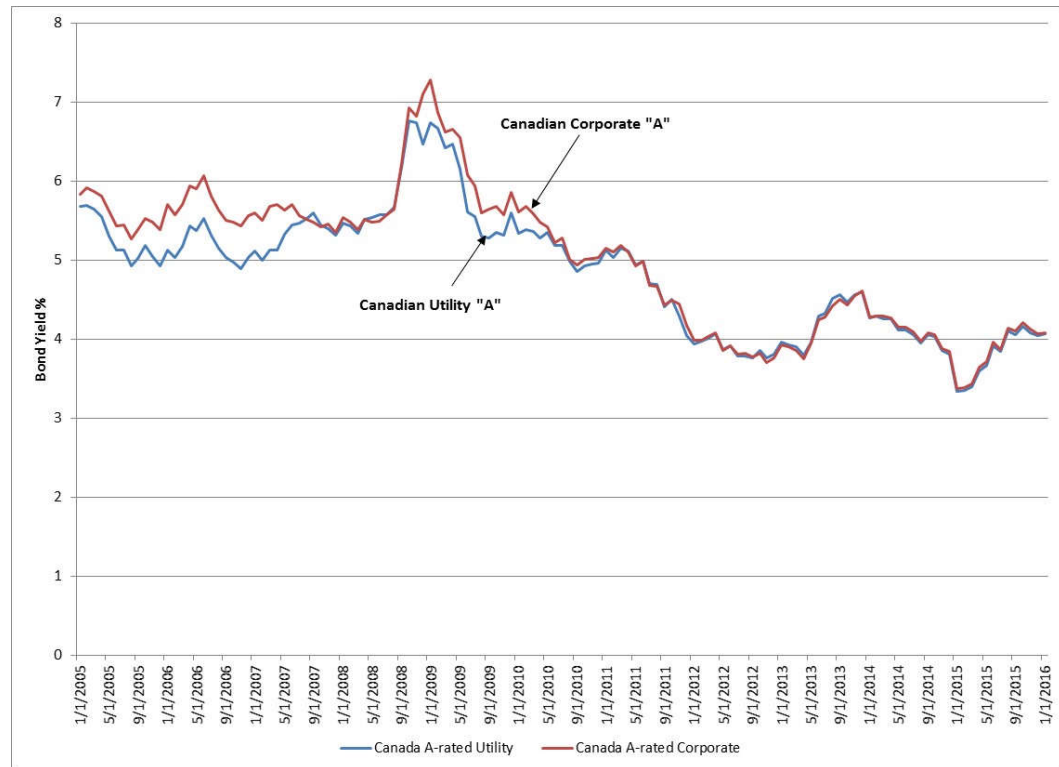
2
3   *Source: Bloomberg fair value curves*

4   Contrary to Dr. Booth's statement that investors seek the safety of A-rated utility

5   bonds in times of market stress, the A-rated utility bond yields actually show little

6   difference in movement from the A-rated Corporate bond in times of extreme market

7   stress. Note on the following chart, that as the difference between BBB corporate

8   bond yields over BBB utility bond yields widen (i.e. the solid blue line rises), the

9   difference between A-rated corporate bond yields over A-rated utility yields moves

10   very little. This indicates to me that, despite conventional wisdom, the value that bond

11   investors find for high quality utility debt over similarly-rated corporate debt in times

12   of market stress is negligible at best. This may be true for lower quality debt, but I see

13   no material indication that A-rated utility bonds were valued differently from A-rated

14   corporate debt during the financial crisis. It appears that investors currently find A-

1   rated corporate debt and A-rated utility debt essentially the same, which does not

2   indicate a return to normalcy. We would "normally" expect A-rated corporate debt to

3   trade at higher yields than utility debt, as it did prior to the financial crisis.

4   *Figure 6: Corporate vs. Utility 30-year Bond Spreads*

5
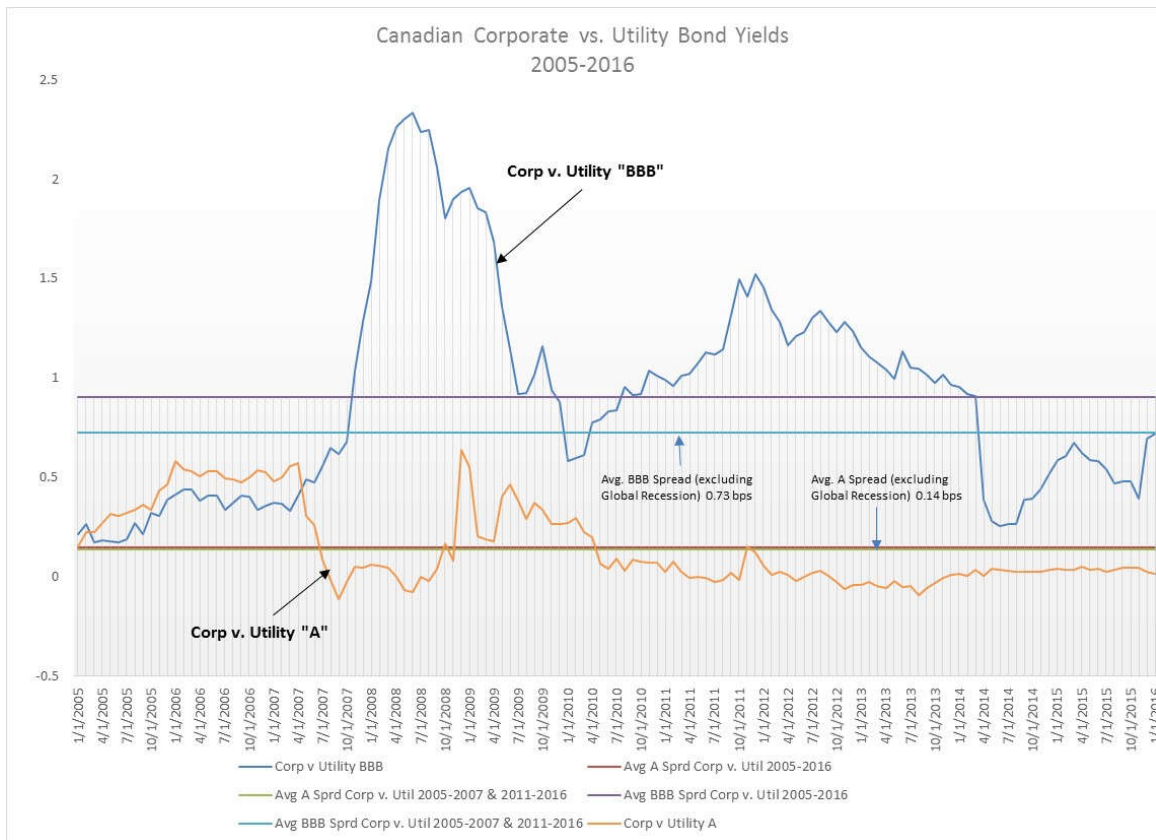
6   *Source: Bloomberg 30-year Corporate and Utility Fair Value Curves*

7

8   **IV. DR. BOOTH'S CAPM ANALYSIS**

9   **A. Prevalence of the CAPM Model**

10 **Q.**   **Dr. Booth states on p. 36, that the CAPM model is the "most important" model**

11   **used by a company in estimating their cost of equity capital. Do you agree?**

12 A.   No, I do not agree, in the context of setting a regulated rate of return. Dr. Booth

13   places primary reliance for this statement on a paper, published in 2001, by Graham

1   and Harvey. First, the date of the paper (2001) preceded the financial crisis and the

2   prolonged period of unusually low interest rates that have occurred since 2001. I

3   challenge whether the conclusions of this paper could reasonably be extrapolated to

4   the present. Nonetheless, my review of the paper is that it was written from the

5   perspective of capital budgeting and for establishing discount rates for target

6   investments. I agree that the CAPM model is used for this purpose as it is simple to

7   use for corporate analysts. But, I see little parallel between establishing a discount rate

8   for capital budgeting purposes and determining the investor required return for

9   purposes of utility regulation. This article sheds no light on the extent to which CAPM

10   was used to set the regulatory rate of return in utility rate proceedings.

11 **Q.   Dr. Booth states on p. 51, that "the big advantage of the CAPM is that it is**

12 **difficult to make big mistakes." Do you agree?**

13 A.   No. It is often necessary to make significant adjustments to CAPM results to arrive at

14   reasonable results. In the BCUC Consultant's Paper on cost of capital methodologies,

15   the Consultant listed a number of weaknesses with the CAPM model when applied to

16   utility regulation. Among the weaknesses listed were:

17   • "the CAPM will provide regulated entities with a reasonable return only if it is
18   implemented accurately, and the analyst must take into account any unique
19   circumstances that may bias the estimates";

20   • "the model is very sensitive to the estimates of the risk-free rate, beta and MRP";
21   and

22   • "because the model was developed as a generic approach to determine the cost of
23   capital for companies, it does not specifically take the regulatory context into
24   account."[13]

---

[13]   The Brattle Group, Survey of Cost of Capital Practices in Canada (May 31, 2012) at pp. 20-27.

1   The CAPM model is known to be unreliable, particularly for low beta firms such as

2   utilities. The BCUC Consultant discussed this in its Report where it stated:

3   Perhaps the most fundamental challenge to the CAPM has been the
4   consistent empirical observation that the model does not explain stock
5   performance well in a statistical sense. For example, low beta stocks
6   tend to have higher average returns than predicted by the CAPM, and
7   high beta stocks have lower average returns – that is, the empirical
8   estimates seem to require a pivot of the SML around beta = 1.0 from
9   the traditional version of the CAPM.[14]
10
11   I have observed this CAPM weakness in my own evidence and agree with the BCUC's

12   consultant that this is a fundamental challenge to the CAPM. The problems with the

13   CAPM are illustrated by Dr. Booth's subjective adjustments of roughly 175 bps, the

14   outcome of which would still produce the lowest ROE of any investor-owned utility

15   in Canada. The CAPM Model can and often does generate big mistakes, contrary to

16   Dr. Booth's suggestion that it does not.[15]

17 **Q.   Do you agree with Dr. Booth's statement on p. 51 of his testimony that the DCF**

18 **   model has fallen out of favor with utility regulators?**

19 A.   No, to the contrary, from my experience the Gordon Growth form of the DCF Model

20   is the primary model relied upon by U.S. regulators.[16] It is a required submission by

21   the FERC and is its primary model for cost of capital determinations. In the U.S., the

22   CAPM is usually used to corroborate the results of other analyses.   The textbook,

---

[14]   Ibid at 25.
[15]   See Direct Evidence of Dr. Booth on p. 51, where he states "Consequently, the major area of dispute is
       the relative risk or beta coefficient, and even here there is not much doubt that utilities are lower risk than
       the market. Hence the big advantage of the CAPM is that it is difficult to make big mistakes."
[16]   This is supported by the Gordon and Makholm (NERA) paper, *Allowed Return on Equity in Canada and the
       United States, An Economic, Financial and Institutional Analysis* (February 2008), p. 20, where the authors state:
       "The most popular method used to determine the ROE among US regulatory commissions is to
       determine what future stream of common dividends investors expect on a case-by-case basis using
       discounted cash-flow (DCF) analysis."

1   authored by Dr. Booth and Dr. Cleary, indicates that the Gordon Growth form of the

2   DCF was specifically designed for use in public utility regulation and is well suited for

3   that purpose. The textbook states:

4   What has to be remembered is that Professor Gordon developed this
5   model (the DDM) for use in public utility regulation where the allowed
6   ROEs should be reasonable and we do not get the problem of rapid
7   growth rates.[17]

8   and
9
10   Although the DDM provides a great deal of insight into factors that
11   affect the valuation of common shares, it is based on several
12   assumptions that are not met by a large number of firms, expecially in
13   Canada. In particular, it is best suited for companies that (1) pay
14   dividends based on a stable dividend payout history that they want to
15   maintain in the future; and (2) are growing at steady and sustainable
16   rates. As such, the DDM works reasonably well for large corporations
17   in mature industries with stable profits and an established dividend
18   policy. In Canada, the banks and utility companies fit this profile, while
19   in the United Staes, there are numerous NYSE-listed companies of this
20   nature. [18]

21   The BCUC afforded the DCF model equal weight in the 2012 GCOC proceeding.[19] I

22   find no evidence that it has fallen out of favor in utility regulation as Dr. Booth

23   suggests,[20] but rather remains an important, if not primary, model for utility cost of

24   capital determinations.

25 **Q.**   **Do academic papers test the validity of the CAPM?**

26 A.   There have been numerous studies on the validity of the CAPM model. Dr. Booth

27   cites a paper by Levy and Roll under the **Q: Is there any other support for the**

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[17]   Laurence Booth and W. Sean Cleary, Introduction to Corporate Finance, 1st Edition (2008) p. 785
[18]   Ibid, at 269.
[19]   See BCUC Order at 56
[20]   See Dr. Booth's Direct evidence on p. 51, line 20.

1   **CAPM?**[21] My reading of the Levy and Roll paper is that it is less supportive of the

2   CAPM model than Dr. Booth suggests. The authors set out to test the "prevalent

3   belief that the CAPM is inconsistent with the sample parameters."[22] They ask "In light

4   of the evidence, should the CAPM be taken seriously or just a pedagogical tool for

5   finance classes, grossly inconsistent with the empirical evidence?"[23] In addition to the

6   conclusions cited by Dr. Booth, the authors, testing previous studies, ultimately find

7   that their study "does not constitute a proof of the empirical validity of the model, but

8   it shows that the model cannot be rejected, in contrast to the widespread belief in our

9   profession."[24] The authors also note that "While the CAPM can be rejected for very

10   low or high values of the risk free rate, it cannot be rejected for the wide range of

11   (monthly) interest rate values between 0.3 percent and 1.3 percent,"[25] a range of

12   between 3.65 percent and 16.8 percent, when compounded monthly. Current interest

13   rates are within the range that Levy and Roll suggest CAPM could be rejected. I,

14   however, place equal weight on CAPM, while recognizing the limitations that current

15   market conditions place on the CAPM.

16   **Q.   Does Dr. Booth's predominant reliance on the CAPM undermine his ability to**

17   **provide a fair return estimate?**

18   A.   Yes. I believe it does. It is generally well-accepted among cost of capital practitioners

19   and regulatory commissions that multiple methods for estimating the fair rate of return

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[21]   Dr. Booth Direct at 39.
[22]   Levy and Roll, The Market Portfolio May be Mean/Variance Efficient After All, The Society for Financial
       Studies, January 5, 2010, p. 2479.
[23]   Ibid, p. 2465.
[24]   Ibid, p. 2487-88.
[25]   Ibid, p. 2480.

1   provide the best basis upon which to make a fair determination. Specifically, the OEB

2   when confronted with this issue in its Consultative Cost of Capital Process, said

3   basically as much in the following:

4   The Board agrees that **the use of multiple tests to directly and**
5   **indirectly estimate the ERP is a superior approach to informing**
6   **its judgment than reliance on a single methodology**. In particular,
7   the Board is concerned that CAPM, as applied by Dr. Booth, does not
8   adequately capture the inverse relationship between the ERP and the
9   long Canada bond yield. As such, the Board does not accept the
10   recommendation that it place overwhelming weight on a CAPM
11   estimate in the determination of the initial ERP.[26]

12

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[26]   Ontario Energy Board, EB-2009-0084, *Report of the Board on the Cost of Capital for Ontario's Regulated Utilities*
        (December 11, 2009) pp. 36-37

1   **B. The Risk Free Rate**

2   **Q.   Dr. Booth takes exception to your use of a three year forecast of the 10-year bond**

3   **yield for use in your analyses. Is it appropriate to use a forecast bond yield for**

4   **the risk free rate in your CAPM analysis?**

5   A.   I believe it is. I have used the three year forecast primarily to establish a forward

6   looking bond yield that anticipates changes in the long Canada bond over the next few

7   years while reflecting the long-term perspective of the utility shareholder. This is the

8   preferred indicator of the risk-free rate, particularly in the face of dynamic and

9   abnormal market conditions.   Dr. Booth acknowledges that he does not expect the

10   formula to trigger in the next three years.[27] My forecast interest rate of 3.68 percent,

11   based on 2016-2018 forecast data from the Consensus Survey, is very near to the RBC

12   forecast that Dr. Booth has included on p. 23 of his testimony, of 3.65 percent for Q4

13   2017; and presumably, RBC's forecast for 2018, had it been reported in the Figure,

14   would be higher still. My estimate of the risk free rate is reasonable and is in general

15   agreement with the evidence that Dr. Booth has provided in his testimony.

---

[27]   See Dr. Booth Direct Evidence at p. 63, where he states "Consequently, I am also happy for the BCUC to
       set a fixed rate for the period 2016-2018 and if this is considered would recommend a fixed rate of 7.50%,
       which is generous, since I don't think one year ahead forecast long Canada bond yields will increase to the
       3.80% trigger in the immediate future (next three years)."

1   **C. The Market Risk Premium**

2   **Q.   Dr. Booth has relied primarily on the Fernandez survey of market risk premiums**

3   **to support his market risk premium estimate of 5.0 to 6.0 percent. Do you take**

4   **issue with this approach to estimating the market risk premium?**

5   A.   The Fernandez Survey cited by Dr. Booth is an email survey sent to 22,500 email

6   addresses for which 4,573 reportable responses were received from global financial

7   professionals with respect to the market risk premium for 68 countries. Respondents

8   were asked about the risk free rate and the market risk premium used to calculate the

9   required return on equity. Though the survey provided information on the number

10   and range of responses on the level of market risk premium for each country, it is not

11   clear from the survey, how the respondents derived the market risk premium they

12   listed in their response, e.g. the source for their information. Nor does the survey

13   establish for what use the respondents applied the market risk premium estimate. For

14   Canada, the survey received 81 responses with a mean response of 5.9 percent, with a

15   maximum of 12 percent and a minimum of 4 percent. The standard deviation of the

16   responses was 1.3 percent, indicating that the majority of responses were between 4.6

17   percent and 7.2 percent.   In my view, the wide range of responses illustrates the

18   importance of alternate measures of the market risk premium.

1   It is also important to consider the current market context. I have incorporated a

2   forward looking analysis that reflects the inverse relationship between the market risk

3   premium and the current level of interest rates weighted equally with a historical

4   derivation. My analyses suggested that the current market risk premium is above my

5   estimate of 7.6 percent, as indicated by my forward looking MRP of 9.8 percent for

6   the U.S. and 8.1 percent for Canada, and was corroborated by my regression analysis

7   which indicated an MRP of 10.09 percent.

8   **D. Beta**

9 **Q.   To what do you attribute the differences between your beta estimates of 0.65 for**

10   **the Canadian proxy group and 0.78 for the U.S. proxy group, and Dr. Booth's**

11   **range of beta estimates from 0.45 to 0.55?**

12 A.   The difference is primarily due to Dr. Booth's dismissal of the widely-accepted

13   adjustment methodology employed by most providers of beta for financial analysis, to

14   adjust utility betas toward the market average of 1.0.[28] Dr. Booth argues that utility

15   betas regress toward their grand mean which he estimates to be 0.50, relying on the

16   work of Gombola and Kahl (1990) for his conclusions.   Gombola and Kahl found

17   that utility betas required adjustment, such as is performed by Value Line, Merrill

18   Lynch, Bloomberg and others, but that the adjustment should not be toward the

19   market mean of 1.0, but instead to the grand mean of the utility beta.

20 **Q.   Is Gombola and Kahl's findings that utility betas revert to their grand mean and**

21   **not towards the market mean of 1.0 the prevailing wisdom on the adjustments**

22   **required for utility betas?**

1   A.   No. By far, the prevailing standard around beta adjustment, is to adjust beta towards

2   the market mean of 1.0. This practice recognizes the statistical tendency of high

3   estimated betas to have positive error terms (overestimate the true beta), and low

4   estimated betas to have negative error terms (underestimate the true beta), whereby an

5   adjustment to unity is required to moderate the error terms.[29] In addition, adjustment

6   towards the market mean of 1.0 recognizes that beta tends to underestimate the risk

7   of utilities by the inability to recognize interest rate risk in the calculation of beta for

8   interest-rate sensitive firms. Conventional betas do not capture the extra sensitivity to

9   interest rates.[30] The negatively biased error terms for low beta firms, and the additional

10   risk inherent in interest rate sensitive firms, are two factors that are not reflected in

11   beta adjustment toward the grand mean of utility betas, and as a result, understate the

12   beta estimate.

13   I agree with the adjustment methodology employed by the premier beta providers,

14   Value Line, Bloomberg, Merrill Lynch, that the appropriate adjustment (especially for

15   utility stocks) is a beta adjustment toward the market mean of 1.0. Further, I am not

16   aware of a single U.S. state or federal regulatory jurisdiction that takes exception to the

17   use of this adjustment methodology. I have only encountered this discussion around

18   beta adjustment methodology in Canadian regulatory proceedings in which Dr. Booth

19   is a witness.

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[29]   Roger A. Morin, Phd., New Regulatory Finance, Public Utilities Reports, Inc., (2006) at 74.
[30]   Ibid.

1   **Q.   Dr. Booth cites a Fernandez survey on market returns. Does Fernandez address**

2   **the issue of Betas?**

3   A.   Yes. Dr. Booth has relied on the Fernandez Survey for his market risk premium

4   estimate, but does not address the similar survey, published by Fernandez, on the use

5   of betas.[31]   The beta survey is conducted through email, as is done for the market

6   equity risk premium, in this case to "about 8,000 finance and economic professors",

7   with email addresses "obtained from previous correspondence, papers, and webs of

8   the universities."   In his email, Dr. Fernandez asks what "we, professors, use to

9   calculate the required return to equity", and "how the number was justified."   His

10   original survey was conducted in 2009, when he received 2,510 responses from

11   professors in 65 countries, of which 1,791 used betas (22 percent of the sampled

12   group). He has since reported updates in 2010, 2013, 2014 and the latest in 2015. His

13   approach is simple, he asks two questions, and requests any additional comments:

14   1.   I use betas: YES___ NO___
15   2.   I justify the betas I use:
16   - I do not justify the betas _____
17   - Reference to books or articles _____ (which ones)
18   - Regressions _____
19   - Financial webs or Internet _____
20   - Other _____
21
22   Comments_____
23
24   Dr. Fernandez reaches a variety of conclusions from his survey and related work on

25   this topic. He finds:

26   •   "97.3% of the professors that justify the betas use regressions,
27   webs, databases, textbooks or papers (the chapter specifies which
28   ones), although many of them state that calculated betas 'are poorly
29   measured and have many problems.'"

---

[31]   "*Betas used by Professors: a survey with 2,500 answers*", November 21, 2015.

- "Only 0.9% of the professors justify the beta using exclusively personal judgment (named qualitative, common sense, intuitive, and logical magnitude betas by different professors)."
- "Most of the professors acknowledge that there are problems estimating the two ingredients of the (CAPM) formula (the beta and the market risk premium), but, nevertheless, most of them continue using it."

Focusing on the issue of problems measuring beta, Fernandez summarizes:

> The problems of the betas calculated with historical data are well-known:
>
> 1. They change considerably from one day to the next.
> 2. They depend very much on which stock index is used as the market reference.
> 3. They depend very much on the historical period (5 years, 3 years…) used.
> 4. They depend on what returns (monthly, yearly…) are used to calculate them.
> 5. Very often we do not know if the beta of one company is lower or higher than the beta of another.
> 6. Calculated betas have little correlation with stock returns.
> 7. beta = 1 has a higher correlation with stock returns than calculated betas for many companies
> 8. The correlation coefficients of the regressions used to calculate the betas are very small.
> 9. The relative magnitude of betas often makes very little sense: companies with high risk often have lower calculated betas than companies with lower risk.
>
> For these nine reasons we can say that:
>
> - the beta calculated with historical data is not a good approximation to the company's beta, or
> - the beta of a company (a common figure for all investors) does not exist.
>
> We argue, as many professors mention, that historical betas (calculated from historical data) are useless to calculate the required return to equity, to rank portfolios with respect to systematic risk, and to estimate the expected return of companies.
>
> A practical consequence: using a historical beta to value a stock, without analyzing the company's and the industry's future prospects, is very risky and, many times, a source of huge errors.

1
2   So what can we make of Dr. Fernandez's conclusions in terms of its implications for

3   estimating the ROE for a utility using the CAPM? First, the use of judgment in

4   determining the appropriate beta is clearly an outlier. The vast majority of those

5   surveyed used regression analysis, web sources and databases. Second, historic betas

6   alone are poor measures of a stock's valuation. Third, based on correlations of the

7   annual stock returns (1989-2008) of the Dow Jones companies measured against the

8   S&P 500 he finds: "Beta = 1.0 works better than calculated betas. But Adjusted betas

9   (0.67 calculated beta + 0.33) have higher correlation than calculated betas.   But

10   Adjusted betas have lower correlation than beta = 1."

11   While I have placed no reliance on either Fernandez survey (market risk premium or

12   beta) for my recommendations, these conclusions certainly suggest care must be

13   exercised in use of the CAPM model. Fernandez opines on the inability to find a

14   common beta for a given company for all investors:

15   It would imply that the CAPM does not work. It may be because the
16   required return is affected by other factors, besides the co-variance of
17   the company's return with the market return, the risk-free rate and the
18   market risk premium; it also may be because, due to the heterenogeity
19   of investors, it does not make sense talking about a "market portfolio";
20   it also may be because the distribution of expected returns changes
21   with time (and it can change in a different way for different investors)."
22
23   We need only look to Dr. Booth's table of Canadian Regulated betas on p. 8 of

24   Appendix C, of his testimony, to see the dispersion of beta across multiple data

25   providers for a single company. At a minimum historic betas must be adjusted to

26   reflect actual returns and stock valuations in the marketplace. Fernandez judges beta

27   = 1.0 for the broad market.

1   The standard Blume adjustment for utilities weights the regression (or "raw") beta for

2   the utility by 2/3 and beta =1.0 by 1/3, which is standard practice, and more consistent

3   with both broad industry practice and the academic literature than Dr. Booth's

4   judgmental approach.

5   In my response to AMPC IR.1-5.4, I showed in comparing returns generated by raw

6   vs. betas adjusted toward the market mean of 1.0, that utility betas adjusted towards

7   1.0 using the Blume Methodology still understated utility equity returns but came

8   closer than raw betas.   This data suggests that the true beta is actually closer to the

9   market mean than a raw historical computation providing evidential support that an

10   upward adjustment toward the market mean of 1.0 is necessary and appropriate.

11   E. **Conditional CAPM**

12   **Q.**   **Dr. Booth performs his simple CAPM calculation and then adjusts his results for**

13   **increased credit spreads and the U.S. bond buying program 'Operation Twist' to**

14   **arrive at his Conditional CAPM. Do you take issue with Dr. Booth's calculation**

15   **of these adjustments beginning on p. 44 of his testimony?**

16   A.   Though I agree with Dr. Booth that long Canada bond yields are being influenced by

17   policy, and that the CAPM results are being suppressed by abnormally low interest

18   rates, I take issue with how Dr. Booth has adjusted for this. With respect to his credit

19   spread adjustment, Dr. Booth has indicated that an adjustment for the increase in

20   credit spreads is necessary for the difference between today's credit spread of 190 bps

21   and what he considers normal, 100 bps. He bases his adjustment on 50 percent of the

22   change in bond yields, which he supports with a 2009 Bank of Canada report that

1   "disentangled" the liquidity component of credit spreads from the default risk

2   component and finds the liquidity portion to be 63 percent of the credit spread in

3   2009. This would indicate that the default portion at the time was approximately 37

4   percent. Though Dr. Booth moderates this and calls it 50/50, I see no basis upon

5   which to accept that the findings from the 2009 Bank of Canada report as applicable

6   to current market conditions, as the components of the credit spread during the global

7   financial crisis would surely be different than they are today. For example, an article

8   on this topic submitted to the Journal of Finance by Longstaff, Neis, and Mithal (2004)

9   concluded, "We find that the nondefault component **is time varying and mean**

10   **reverts rapidly**. The nondefault component of spreads is strongly related to measures

11   of bond-specific illiquidity such as the bid-ask spread and the outstanding principal

12   amount."[32] Accordingly, though Dr. Booth's judgmental estimate of 50 percent may

13   or may not be appropriate, he offers no current evidence to support this percentage,

14   and the likelihood is that in current market conditions the default component would

15   be greater than 50 percent, necessitating a higher adjustment.

16   **Q.   Do you also take issue with Dr. Booth's 'Operation Twist' adjustment on p. 44**

17   **of his testimony?**

18   A.   Yes. From what I can tell, Dr. Booth's 'Operation Twist' adjustment, attempts to

19   rectify the impact on government bond yields of the U.S. bond buying program, which

20   he now broadens to include actions of other central banks, even though the U.S. bond

---

[32]   Longstaff, Neis, and Mithal, *Corporate Yield Spreads: Default Risk or Liquidity? New Evidence from the Credit-Default Swap Market*, An Article Submitted to The Journal of Finance, Manuscript 1236 (2004) at 33 [emphasis added].

1   buying program has been terminated since 2014. The actual 'Operation Twist' was

2   the name given to the U.S. Federal Reserve monetary policy involving the buying and

3   selling of bonds designed to put downward pressure on long-term bond yields. Dr.

4   Booth provides two analyses to quantify the extent to which the long Canada bond

5   yield has been influenced by government economic policy. First, as he discusses on p.

6   45 of his testimony, he develops a relatively straight forward regression model (shown

7   in Dr. Booth's Appendix B, Schedule 6) indicating that the government bond yield,

8   based on 2014 data, should be approximately 5.25 percent, 250 bps higher than his

9   forecast long Canada bond yield of 2.75 percent.

10   **Q.**   **Please elaborate on the second analysis Dr. Booth performed to quantify his**

11   **'Operation Twist' adjustment.**

12   A.   Dr. Booth also supports his 'Operation Twist' adjustment by a comparison of

13   preferred equity yields to corporate A bond yields under normal conditions; and

14   quantifies his adjustment by determining the extent to which the differential between

15   the preferred yield and the corporate A yield has widened under recent market

16   conditions. Dr. Booth indicates on p. 47 of his testimony, that he considers 2004 a

17   good starting point, since in most respects it was "normal." In 2004, the preferred

18   yield was 5.48 percent, the A bond was 6.34 percent, a difference of 86 bps. On

19   January 8, 2016, according to Dr. Booth's response to BCUC IR 13.2 and 13.4, the

20   preferred bond yield increased by 31 bps to 5.79 percent and the Corporate A bond

21   yield fell by 243 bps from 6.34 percent to 3.91 percent, widening the difference from

22   the normal level of spreads by the sum of the changes, i.e. 31 bps and 243 bps or in

23   total 274 bps.   In my view, the 'Operation Twist' adjustment should be 274 bps. This

1   is supported by Dr. Booth's regression analysis indicating that government bond yields

2   are 250 bps too low.

3   So, as Dr. Booth's results indicate that an adjustment should be made of 250 – 274

4   bps, he allows only a 130 bps for his adjustment. Even if one were to accept that Dr.

5   Booth's adjustment through May of 2013 of 80 bps (as stated on p. 48 of his testimony

6   in this proceeding) is appropriate, the data Dr. Booth provided in response to BCUC

7   IR 13.2 and 13.4, suggests that the spread has widened an additional 122 bps, i.e. the

8   difference between the preferred spread and Corporate A spread was 66 bps on May

9   31, 2013; and the spread widened to 188 bps in Dr. Booth's most recent entry on

10   January 8, 2016, suggesting that the 'Operation Twist' adjustment should be at least 80

11   bps + 122 bps or 202 bps. Based on Dr. Booth's calculations, I find his adjustments

12   for 'Operation Twist' to be understated by anywhere from 72 to 144 bps points.

13   **V.   DR. BOOTH'S DCF ANALYSIS**

14   **Q.   On p. 13, Appendix D of Dr. Booth's evidence he calculates a DCF estimate for**

15   **a U.S. proxy group of "low-risk U.S. gas utilities" using sustainable growth**

16   **rates. Do you agree that sustainable growth rates appropriately capture the**

17   **expected growth of a regulated utility?**

18   A.   No, I do not. The full form of the "sustainable growth" model is premised on the

19   proposition that a firm's growth is a function of its expected earnings, and the extent

20   to which it retains earnings to invest in the enterprise. In the sustainable growth

21   formula, this is commonly referred to as the product of "b x r", where "b" is the

22   retention ratio or the portion of net income not paid in dividends, and "r" is the

1   expected ROE on the portion of net income that is retained within the Company as a

2   means for future growth. In the fullest form of the sustainable growth formula, new

3   equity issuances, or what are commonly known as externally generated funds are also

4   considered, this is shown as the product of "s x v", where "s" represents the growth

5   in shares outstanding and "v" is that portion of the M/B ratio that exceeds unity. This

6   methodology is recognized as a common approach to calculating the sustainable

7   growth rate. The form of the model that Dr. Booth has relied upon is its simplest

8   form, projecting growth as a function of internally generated funds. The "b x r"

9   method fails to account for future equity issuances and no sustainable growth formula

10   considers debt leverage as a source of future growth for an entity. Failure to consider

11   the potential for debt and equity issuances as a source of future growth understates

12   the firm's growth under this model.

13   **Q.   Has the FERC recently abandoned the use of sustainable growth rates in its**

14   **ROE methodology?**

15   A.   Yes. In Opinion No. 531, the FERC moved away from its use of sustainable growth

16   rates in its DCF methodology to be applied in public utility rate cases.[33] In summary,

17   the FERC adopted the same two-step DCF methodology it has employed in gas and

18   oil pipeline rate proceedings since the mid-1990s, which relies on a combination of

19   analyst growth rates and GDP growth estimates, just as I have used in my multi-stage

20   DCF analysis.

---

[33]   See FERC Order 531 at http://www.ferc.gov/whats-new/comm-meet/2014/061914/e-7.pdf

1   **Q.   Do you have other concerns with the reasonableness of Dr. Booth's sustainable**

2   **growth rate calculation?**

3   A.   Yes, I do. Since the "r" in the "b x r" approach refers to the ROE, Dr. Booth has

4   effectively pre-supposed analyst ROE and payout ratio projections for his proxy group

5   companies. Thus, by using this growth measure, Dr. Booth has assumed the

6   reasonableness of analysts' ROE projections, yet, not the analysts' projections of

7   company growth rates by the same analysts. As shown in Dr. Booth's Table on the

8   bottom of p. 13 of Appendix D, the mean and median ROE projections for the gas

9   utility companies in his proxy group are both roughly 10.2 percent, which is

10   significantly higher than the mean and median DCF results he calculates using the

11   simple form of the sustainable growth rate of 6.83 and 7.02 percent, respectively.

12   **Q.   Do you share Dr. Booth's concern that analyst growth rates are biased upwards?**

13   A.   No, I do not. Industry analysts are experts on the companies they follow; they

14   understand the risks attendant to investing in the various utilities within their coverage

15   universe; they receive earnings guidance from the utilities themselves; and they have

16   the opportunity to speak with utility management.

17   Further, given the consensus that utility operating incomes are generally stable, analysts

18   have a much greater ability to reliably forecast annual earnings growth. Equity analysts

19   do not have an incentive to provide overly optimistic research reports because much

20   of this reporting is utilized by institutional clients such as pension funds or mutual

21   funds, and credibility is very important in maintaining that business relationship.

22   Finally, clients expect forecasting accuracy in the reports of equity analysts. If

23   compensation is based on the revenue an analyst generates for his employer, then that

1   metric would decline for an analyst whose reports were consistently incorrect. The

2   Wall Street Journal publishes an annual ranking of the best equity analysts in each

3   industry. The rankings are based to a large extent on the accuracy of the analysts'

4   earnings forecasts and their buy and sell recommendations. Inclusion on this

5   prestigious list is very important for both the analyst and the firm for which he or she

6   works. There is ample evidence to support the conclusion that earnings estimates for

7   utilities are reasonably accurate, and accordingly are relied upon by utility investors.

8   **Q.   Have you developed an analysis that reasonably addresses concerns over analyst**

9   **bias?**

10   A.   Yes. Though as indicated previously, I see no reason to believe analyst bias exists in

11   the analyst growth rate estimates I have used. However, I have provided a multi-stage

12   DCF analysis, which address the potential for analyst bias and concerns about whether

13   the analyst growth rate could be sustained in perpetuity. My multi-stage model uses

14   analyst growth rates for the first 5 years of the model. The remaining years reflect

15   GDP growth or the transition to GDP growth. I have only relied on the multi-stage

16   DCF results in combination with the CAPM in reaching my ROE estimate for FEI.

17   **VI. DR. BOOTH'S COMPARATIVE RISK ANALYSIS**

18   **Q.   Do you agree with Dr. Booth's risk ranking of Gaz Metro relative to FEI?**

19   A.   For the most part, yes. Gaz Metro is investor-owned, operates in a similarly

20   environmentally progressive province with ambitious clean energy targets, it also faces

21   stiff competition with electricity due to the combination of clean air regulation and the

22   plentitude of inexpensive legacy hydro. Gaz Metro is deemed to be slightly more risky

1   than FEI due to the greater price competition it faces from Hydro Quebec and because

2   of the slightly weaker demographics in its service territory. I consider Gaz Metro to

3   be FEI's closest investor-owned comparator, and though Gaz Metro, has a common

4   equity ratio of 38.5 percent as does FEI, Gaz Metro is also allowed 7.5 percent deemed

5   preferred equity at a return of 5.95 percent by its regulator.[34] This is equivalent to

6   roughly 43.5 percent equity at Gaz Metro's current authorized return of 8.90 percent.[35]

7   With consideration of Gaz Metro's deemed preferred equity, its allowed total equity

8   return[36] is above that being requested by FEI in this proceeding, which I consider

9   appropriate given its relative risk to FEI.

10   **Q.   On p. 78 of his testimony, Dr. Booth states that FEI is lower risk than Union**

11   **Gas. Do you agree?**

12   A.   No. Dr. Booth states that Union Gas has previously been considered riskier due to

13   its acquisition of Centra Gas Ontario when it assumed a large industrial load. For

14   many years, the OEB allowed a risk premium to Union of 0.15 percent on its ROE.

15   However, in recent years, the premium was determined to no longer be justified and

16   the OEB now views Union and EGDI as of like risk, both subject to the same equity

17   ratio. Further, Dr. Booth minimizes the greater political risk in BC relative to Ontario,

18   whereas in Ontario natural gas use for electricity generation is encouraged to curb coal

19   usage. This has directly benefited Union Gas and the opposite holds for FEI. Union

---

[34]   Per Valener Annual Report for the fiscal year ended September 30, 2015, p. 149, Gaz Metro earns 5.95%
       on deemed preferred shares.
[35]   Equivalent equity ratio is calculated as follows: ((5.95% x 7.5%)+(38.5% x 8.90%))/8.9%. or alternatively,
       this is equivalent to 46% equity with a blended equity return of 8.42%, calculated as follows: ((5.95% x
       7.5%)+(38.5% x 8.90%))/46%.
[36]   The sum of allowed return x equity ratio for both common and deemed preferred equity.

1   does not experience price competition with electricity to the extent that it is

2   experienced in BC; nor does Union experience supply risk due to its proximity to

3   plentiful Shale gas and multiple access points via the Dawn Hub, whereas FEI is

4   heavily reliant on Spectra's T-South pipeline, on which new demand on the line could

5   lead to future capacity constraints. The declining block rate structure employed in

6   Ontario is particularly attractive for industrial customers. All of these factors place

7   FEI at a risk disadvantage to Union Gas.

8   **Q.**   **On p. 50, Dr. Booth states "However, I note that consistent with Concentric's**

9   **review of allowed ROE's prepared for the Canadian Gas Association, the**

10   **statistical evidence of lower bond yields is for lower allowed ROEs than in 2012**

11   **and that allowed ROEs in both Alberta and Quebec have subsequently been**

12   **lowered." Have ROEs in Quebec been lowered?**

13   A.   No. Gaz Metro's ROE has not changed since 2012 and remains at 8.90 percent on

14   38.5 percent common equity[37]; Gazifere's ROE is 9.10 percent on 40 percent equity.

15   The only energy distributor that I am aware of whose ROE has changed in Quebec

16   since 2012 is the provincially-owned Hydro-Quebec Distribution. Its ROE was

17   actually increased in its last rate proceeding from 6.19 percent to 8.20 percent in 2014

18   and has been deemed 35 percent equity as far back as 2004.

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[37]   Decision, Régie De L' Énergie, D-2015-076, R-3879-2014, Phase 3 (May 26, 2015), the Régie states: "In
this case the Régie notes form the evidence submitted by Gaz Metro that the current financial and
economic conditions are similar to those that led the Régie, in Decision D-2013-036, to suspend
application of the AAF and maintain the rate of return at 8.9%. The Régie further notes that the risk free
rate observed in March 2015 is similar to the 2.55% rate observed in September 2012. Moreover, none of
the intervenors object to the Distributor's application." [Translated to English].

1 **Q.** **Dr. Booth suggests that the only reason that Ontario gas distributors continue to**

2 **earn 9.19 percent ROE is that the AAM formula has not been recalibrated. Is**

3 **this correct?**

4 A. No. The OEB staff recently conducted a thorough review of the AAM and concluded

5 that the AAM is working as intended and no changes to the formula were proposed

6 (EB-2009-0084). The Staff concluded, "Based on the results of this review, OEB staff

7 has concluded that the methodology adopted in late 2009 has worked as intended.

8 Movement in the parameters have followed macroeconomic trends and activity, and

9 have not resulted in excessive or anomalous volatility. While there is more volatility

10 observed in the financial performance of utilities, these are largely due to other

11 reasons."[38] Later in the Report, the OEB staff describe the ROE practices of other

12 Canadian regulators, indicating that "…for the most part, allowed ROEs are in the

13 range of 8.5% to 9.75%, and the OEB's formula produces results close to the

14 median."[39] Based on the findings of the Report, the OEB concluded that it would

15 make no changes to its cost of capital policy.[40]

16 **Q.** **Dr. Booth claims on p. 66 of his testimony that in a current hearing before**

17 **Newfoundland and Labrador BCPU, that Concentric ranked the BCUC**

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[38] OEB Staff Report, EB-2009-0084, Review of the Cost of Capital for Ontario's Regulated Utilities (January 14, 2016) at 1.

[39] Ibid at 22.

[40] See OEB cover letter, dated January 14, 2016, Re.: OEB Staff Report: Review of the Cost of Capital for Ontario's Regulated Utilities, coinciding with the issuance of the Staff Report.

1   **Commission as the "best" Canadian regulator, based on a DBRS point system.**

2   **Is this true?**

3   A.   To clarify, Concentric reproduced a point system used by DBRS to assess the

4   regulatory environments in jurisdictions throughout Canada, and BC received the

5   most points of the Canadian regulators. I stated, "British Columbia and Quebec are

6   the two Canadian provinces with higher scores than Newfoundland and Labrador

7   based on the DBRS data."[41] I find this analysis provides a helpful framework of

8   information on a given company's regulatory environment, although, I have not found

9   it necessary to adjust my recommended ROEs or capital structures of the companies

10   involved. Rather, the referenced analysis is one of many tools Concentric uses to

11   assess a utility's overall risk profile.

12   Q.   **What is your conclusion regarding the appropriate cost of equity for the**

13   **Company?**

14   A.   I affirm my ROE recommendations from my direct testimony. Based on my analysis,

15   the correct ROE for FEI is 9.5 percent on 40 percent equity.

16   Q.   **Does this conclude your testimony?**

17   A.   Yes.

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[41]   Report of James M. Coyne: Cost of Capital, prepared for Newfoundland Power Inc., Before the Newfoundland and Labrador Board of Commissioners of Public Utilities, Oct. 16, 2015, Appendix A, p. 22.