

**SUR-REBUTTAL**

**MARITIME ELECTRIC COMPANY**

EVIDENCE OF

Laurence D. Booth

BEFORE THE

Island Regulatory and Appeals Commission

.

**June 2019**

## I INTRODUCTION

### Q. PLEASE DESCRIBE YOUR NAME AND THE PURPOSE OF THIS SUR-REBUTAL EVIDENCE

A. My name is Laurence Booth and I filed evidence before the Commission dated March 2019 with a full CV. On June 3, 2019, I received from counsel rebuttal evidence filed by Mr. Trogonoski on behalf of Maritime Electric.<sup>1</sup> Counsel offered me the opportunity to file sur-rebuttal evidence, which I decided to do since Mr. Trogonoski's rebuttal mischaracterises my evidence in several places as well as being incorrect in numerous places. I have only responded to the comments of Mr. Trogonoski, any "new evidence" is only in response to new evidence contained in Mr. Trogonoski's rebuttal.

### Q. HOW HAVE YOU STRUCTURED THIS SUR-REBUTAL

A. Before addressing specific errors and misrepresentations of my evidence by Mr. Trogonoski, I would simply like to reiterate my recommendations and to clear up why my generic recommendations have not substantially changed since 2012, which Mr. Trogonoski seems to see as a weakness. To start I would point out the comments by the AUC in its 2018 Decision on fair rate of return and capital structure<sup>2</sup> where it stated (paragraph 355)

*In the 2016 GCOC decision, the Commission noted that Dr. Booth placed less weight on his CAPM models due to abnormally low interest rates. The Commission also noted Dr. Villadsen's testimony in the 2016 GCOC proceeding that she had placed less weight on her CAPM models than in the past. In the current proceeding, Mr. Hevert indicated that he had placed less weight on his CAPM model as well. The Commission considers that while interest rates have risen somewhat since the time of the 2016 GCOC proceeding, they are still low relative to average historical rates and accordingly, the Commission will give less weight to the CAPM ROE results put forward in this proceeding.*

I did not provide any evidence in the AUC's 2018 hearing, but they correctly summarised my judgement in 2016. This is a judgement I have held since 2012 and continue to hold.

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<sup>1</sup> Mr. Trogonoski's rebuttal of my evidence is 64 pages, whereas his direct is only one page more at 65.

<sup>2</sup> AUC 22560-D1-2018

Further, the AUC like the BCUC, the Regie and the PUB in Newfoundland have all looked at re-establishing a formula based ROE based on the CAPM. In each case, I recommended that a new ROE formula should result in ROE changes only iff the forecast long Canada bond yield exceeded a trigger of 3.8-4.0% and until that happens a fair ROE would be 7.50%. For example, in 2012 in testimony before the BCUC<sup>3</sup> I stated in the executive summary (page 3)

- *I judge the market risk premium to be 5.0% based on historic data, but academic experts, analysts and companies place it in a range 5.0-6.0% which I accept. This combined with my risk positioning of Canadian utilities (largely betas) in a range of 45-55% as risky as the market as a whole and my adjusted interest rate forecast lead to a risk premium based fair ROE for 2013 of 7.50%.*
- *My analysis of DCF fair rates of returns confirms that current risk premium estimates are too low, since real bond yields are below any standard equilibrium level. This information supports my credit market and Operation Twist adjustments and provides corroborating estimates of the fair ROE.*
- *FEI's own actuary produces very similar estimates of the both the Canadian market return and the market risk premium to my own once they are converted to a consistent basis. These estimates have been accepted by FEI in its analysis of its defined benefit pension plan, so I regard my own recommendations as middle of the road and consistent with external experts in the area.*
- *I would recommend an ROE adjustment model where the ROE adjusts by 75% of the forecast change in the long Canada bond yield and 50% of the change in the credit spread. This would be subject to a minimum forecast long Canada bond yield of 3.80% and my going in ROE recommendation. Similar models are in use by the Regie and OEB.*

As this summary clearly indicates, in 2012 I felt that abnormally low forecast long term Canada (LTC) bond yields produce risk premium estimates that I regarded as being too low and further that the ROE should not change until forecast LTC yields exceeded 3.80%. It should therefore not be a surprise that with forecast LTC yields at the time of my current testimony of 2.65% I continue to recommend a 7.50% ROE. Further, I expect to continue to recommend 7.5% as a fair ROE in the event that LTC yields do not recover. This is simply because risk premium models

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<sup>3</sup> Fair Return for Fortisbc Energy (FEI), November 2012.

are based on equilibrium conditions as private investors trade off risk against return. However, since the onset of massive bond buying programs in 2012, the yields on long-term government bonds have been determined by the central banks, not by private investors. As such, they have, to a large extent, lost their usefulness as the basis for a risk premium model.

This is my judgement, but other experts can disagree. In 2018 before the AUC Dr. Cleary on behalf of the Government of Alberta recommended a CAPM risk premium based ROE of 5.48% based on a forecast LTC yield of 2.60%, a 5.0 market risk premium, a beta of 0.45, a flotation cost adjustment of 0.50% and a 0.13% other adjustment. Other than the 0.50% flotation cost adjustment, I regard all of these values as being low and the overall value of 5.48% as unreasonably so. In fact, it is over 2.0% lower than what I would have recommended had I been asked to present evidence. I indicate this simply because of the statements in Mr. Trogonoski's rebuttal to the effect that my recommendations are unreasonably low and violate the fair return standard; the fact is they are anything but.

The AUC's judgement after hearing ROE evidence from one intervener (Dr. Cleary) and *three* company witnesses (Mr. Coyne, Mr. Hevert and Ms. Villadsen) was to apply some weight to their CAPM fair ROE estimate of 7.90% and award an overall fair ROE of 8.50%. In contrast, in his current evidence Mr. Trogonoski recommends an ROE between 9.20%-9.89%, where I estimate the mid point as 9.55%. In effect, Mr. Trogonoski is 1.05% above the AUC fair ROE and I am 1.0% below. In characterising my recommendation as violating the fair return standard Mr. Trogonoski goes too far, since his is clearly further away from the AUC's recent decision than is mine. However, I regard +/- 1% around a recent Board decision as in this instance as being reasonable given the much wider range that is often produced by more extreme witnesses.

I have two more over-riding comments. The first is that I use my 2010 evidence as a base since that is when I last presented evidence before the Commission. In contrast, Mr. Trogonoski uses the 2016 settlement. However, the general view on settlements is that they are a black box and you never know what was traded-off between the different components to make the overall settlement fair and reasonable. Consequently, I have concerns about his references to changes since 2016. I regard such comparisons as questionable.

Second, Mr. Trogonoski ignores my summary recommendations. To repeat my last paragraph with my recommendations:

*I regard MEC as being a low risk utility with a conservative common equity ratio. It is significantly lower risk than the comparable companies used by either myself, or Mr. Trogonoski. The closest comparable companies are the Alberta T&D companies where the AUC recently allowed an 8.5% ROE on 37% common equity. I would regard this as a useful step towards my own recommendation of a 7.5% ROE on 35% common equity.*

I do not regard this intermediate step of apply the AUC's T&D financial parameters of an 8.5% ROE on a 37% common equity ratio as violating the fair return standard.

What follows is more technical since it involves areas of finance where Mr. Trogonoski's views are at variance with those of both the professional as well as the academic finance community. In parts, I will refer to Mr. Coyne, who is Mr. Trogonoski's colleague at Concentric, since Mr. Trogonoski's evidence is almost identical to that put forward in previous cases by Mr. Coyne much of which has been rejected by regulators. The comments are more or less sequential in Mr. Trogonoski's rebuttal, but I can not correct every single misconception or error. Hence, silence on a particular criticism should not be taken as my agreeing with it.

### **1. Placing the Common Equity Ratio and ROE in perspective, page 6**

Mr. Trogonoski's comments, particularly the table on page 7, have no substance. Mr. Coyne presented a similar graph before the BCUC, where in cross-examination he indicated that he was not aware of any Board in Canada accepting such a table. The reason is simply that the table has no substance. For example, a utility could be allowed 100% equity financing at 5% and would be at the top of his Figure 1. Yet I doubt that any utility in Canada would be happy earning an allowed ROE close to its embedded debt cost.<sup>4</sup> Similarly, a utility could be allowed 10% common equity and a 25% allowed ROE and would be at the bottom of the table, but I am sure some would be quite happy with that. The point is that the common equity ratio times the ROE is only part of the utility cost of capital and legally what is required is a fair ROE on the invested

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<sup>4</sup> This assumes a stand-alone utility and the debt capacity is not transferred to a parent to use.

capital. So apart from the fact the graph ignores risk, and treats all the utilities as if they are the same, the table itself has no substance.<sup>5</sup>

## **2. Secured debt financing page 9**

At one time, most utilities in Canada issued secured debt financing (first mortgage bonds or FMBs), that is, a mortgage was registered against utility assets, much like a standard residential mortgage. This fell out of fashion as utilities morphed into utility holding companies and registering a mortgage across provincial and other boundaries became cumbersome, so many closed their mortgage bond programs and started to issue medium term notes (MTNs) due to their greater flexibility. For example, both FortisEnergy Inc (FEI), the former BC Gas, as well as Enbridge Gas Distribution (EGDI), the former Consumers Gas both largely issue medium term notes or MTNs, but still have the ability to issue first mortgage bonds.

The terms under which MTNs are issued differ from the terms for FMBs. For example, MTNs generally have an interest coverage restriction at the time of issue of 2.0, whereas FMBs have a maximum debt ratio of 25%. The last time I questioned EGDI about this was when they were almost shut out of the MTN market due to this interest coverage restriction. However, they maintained the ability to issue FMBs if this actually ever happened. In practise, in Canada DBRS uses a hierarchy principle where the removal of higher priority debt like FMBs means that lower priority debt like MTNs automatically get the higher rating of the FMBs. Consequently, the question of FMBs versus MTNs is moot in Canada and Mr. Trogonoski's comments to the contrary (page 9) are incorrect in the Canadian context.<sup>6</sup>

## **3. Capital Market Conditions Pages 10-21**

Mr. Trogonoski criticises me for discussing capital market conditions when my 7.5% ROE has not changed since 2012 and for using 2010 as a base. I have explained why settlements are generally not used as a reference point, but Mr. Trogonoski may not be aware that in Canada the fair return

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<sup>5</sup> There are very good reasons why EGNB and Heritage Gas are at the top of the graphic.

<sup>6</sup> I am aware that in the U.S context Moody's has upgraded the value of secured debt financing in its ratings.

standard is based on Northwestern Utilities vs. City of Edmonton (1929), where it was stated that a utility's rates should be set to take into account altered conditions in the money market. I would regard any fair return testimony that does not consider capital market conditions to be deficient even if for good reason the resulting recommendation is constant.

I stated in my evidence that interest rates could as quickly increase as decrease and such has proven to be the case. Currently (June 2019), RBC's forecast is below.

	Actuals					Forecast						
	18Q1	18Q2	18Q3	18Q4	19Q1	19Q2	19Q3	19Q4	20Q1	20Q2	20Q3	20Q4
<b>Canada</b>												
Overnight	1.25	1.25	1.50	1.75	1.75	1.75	1.75	1.75	1.75	1.75	1.75	1.75
Three-month	1.10	1.26	1.59	1.64	1.67	1.65	1.65	1.65	1.65	1.65	1.65	1.65
Two-year	1.78	1.91	2.21	1.86	1.55	1.50	1.60	1.70	1.75	1.85	1.85	1.90
Five-year	1.97	2.07	2.34	1.89	1.52	1.50	1.65	1.80	1.85	1.95	1.95	2.00
10-year	2.09	2.17	2.43	1.97	1.62	1.65	1.80	1.90	2.00	2.10	2.15	2.20
30-year	2.23	2.20	2.42	2.18	1.89	1.90	2.05	2.15	2.25	2.30	2.35	2.35
<b>United States</b>												
Fed funds**	1.75	2.00	2.25	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50
Three-month	1.73	1.93	2.19	2.45	2.40	2.40	2.40	2.40	2.40	2.40	2.40	2.40
Two-year	2.27	2.52	2.81	2.48	2.27	2.00	2.20	2.35	2.45	2.55	2.55	2.55
Five-year	2.56	2.73	2.94	2.51	2.23	2.05	2.25	2.45	2.55	2.65	2.75	2.75
10-year	2.74	2.85	3.05	2.69	2.41	2.25	2.45	2.60	2.70	2.80	2.85	2.85
30-year	2.97	2.98	3.19	3.02	2.81	2.75	2.90	3.00	3.10	3.20	3.20	3.20

Two points are relevant. First, forecast LTC yields are now 2.35% 18 months out or 0.30% *lower* than at the time of my evidence. Just as important RBC forecasted LTC yields 18 months out at 3.20% in 2012 when I derived my 7.50% ROE estimate and suggested it should not change until forecast LTC yields moved about 3.8%. That is, the forecast LTC yield is now almost 1.0% *lower* than when I first derived my 7.50% recommended ROE. Second, forecast LTC yields are now almost 1.0% *lower* than Treasury yields in the U.S. Standard risk premium evidence would indicate that this objective evidence of higher government bond yields in the US would indicate that fair rates of return on equity are also significantly higher in the U.S than in Canada. However, there is no recognition of this in Mr. Trogonoski's recommendations, that is, I do not see a 1.0% reduction in his U.S estimates when applied to a Canadian utility.

#### 4. The Importance of CAPM, page 22

Mr. Trogonoski takes issue with the survey work of Graham and Harvey (2001) and Baker et al (2011) that I reference in my evidence. Mr. Trogonoski questions them because they may be outdated and because I provide no evidence that they are most commonly used in regulatory

decisions in Canada. On the former, I would point out that survey work does not get published unless the results change, so the fact that I am not aware of current survey work simply indicates that nothing is new and the results still hold. On the latter, I first testified in 1985 in a Bell Canada case, where I presented both CAPM and DCF evidence. Subsequently, I have never seen any evidence filed before a regulatory board in Canada that does not include CAPM and other risk premium evidence. In contrast, DCF evidence, as I explain in my evidence, fell out of fashion in the 1990's as inflationary expectations dropped and with them dividend growth forecasts. This resulted in most regulatory boards in Canada basing their allowed ROEs almost entirely on the CAPM or generic risk premium models<sup>7</sup> or using these estimates as the basic input in an ROE adjustment mechanism, first with the BCUC in 1994 and then the NEB in 1995.

### **5. The Big Advantage of the CAPM that it is Intuitively Correct, page 23**

Mr. Trogonoski takes issue with my comment that the CAPM is intuitively correct. I find this strange since the CAPM is the only model that is covered in every single finance textbook and whose developers have won Nobel prizes (Bill Sharpe and Harry Markowitz). This would not be the case unless that model was intuitively correct. It is true that like any model it relies on assumptions about human behavior and as I discuss at length in my testimony the most basic one of a reliable trade-off between risk and return is currently violated. However, this is an implementation problem and does not detract from the fact the CAPM is intuitively correct.

Further, Mr. Trogonoski repeats the commission's repetition of the BCUC decision where they were concerned about PNG's low beta. However, as I discuss at length in my Appendix C, betas estimated over a particular time-period by definition *only capture whatever happened over that time-period*. They do not and can never capture what is expected to happen over a forecast time period. This is true of any calculated historic value not just the values needed in the CAPM. For example, currently in Toronto we seem to have missed out on Spring and the high is about 16C, whereas in March we often get higher values. If I relied on just what happened this year in June to state that Toronto is warmer in June than in March, people would correctly question that. We

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<sup>7</sup> Or at least expressing them in a CAPM framework. Of course any allowed ROE can be expressed as a risk premium over forecast LTC bond yields even if the inputs are determined using other models.

do need to adjust current values to reflect what is expected or normal. This is what I do in my testimony, where I present current beta estimates but judge them to have been anomalously low for several years.

However, my judgment is that the CAPM generally results in lower errors than applying the DCF model. The reason for this is that the risk free rate and market risk premium anchor the estimates so, for example, the CAPM should never result in an estimate lower than the risk free rate. In contrast, it is extremely easy to make significant mistakes with the DCF model.<sup>8</sup> In 41 years of teaching finance I have witnessed generations of students using the DCF model and saying: “the dividend yield is 2% and the company forecasts minimal growth for the next five years therefore the DCF equity cost is 2%” or the opposite “the company is forecasting 25% earnings growth over the next five years and doesn’t pay a dividend, therefore the equity cost is 25%.” In both case, the DCF model generates very significant errors, since the company at issue does not satisfy the assumptions required to use the constant growth version of the DCF model. In contrast, there are no special requirements to use the CAPM as it is applicable for all risky securities. This does not mean that using the CAPM is free from making mistakes, but simply that compared to the DCF model the risk is lower.

#### **6. Concern expressed by others in using the CAPM, Pages 25-29**

Mr. Trogonoski points out the concern of others using the CAPM, but apart from the fact that I also express concerns about using the CAPM in a mechanical manner, Mr. Trogonoski references a report by the Brattle group. What he fails to mention is that the Brattle group generally prepares ROE testimony on behalf of utilities and has done so in the past for TransAlta before the AUC, TransCanada and TQM before the NEB, Gaz Metro before the Regie and Union Gas before the OEB. In 2018 Ms. Villadsen of the Brattle group prepared testimony before the AUC on behalf of the ATCO utilities.

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<sup>8</sup> As I will show in discussing Mr. Trogonoski’s forward market risk premium estimate where in previous testimony using this DCF methodology his colleague at Concentric, Mr. Coyne, initially relied on the constant growth DCF model, but then dramatically reduced the estimates when using the multi-stage DCF model.

Mr. Trogonoski also misinterprets the passages in my textbook where he says (page 26) that my textbook says “that the CAPM is best suited for estimating the equity cost for companies with high growth rates and/or low dividends such as technology companies.” This is incorrect, as the referenced quotation says no such thing. The passage from the textbook says that the DCF model performs poorly for such firms, so it is best to rely on the CAPM. However, the CAPM performs equally well for all firms; there is no implication that it does not work for firms where the assumptions needed for the constant growth version of the DCF model are also met.

As I have previously stated, I filed testimony in the 1990s when the DCF model fell out of favour in Canada. It was replaced by an ROE automatic adjustment model based on the CAPM by the BCUC in 1994 and then by the NEB in 1995 and then in turn by most of the major regulatory boards in Canada. At no time was the DCF model the dominant estimation methodology in Canada. In contrast, the US continued to use DCF and placed little reliance on the CAPM or ROE automatic adjustment mechanisms. This is a key difference between the US and Canada. Further, the referenced quotations from my textbook are correct: to apply the constant growth version of the DCF model requires stringent assumptions not needed for the CAPM.<sup>9</sup>

Finally on the importance of the CAPM, nowhere do I place primary reliance on the CAPM. I specifically reject mechanically using the CAPM and instead rely on a conditional CAPM and even there I make further adjustments. Of note is that there is an equal amount of testimony in my report on risk premium versus DCF models and three different appendices on the market risk premium needed in any risk premium model (Appendix B), the CAPM beta (Appendix C) and DCF models (Appendix D). Here it has to be pointed out that *any* recommendation can be couched in terms of a risk premium over the forecast LTC rate. However, it should be clear that my recommendation is based on multiple sources of evidence that also includes investment banking expected return estimates, preferred share yields and Corporate Canada’s earned ROE

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<sup>9</sup> Note the textbook is now in the 4<sup>th</sup> edition and I suggest Concentric buy another copy or buy the US version which added Pam Petersen as a co-author. It was the first Wiley Canada textbook to be Americanised.

history. In particular, I state that currently it is best to place any ROE recommendation bracketed by the overall market return expectation and preferred stock yields.

### **7. The Risk-free rate, pages 29-30**

The base risk free rate should be the rate appropriate for the forecast test year since we are determining the fair ROE for that period, not a future period. This has been standard practice in Canada since the BCUC and NEB started using the Consensus Economics three and twelve month forecasts for the ten-year bond yield in their ROE adjustment mechanisms. In this context, I can find no empirical support for anyone believing that the long Canada bond yield will average 3.55% over the forecast test years 2019-2022. If that were a widespread acceptable forecast, investors would be holding LTC bonds expecting to incur very large losses since as interest rates go up bond values go down.<sup>10</sup> Mr. Trogonoski's LTC forecast for the 2019-2022 test years is simply inconsistent with current capital markets.<sup>11</sup>

### **8. The Size of the Market Risk Premium, page 30**

My market risk premium estimate of 5.0-6.0% is partly based on my own estimates provided in my Appendix B where the historic evidence going back to 1926 is for an average Canadian market risk premium of 4.67% based on simple average returns or 3.45% based on compound returns. I do not rely exclusively on either of these historic Canadian estimates for reasons I discuss extensively in my evidence. Instead, I also look at U.S historic estimates, the survey results of Fernandez and forecasts by investment banks. As I have explained before many boards, it is difficult to go against the judgment of thousands of professionals responding to surveys. Further, this time Fernandez also included the overall expected return on the equity market as well as the components, that is the market risk premium and the associated risk free rate. In addition, I provided the TD Economics forecast plus a large number of forecast returns produced by major US investment banks such as JP. Morgan, Bank of New York as well as Blackrock.

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<sup>10</sup> The *market* LTC forecast can be extracted from the term structure of interest rates and associated yields on zero coupon bonds.

<sup>11</sup> In contrast to Mr. Trogonoski's statement (page 30), I definitely do NOT forecast a risk free rate of 3.78%.

One wonders just how many independent forecasts are needed of the market risk premium to justify a value? In contrast, I could not find any independent support for Mr. Trogonoski's market risk premium evidence.

Of interest is that Mr. Trogonoski refers to Aswath Damodoran (page 34) as "being widely published" but I have never seen any research in any refereed journals by him. He does have two well-regarded textbooks. However, when I checked his web page<sup>12</sup> he has some data on the current market risk premium at 3.87%-5.93% depending on whether you use his 12 month out, smoothed or normalised estimates. This is within my 5.0-6.0% range and well below the values used by Mr. Trogonoski who states that I characterized his values (8.61% and 8.58%) as outliers, even though he freely admits on page 31 that the maximum value from Fernandez' survey of Canadian finance professionals is 7.20%. However, the methodology that resulted in Mr. Trogonoski's market risk premium estimates is not acceptable as explained below.

These estimates are what Mr. Trogonoski refers to as forward looking market risk premium estimates based on an aggregation of a large number of individual DCF estimates minus the forecast LTC yield. However, the growth rates in these DCF estimates are short term and assumed to go on forever, that is, Mr. Trogonoski uses the constant growth DCF model. To repeat what the AUC said about Mr. Coyne's similar use of this methodology last year (AUC 22570-D01, August 2, 2018, page 93)

*445. The Commission finds that both Mr. Coyne's and Mr. Hevert's estimates of the expected Canadian and U.S. market returns using the DCF model, which range from 12.65 to 14.84 per cent, are too high. These results are driven by unreasonable growth rate estimates. The Commission observes that the basis of Mr. Coyne's estimate of the Canadian market return relied on a sample with approximately 14 per cent of the companies having growth rates that exceeded 20 per cent. Turning to Mr. Hevert's estimate of the Canadian market return, approximately 16.5 per cent of the companies in his sample had growth rates that exceeded 20 per cent. Considering that the single-stage DCF model assumes a growth rate into perpetuity, the Commission finds the resulting estimate unrealistic, and affords Mr. Hevert's and Mr. Coyne's equity market DCF estimates no weight. In addition, the Commission notes that the expected market return rates used by Mr. Coyne and Mr. Hevert use analyst estimates of growth rates that far exceed GDP growth. Accordingly, the Commission finds that the expected market return*

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<sup>12</sup> <http://pages.stern.nyu.edu/~>

*rates put forward by Mr. Coyne and Mr. Hevert are too high. No meaningful evidence was provided that would enable the Commission to quantify the extent of the over-estimation in order to develop a more reasonable estimate.*

I did not participate in this hearing, otherwise I would have provided meaningful ways to assess the over-estimation this methodology produces. This is because in 2016 Mr. Coyne was subjected to cross examination on his estimates using this same methodology before the BCUC and in an undertaking produced market risk premium estimates which were *substantially* lower based on the *multi-stage* DCF model, that is the assumption that unrealistic growth rates would continue forever was mitigated.<sup>13</sup> Then in 2016 before the Newfoundland PUB he provided what he termed “more conservative” estimates based on the multi-stage DCF model which reduced his market risk premium estimates for Canada from 9.8% to 5.39% or by 4.41% and from 8.1% to 3.96% or by 4.14% for the US. Consequently, going from the constant growth to the multi-stage growth model reduces the forward-looking market risk premium estimates to a range of 3.96%-5.39% or to below my 5.0-6.0% range.

## **11. Beta estimates, pages 35-40**

Mr. Trogonoski continues to repeat the myth that Canadian utility betas revert toward 1.0 despite there being absolutely no evidence that supports that conjecture. In 2009 the AUC stated (GCOC 2009-216, Paragraph 251)

*“The Commission is persuaded by the empirical analysis of Drs. Kryzanowski and Roberts that there is insufficient evidence to support the use of adjusted betas for Canadian utilities if the purpose of the adjustment is to adjust the beta towards one and therefore, beta should not be adjusted towards one. Therefore, the Commission rejects Mr. Coyne’s beta results as unreasonably high, because he adjusted his beta estimates on the assumption that they would revert to 1.00. In other words, his analysis assumes that, in time, utilities would be as risky as the market as a whole.”*

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<sup>13</sup> Mitigated does not mean removed. All it means is that excessive growth rates beyond the second or third stage of growth is removed, not the first stage. Consequently, analyst bias in the first growth stage for example still biases the multi-stage DCF estimates.

At Schedule 3 of my Appendix C I show that since 1987 the average utility beta in Canada has never exceeded a value of about 0.60<sup>14</sup> and shows no sign whatsoever of trending toward 1.0.

Of course any estimate has to be adjusted if it is estimated over an anomalous period, but I am not aware of any Canadian regulator that automatically adjusts betas toward 1.0. I have traditionally weighted betas with their grand mean as originally suggested by Gombala and Kahl, which I take to be about 0.50. However, Mr. Trogonoski rejects the only empirical evidence on (US) utility betas in favour of the use of betas adjusted toward 1.0 for all stocks, *not* for utility stocks. His only support is a reference to two private US services where there is no indication that they are used in Canada in valuing Canadian utilities.<sup>15</sup> Notably he does not provide any beta estimates from *public* services or services available in Canada such as Yahoo, Google, the Financial Post, the Globe and Mail or RBC, none of which mechanically adjust betas.

It has to be emphasised that the Blume Methodolgy was based on work almost 50 years ago, yet Mr. Trogonoski criticises me for survey work published only 8 years ago as outdated. If we are dealing with all stocks where the average beta by definition is 1.0 weighting with 1.0 makes sense. However, there is absolutely no evidence that such a procedure makes sense for perennially low risk stocks like utilities and further Mr. Trogonoski has not cited any.

Finally, Mr. Trogonoski references Fernandez' concerns (page 40) on the problems of using *historical* betas. I completely agree as is obvious from my Appendix C. I report betas however, estimated for reference purposes since they are in the capital market.

## **12. CAPM, pages 41-42**

On pages 41-42 Mr. Trogonoski criticises me for not reflecting current capital market conditions and for not adjusting my CAPM or placing more weight on alternative methodologies. This is an

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<sup>14</sup> US electric company betas have come close to 0.9 but then again several have gone bankrupt due to failures in U.S regulation. PG&E looks to be going bankrupt for a second time. Westinghouse Electric has gone bankrupt and severely impacted Duke Energy mainly due to generation risk.

<sup>15</sup> Merrill is a private US source whereas Value Line is a US private subscription service and there is no indication that either have any market following in Canada. Further, Bloomberg does not "estimate" betas they provide the data and it is up to the analyst to choose a radio button to determine how they are calculated.

inaccurate representation of my testimony. To fill in some history, in the late 1980s into the 1990s I was using a market risk premium of barely 3.0% and judged the fair return to a Canadian utility as equivalent to that on the LTC bond. The reason for this is evident in Schedule 5 of my Appendix B where the beta of the LTC bond reached 0.50, approximately the same level that I now use for Canadian utilities. The reason for this was simply the huge deficits at the federal level and the fear that the Canadian government would simply inflate its way out of its deficit problems. This was a time when the Ontario Energy Board actually allowed an ROE less than the yield on the LTC bond.<sup>16</sup>

In terms of the posited inverse relationship between interest rates and risk premiums, in 1998 I published an article in the Journal of Applied Corporate Finance<sup>17</sup> and one of the conclusions was that “contrary to US results the utility risk premium in Canada does not seem to vary inversely with the level of market yields (if anything they vary positively).” This result was due to capital market conditions during these federal deficit years based on comparison with preferred stock yields. As these deficit problems eased my market risk premium estimate has increased and reached 5.0-6.0% in 2011. Since then, as I have previously explained, I put a floor on the fair ROE since I do not judge that massive bond buying by central banks has had an equivalent impact on utility investors.

In turn, this floor on the forecast LTC yield has been based on my DCF evidence, results from investment banks, defined benefit pension plan actuaries and preferred stock yields. To say that I have not questioned my CAPM evidence or put more weight on alternative estimates is incorrect.

### **13. My DCF Analysis, pages 42-48**

Mr. Trogonoski criticises my DCF evidence largely for being different from his.<sup>18</sup> However, more substantively he rejects my view, and the view of Canadian regulators, that GDP growth

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<sup>16</sup> I checked some old TransCanada testimony and before the NEB in December 2001 with my late colleague Michael Berkowitz we used a market risk premium of 3.5-4.0% in 1994 and 4.50% in 2001.

<sup>17</sup> A New model for estimating risk premiums (along with some evidence of their decline), JACF (Spring 1998).

<sup>18</sup> He does criticise me for including a negative growth rate but the estimates are what they are. You can not delete low estimates you do not like but include excessively optimistic values you like; that renders

places a cap on growth rates. This is explicit on page 46 of his rebuttal. However, this is not a matter of economics or finance but arithmetic. If company X grows at 10% and the economy grows at 5% then its earnings become by definition a bigger share of earnings since GDP equals GNI or national income. If this continues forever, as assumed in the constant growth DCF model, then each year the firm's income or earnings become a bigger share of national income and eventually it will be the total economy. Clearly, this is not possible. Of course, some firms can exceed the GDP growth rate for certain periods of time as has happened for some Canadian utilities and most obviously for firms like Amazon, Google and Apple. However, this cannot continue indefinitely which is why we use multi-stage dividend growth models when growth rates clearly exceed GDP. Similarly, we assume that in the long-run dividend growth for the economy as a whole matches that of GDP, otherwise the share of other income notably labour income must fall, since another law of arithmetic is that percentages have to add up to 100%.

In terms of analyst optimism bias, I am not aware of any academic research that concludes that they are unbiased. The best that can be said is that after the global settlement, when investment banks settled investor law-suits for \$1.4 billion, is that they were for a time less biased. Moreover, citing a firm that sells analyst forecasts, like Zacks (page 47), for claiming these forecasts are unbiased is equivalent to believing everything a used car salesman says.

#### **14. Sustainable growth, pages 49-53**

Mr. Trogonoski criticises me for partly relying on growth that is actually sustainable from utility operations, rather than relying on optimistic analyst expectations. In particular, he criticises me for not including “sv” growth where s is the proportion of equity financing from new share issues and v is the market to book ratio minus 1.0. In my judgment this adjustment is generally of very limited importance. The reason is that for utilities the market to book ratio should be close to 1.0 for effective regulation, so the v term should be very small if not non-existent as indicative of poor regulation. Similarly, for most Canadian utilities the s term is usually zero as utilities are cash-cows, that is, they generate cash rather than issuing shares to raise cash. As indicated in the

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the statistical exercise entirely judgemental. The judgement should come after the estimates, not during the estimation process.

introduction to my testimony most Canadian utilities have disappeared from the public markets as they have been used as cash generators at the core of a holding company. The result is that the product of the two terms  $sv$  is not material as the product of two very small numbers and certainly not significant compared to the estimation problems elsewhere.<sup>19</sup>

I am also confused by Mr. Trogonoski's reference to my sustainable growth estimates, where he states that "Dr. Booth has assumed the reasonableness of analysts' ROE projections, while contesting the same analysts' projections of company growth rates." This is categorically incorrect, as I do not use analyst projected ROE estimates anywhere in the DCF estimates. I simply use the actual ROE reported by S&P.

Finally, Mr. Trogonoski takes issue with my specific DCF estimates. However, what he fails to acknowledge is that I do not use individual estimates. Instead, similar to beta estimates, individual DCF estimates are always subject to measurement error, so the focus is on the sample average and median. For example, Mr. Trogonoski points to Duke Energy, Southern Company and PNM resources as examples of very low retention rates, but that simply highlights the fact that they are paying out almost all their earnings as dividends because their earned ROEs are so low. Again, this simply reflects the variability in actual ROEs for these US utilities and the fact they are not comparable to low risk Canadian utilities like MEC. This simply amplifies the fact that these US utility holding companies have historically had all sorts of problems including significant losses and dividend suspensions. As I showed on page 21 of my Appendix D, their average compound growth rate in dividends since 1961 is 0.6% significantly less than the compound growth rate of US GDP of 6.5%. Assuming that these US utilities will in the future grow greater than U.S GDP given this history is optimistic.

#### **Dr. Booth's risk assessment, page 53-64**

Mr. Trogonoski takes issue with my risk assessment of MEC and cites the Commission's previous assessment. I have presented business risk testimony before most major regulatory

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<sup>19</sup> An additional problem is determining why the number of shares outstanding has changed. For example, often this is due to the exercise of executive stock options. Further  $v$  is often negative for firms buying back their shares. I first became aware of the  $sv$  problem when preparing testimony before the U.S Interstate Commerce Commission for Dr. Myron Gordon in 1982.

boards in Canada, but in my experience the company and its witnesses always want to talk about general risk factors and avoid anything quantitative. However, risk is the probability of incurring harm, which in finance means losing money. This is why I focus on short run and long run risk, where short run is the ability to consistently earn the allowed ROE, whereas long run is the death spiral where customers drop off the system. In this respect MEC is the same as most Canadian T&D utilities in earning its allowed ROE largely because of protective regulation. This is in contrast with US utilities that do not generally have the same amount of deferral accounts and often operate under historic rate base regulation rather than forward test years.

Of course, efficient management of the utility is a help in earning its allowed ROE but this is the job of management and they do not deserve a higher ROE simply because they are doing their job. Instead, risk is the effect of unpredictable events that might happen and are not collected in a deferral account to be recovered from future ratepayers. In my experience these are few and far between. It might be thought as Mr. Trogonoski (page 60) claims that just because it has not happened in the past does not mean it can't happen in the future. This is also true. However, if it has never happened for any Canadian T&D utility over very long periods of time then it beholds the utility witness to show why this time is different and why. In this respect, I judged Pacific Northern Gas (PNG) to be the riskiest Canadian T&D because it was heavily reliant on a few industrial users and its ability to reallocate load was limited. I see nothing in the filing by MEC or Mr. Trogonoski's evidence to indicate that MEC has any specific exposures that indicate higher risk.

Of importance is that utility size does not indicate risk. Size does impact debt financing in that there are scale economies to issuing debt that shuts small firms out of the MTN market or necessitates mortgage bond financing or in the case of PNG medium term bank financing. However, this is not a factor for MEC's equity, which is owned 100% by Fortis where MEC is simply in all respects a division of a very large multinational utility. Moreover, it is a specific decision by Fortis to have MEC raise funds under its own name. Other small utilities like ATCO Pipelines have their financing mirrored down from their parent corporation and do not raise capital under the own name.

One final comment is that I specifically refer to MEC as having an A bond rating and go through the logic of how S&P arrived at that decision on page 67. Any reference to A- is in the context of the AUC's credit metric analysis as to the rating that pops out of certain ROE and common equity ratio combinations.

**Q. DOES THAT COMPLETE YOUR SUR-REBUTTAL OF MR. TROGONOSKI?**

**A.** Almost. In several places Mr. Trogonoski as an American naturally refers to practices in a foreign country, that is, the United States, as if US practices take precedence over practices in Canada. For example, he refers to the FERC's use of DCF and their attitude towards sustainable growth. However, he fails to list other decisions of the FERC. The AUC noted for example (2009-216, paragraph 183)

*In addition to the evidence referred to above, the Commission has also been assisted in arriving at the above conclusion that regulatory risk is higher in the United States than it is in Canada by the recent finding of the FERC which was referred to in the evidence of Dr. Safir with respect to the inclusion of TransCanada in the proxy group it used to evaluate U.S. equity returns, stating:*

*Also, TransCanada's Canadian pipeline is subject to a significantly different regulatory structure that renders it less comparable to domestic pipelines regulated by the Commission.*

What is clear, for example, is that the FERC regarded its regulatory policies as different from those of the NEB.

Further when the AUC cross examined Ms. Abbott who appeared on behalf of Altalink, there was the following exchange (2009-2216, paragraph 186)

*Q. Can I ask you, ma'am, to turn back to page 36 of your evidence. 57.05.*

*A. MS. ABBOTT: Okay.*

*Q. Page 36.*

*A. MS. ABBOTT: Yes?*

*Q. Line 732.*

*Q. The last line of that page, line 732, you indicate the average U.S. utility is rated BBB, and that there are no longer AAA companies?*

*A. MS. ABBOTT: Yes.*

*Q. Would that suggest that U.S. utilities are riskier, on average, than Canadian Utilities?*

*A. MS. ABBOTT: Yes.*

*Q. Could higher risk for US utilities justify a higher ROE and common equity ratio for US utilities when compared to Canadian Utilities?*

*A. MS. ABBOTT: It could, yes.*

*Q. Ms. Abbott, do you recall in the recent GTA hearing, you were asked by the Commission counsel about rating agency concerns about execution risk and the risk of having cost disallowed because they were found to be imprudent. And in your answer you refer to the State of Illinois. And if you'd like to turn it up, it's transcript volume 7, page 1083. At line 9.*

*A. MS. ABBOTT: Line 9. Okay.*

*Q. Your statement there was:*

*"There is a very different regulatory scheme in the States than there is in the Province of Alberta and a different record in terms of costs."*

*Do you see that, ma'am?*

*A. MS. ABBOTT: Yes.*

*Q. What did you mean when you say the regulatory scheme in the US is very different than it is in Alberta?*

*A. MS. ABBOTT: Well, first of all, there is 50 different states and there are 50 different regulatory procedures in the States. And there are very few that have as many adjustment clauses as does Alberta; and there are none that I know of where companies are mandated to -- to build projects in the States.*

It is clear from the above exchange of views that Canada is not the US and I am not aware of any Canadian regulators that have accepted comparison with US proxy groups without making adjustments. I therefore reject Mr. Trogonoski's assumption that a comparison with US utility common equity ratios that are 14% higher than my recommendation has any validity. Canadian utilities have consistently had higher bond ratings than US utilities while operating with both lower allowed ROEs and higher debt ratios. The reason is that they are lower risk as has been recognised in the past by Moody's.

I do accept that the AUC common equity ratio of 37% is marginally lower than the average of the Canadian utility group, but this average is disproportionately influenced by Ontario for reasons I discussed in my testimony and Newfoundland Power.

**Q. DOES THIS COMPLETE YOUR SUR-REBUTTAL?**

**A. Yes.**