BRITISH COLUMBIA UTILITIES COMMISSION

IN THE MATTER OF THE UTILITIES COMMISSION ACT
S.B.C. 1996, CHAPTER 473

and

An Application by

Terasen Gas Inc. ("TGI"), Terasen Gas (Vancouver Island) Inc. ("TGVI"), and Terasen Gas (Whistler) Inc. ("TGW") (collectively the "Terasen Utilities")for Return on Equity and Capital Structure

Vancouver, B.C.
October 1, 2009

PROCEEDINGS AT HEARING

BEFORE:

A. J. Pullman,	Chairperson
D.A. Cote,	Commissioner
M.R. Harle,	Commissioner

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MR. JOHNSON: Q: And that 1.38 percent is also a historic average, is that right?
MR. BOOTH: A: That's right. It's historic yield difference. But it can't be much more than that, because you've got yields on long Canadas of 4 percent, and when we get back to 2 percent inflation, we'll get back to 2, 2.5 percent Treasury bill yields. So, it might be 1.5 percent, but it's not going to be very much different from that.

Proceeding Time 9:43 a.m. T16

MR. JOHNSON: Q: Thank you. Can I ask you to return to your Appendix G, please. And also the response to the Commission's information request 16.1.
MR. BOOTH: A: Yes.
MR. JOHNSON: Q: Appendix G relates to U.S. regulated utilities and the response to BCUC information request 16.1 says that you have not followed U.S. utilities because you don't consider them to be relevant.
MR. BOOTH: A: That's correct. I've been dragged into looking at U.S. utilities because U.S. witnesses constantly bring them in as proxies.
MR. JOHNSON: Q: Have you ever appeared as an expert witness in a U.S. regulator proceeding relating to a public utility?
MR. BOOTH: A: NO.
MR. JOHNSON: Q: Appendix G, page 1, line 15 to --

of that time said before the OEB, but if I'd been contacted at that time, I would say that there's no need to offer to the equity holders a rate of return that's equivalent to the bond yield, because the bond yield captures effects that aren't priced in the equity market.

MR. JOHNSON: Q: Okay.

MR. BOOTH: A: And that's the same thing as I was saying in the 90s when I was recommending a premium over the long Canada bond yield that was barely a premium over the corporate bond yield, because of all of these other factors that go into pricing equities and bonds.

I mean, they really are two different markets. They march to different drummers.

MR. JOHNSON: Q: Referring to the automatic adjustment mechanism, Dr. Booth, if I understand your evidence and what was said by your counsel in his opening statement, you advocate the continuation of the automatic adjustment mechanism.

MR. BOOTH: A: Correct.

MR. JOHNSON: Q: And you, or at least your clients, recommend that the results of the current automatic adjustment mechanism be used to set ROE for 2010.

MR. BOOTH: A: I would recommend that. I'm not quite so sure of everybody that has been associated or

sponsored my evidence.
MR. JOHNSON: Q: Okay. That's fine, if you -- I'll take it just as your view.
If I could ask you to turn to BCUC Information Request 13.1.
MR. BOOTH: A: Yes.
MR. JOHNSON: Q: And that was asking you about utility risk premiums, et cetera, and it refers to the automatic adjustment mechanism. And I'd just like to refer you down to the last four lines of 13.1.
MR. BOOTH: A: Yes.
MR. JOHNSON: Q: It says: "He would support ..." And that's a reference to you, I believe.
MR. BOOTH: A: Yes.
MR. JOHNSON: Q: "He would support a trigger for
a review of the BCUC ROE formula, if the formula generated a utility risk premium less than twice the current spread on TGI's long-term debt over equivalent maturity long Canada bonds."
Do you see that?
MR. BOOTH: A: Yes. Yeah.
MR. JOHNSON: Q: And that is your -- you support that sort of approach?
MR. BOOTH: A: Yeah, I mean, this was -- I believe that the conditions in the markets were so dangerous six to

nine months ago that I can understand why the utilities would want to have a hearing. I don't agree with a hearing simply because of normal predictable variations in the business cycle. And this was a trigger, in fact, that Atgar recommended in the generic Alberta hearing in 2003.

So, if the spread on the utility bonds gets to be like 400, 450 basis points, as it did six -- or approximately did six, nine months ago, then half that 225 basis points produced by the ROE formula, I think that indicates that something significant has happened in the markets that's worthy of a hearing, to find out what exactly is going on.

MR. JOHNSON: Q: Okay. Your long-term forecast is four and a half percent. You've said that earlier.

MR. BOOTH: A: Yeah.

MR. JOHNSON: Q: By my calculation, the ROE under the automatic adjustment mechanism, using a 4.5 percent long Canada forecast, would yield a return on equity of 8.5825.

MR. BOOTH: A: Yes.

MR. JOHNSON: Q: Okay? And so the spread then would be 4.08.

MR. BOOTH: A: I'll accept that.

MR. JOHNSON: Q: Okay?

MR. BOOTH: A: So that's the spread of the ROE over

TGI's borrowing cost.
MR. JOHNSON: Q: No, that's -- no, excuse me, that's the spread -- that's the difference between the long -- your long Canada forecast --
MR. BOOTH: A: Oh, okay, yes, okay.
MR. JOHNSON: Q: -- and the ROE.
MR. BOOTH: A: Yeah. Yeah.
MR. JOHNSON: Q: 4-08. And you heard evidence here that the spread today for TGI debt is about 170 basis points?

Proceeding Time 11:20 a.m. T31

MR. BOOTH: A: Well, I heard yesterday it was 165 to 170 and then Scotia was 155. So I heard different numbers from different people.
MR. JOHNSON: Q: Well, I think the evidence of Mr. Dall'Antonia was 165 to 175.
MR. BOOTH: A: Yes.
MR. JOHNSON: Q: So if you'll just take the mid-point of 170.
MR. BOOTH: A: Yes, that's fine.
MR. JOHNSON: Q: And double that, that would be 340 basis points.
MR. BOOTH: A: So my trigger wouldn't be triggered at the moment.
MR. JOHNSON: Q: Your trigger wouldn't be triggered at the moment, right.

MR. BOOTH: A: But it would have been triggered, obviously, three, six months ago.
MR. JOHNSON: Q: That's just what I was going to say to you, Dr. Booth. You gave evidence in Alberta. The evidence was dated March 2009.
MR. BOOTH: A: Yes.
MR. JOHNSON: Q: Your recommendation at that point was 7.25 percent and your long Canada forecast was 4.25 percent?
MR. BOOTH: A: Correct.
MR. JOHNSON: Q: And so if I do the same calculation there, your trigger would have been exceeded or it would have triggered.
MR. BOOTH: A: I think at that time we were at the tail-end of the serious situation, and I think that -- I can understand why utilities would want a hearing.
MR. JOHNSON: Q: Okay, and --
MR. BOOTH: A: But just because they -- I think that they want a hearing, doesn't mean to say that I think that the allowed rate of return should be changed. It's just that I can understand that the capital markets have changed to such a significant degree that there's a prima facie case for looking into it.
MR. JOHNSON: Q: But in your Alberta evidence you didn't give any indication that you were supporting such a trigger, did you?

MR. BOOTH: A: No.
MR. JOHNSON: Q: Okay. Now, your recommended ROE --
MR. BOOTH: A: Because there was a hearing.
MR. JOHNSON: Q: Your recommended ROE in this proceeding is 7.75 percent.
MR. BOOTH: A: That's correct.
MR. JOHNSON: Q: And if the -- I use that number instead of the number out of the automatic adjustment mechanism, I end up with a utility risk premium of 3.25 percent, the difference between 4 and a half and 7-75.
MR. BOOTH: A: Okay.
MR. JOHNSON: Q: Okay. And with the same TGI spread of 170 basis points, multiply that by 2. It would be 340 basis points and so on your recommendation, we would already be triggered.
MR. BOOTH: A: We are triggered. We are having a hearing at the moment. I mean, all I'm saying is that I would accept that the automatic adjustment model, I think, gives reasonable results given the business cycle, and you wouldn't want to trigger a hearing indiscriminately based upon normal business cycle impacts. But if there are significant changes in the capital market, I can understand why the utility and the Panel members would want to hear it.
MR. JOHNSON: Q: Now, as we talked about earlier at the

TransCanada, the foreign interest in TransCanada has gone down. So these are preeminently Canadian stocks that finance in the Canadian market. And I see no problems in accessing equity market on the part of Fortis, which it has done in the last six months. So I don't see any access problems for Canadian utilities at all.

COMMISSIONER HARLE: Thank you.

THE CHAIRPERSON: Good morning. Sorry, good afternoon, Dr. Booth.

MR. BOOTH: A: Good afternoon.

THE CHAIRPERSON: During the break I gave your counsel an article entitled -- a copy of an article titled "How Did Economists get it so Wrong". This is an op-ed piece, I believe, by a gentleman called Paul Krugman in the *New York Times* of September 6th, 2009.

Mr. Fulton, can we give that an exhibit number?

MR. FULTON: Yes, Mr. Chairman. A2-5.

THE CHAIRPERSON: Thank you.

(ARTICLE ENTITLED "HOW DID ECONOMISTS GET IT SO WRONG?" BY PAUL KRUGMAN FROM THE *NEW YORK TIMES*, SEPTEMBER 6, 2009, MARKED EXHIBIT A2-5)

THE CHAIRPERSON: And you've had an opportunity to read it.

MR. BOOTH: A: I have.

THE CHAIRPERSON: I hope you enjoyed it.
MR. BOOTH: A: Yes. I've heard the same sentiments many times before.
THE CHAIRPERSON: Am I right in assuming that this article is all about something called the efficient market hypothesis?
MR. BOOTH: A: It's all about whether or not macro-economics exists as a separate subject. Part of that is the efficient markets hypothesis. Perfect markets, rational decision-making and whether or not there is what we call market failure. So the efficient market hypothesis is one component of a rubric, a whole set of principles that basically do away with the government. So in that sort of set of principles, there is no role for the government whatsoever.
Now, I'd have to say I got most of my academic training in the UK and at that time we talked Keynes economics and we believed in the role of government and we believe that Keynes added something -- he invented macro-economics. Prior to that in classical economic theory there was no role for the macro-economist or there was no role for government. And it was a complete shock to me to come to the United States and discover that Americans had such a fear of government and such a fear of government that I would read papers by -- particularly coming out the

University of Chicago that would sort of, to me, bend over backwards to find arguments to avoid any role of the government in the economic system at all.

And the history, really, of the last 30 years has been the deregulation of big suades [sic] of the U.S. economy on the basis there was no need to regulate, there was no role of the government. And the peak of this, I think, was ten years ago when the U.S. removed the barriers between investment banking and commercial banking, and that directly has led to a lot of the financial problems we've had over the last year.

So this I happen to agree with. I'm very much on the side of Paul Krugman. I'm very much on the side of basically Harvard and Yale versus Chicago. That's the split in the United States. Harvard and Yale believe that there are imperfections in markets, there is a role for the government, there's a role for regulation, that we have to be protected from ourselves. Chicago believes we don't have to be protected from ourselves, we are totally rational individuals. Everybody in the economy is totally rational, markets are equilibrating and there's no possibility of a market crash.

THE CHAIRPERSON: Did the efficient market hypothesis result in CAPM? I mean, is CAPM a spin-off or a

subset of the efficient market hypothesis?
MR. BOOTH: A: The CAPM is one model that's consistent with a standard equilibrium which that -- I mean, as I mentioned to Mr. Johnson, you can drive the CAPM two ways. One, is by assuming that everybody is rational when they maximize the utility, the chose the portfolios. They know exactly rates of return. They are completely cool, they understand diversification, they never react to problems in the markets. They do everything totally rational. So clearly that's not the way the market has behaved, otherwise we wouldn't have seen the crisis over the last year.

The other role is simply that there's no arbitrage opportunities in the capital market. That essentially you could create portfolios and arbitrage one against the other. And that's almost the way Krugman here refers to the fact, the one catch-up versus two catch-ups. It's basically what we call relative pricing. If you price one, you can price something else relative to that securely. That's arbitrage pricing. The central problem -- and that justifies the capital asset pricing model.

But the central problem is you can price everything relative to everything else, but how do you price in absolute terms? And that's the Shiller critique that started twenty years ago, that finance can get everything right in relative terms, but what we don't get right is the big picture. Is the overall market over-valued or under-valued? And so, CAPM doesn't rely upon over- and under-valuation. It basically is based upon this relative pricing.

Proceeding Time 12:20 p.m. T39

So, markets are incredibly efficient in the sense that, relatively, it's incredibly difficult to make money in the stock market. So, and that's one of the spin-offs of efficient markets. That's the -- so the answer to Shiller and Krugman and everyone else, if I was from the University of Chicago, is if the markets are so efficient -- inefficient, how come you're not extremely wealthy?

So there's no question the markets are very efficient. There's no question the markets are very efficient pricing one security relative to another. But, the big problem we have in capital market is momentum works. And momentum is what generates bubbles. So, momentum, we know, when your prices are going up, they tend to go up. So, and that's the big controversy between Keynesians and neo-classical finance and economists. Classical economics always said, "Speculation is stabilizing." That if prices go up too much, really cool sophisticated people are going to sell, drive them back to their equilibrium levels. Keynes said, "That's nonsense, it doesn't work like that." When prices go up, people simply buy more because they think they're going to continue going up, and they work on momentum. And Keynes was a brilliant speculator.

And to put things in perspective here, Keynes endowed his college in Cambridge with a huge amount of money. Irving Fisher, who's the intellectual father of most of the efficient markets hypothesis, lost a huge amount of money for Yale, because he was in charge of Yale's foundations. So, and the same thing here is they're referring to Gene Fama, just shortly before the collapse in the housing market, saying, "Well, the housing market is perfectly efficient." They're not efficient. I mean, there are significant problems in every financial market, generally driven by momentum. And momentum, you make a lot of money until suddenly you get a crash. Predicting when that crash comes is incredibly difficult. And if we could do that, then you make a lot of money.

THE CHAIRPERSON: I've read the --

MR. BOOTH: A: But CAPM is not based -- is not -- CAPM is part of this whole rubric that you don't need efficient markets to generate the CAPM. You can get it on the basis of relative pricing.

THE CHAIRPERSON: And finally, I was -- the reason I actually printed this thing off was that, on page 12, there are the words of H. L. Mencken, who I thought was equally as suitable as Lucy and Beethoven's wife, and there -- who said, "There is …" not Beethoven's wife, H. L. Mencken:

"There is always an easy solution to every human problem - neat, plausible and wrong."

And I take it that would not be your epitaph of CAPM.

MR. BOOTH: A: No, I think the CAPM -- just to put it in perspective, I tell my students that there's three basic laws in finance. So if they're half-asleep in my class, which generally they aren't, but if they are half-asleep in my class and I ask them a question and they wake up, I tell them the first answer is "time value of money". And then if they're still sleeping, then they're supposed to tell me "risk value of money". And if they're still sleeping, and they still don't know the answer, the third answer is "tax value of money". If you can understand time value of money, risk value of money, tax value of money, you can understand the vast bulk of finance.

Which is why, when we look at equities, we say first of all time value of money. You invest in equities, you want some return for time value. CAPM captures that.

Secondly, you want to capture risk. And the CAPM captures that. And it captures that in a really elegant way by saying, "What's the overall market risk premium?" And all of our evidence is based upon judgment constrained by facts. The facts are, the market risk premium, 5 - 6 percent, conceivably 7 percent, but there's a limit on what the market risk premium is, because if you start looking at those sorts of risk premiums, and then you compound forward 10 or 20 years, nobody would be out of the equity market. So, there are limits on what you can sort of come up with for the market risk premium. And then you've got beta.

And then the final one is the tax value of money, and in my testimony in 2005, I spent a lot of time talking about the tax value of money, because why equities frequently trade on lower yields, lower expected rates of return than bonds, is because interest income is fully taxable in Canada. So anybody that holds government of Canada bonds, you're immediately paying 46 percent tax on any interest you get. Whereas equities, you get the dividend tax credit. And that's why up until this last year, preferred shares sold at lower dividend yields than do government of Canada bonds.

Proceeding Time 12:25 p.m. T40

And when you look at utilities, the overwhelming characteristic is that they're low-risk high dividend paying shares. And they're very similar to preferred shares, which is why traditionally I provided evidence up until five or ten years ago partly based upon yields on preferred shares, because they're the closest comparables to utility equity shares, not long Canada bonds.

So if I was actually re-doing an adjustment mechanism all over again, I would say the best way is to look at some premium over preferred share yields, or at least take those into account. Because they're similarly-taxed investments. And that's one of the main reasons why the expected rate of return on the allowable rate of return on a low-risk utility can be less than the yield on its own debt.

Time value of money, risk value of money, tax value of money. You have to look at all three, you can't just sort of look at one component.

THE CHAIRPERSON: Thank you. I have no further questions.

Mr. Wallace, do you have any re-direct?

MR. WALLACE: No, I don't, thank you, Mr. Chairman.

THE CHAIRPERSON: This witness is excused.

(PANEL ASIDE)

THE CHAIRPERSON: Mr. Johnson, before we break up, there